Research Report No. 10
July 1954

MEASURED CROP PERFORMANCE

SMALL GRAIN

1954

By

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and

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Introduction

In order that the small grain growers of North Carolina may have available to them a reliable source of variety performance information, the Agricultural Experiment Station conducts, annually, variety trials on farmer fields in the principal small grain producing areas of the state.

This release presents the yield records for all varieties evaluated for a period of three seasons; 1952, 1953, and 1954. Likewise, the performance records for all entries compared in the current season (1953-1954) are reported.

Test Locations

Five field tests chosen to represent different climatic and soil conditions were conducted in 1953-1954 and the locations are shown on a map of the state. From tests of this kind, conducted for several seasons, the records accumulated indicate which varieties possess desirable characteristics and are capable of producing consistently superior yields in a given area. Therefore, a list of varieties that have excelled and seem most likely to produce superior yields and that possess desirable qualities is shown directly below the map for the three geographic regions.

The testing agency recognizes the cooperative spirit and civic-minded service rendered by the farmers who have furnished the land and prepared it for these tests. The county agents have contributed liberally of their time in locating and observing these tests as well as utilizing the information derived from them. The testing agency appreciates the help of the Vocational Agriculture students of Balds Creek High School in seeding the Catawba County test and the help of members of the Rockingham County 4-H Clubs in seeding the test in that County. The services of Scientific Aid, T.W. Avent, who assisted in conducting the experiments, the collection of data and compilation of the records is recognized.

These tests were conducted on privately operated farms and branch experiment stations as follows:

1. Farm of Fred H. Sigmon, Catawba County, Newton, County Agent, J.F. Giles and assistants cooperating.

2. Farm of C.L. Hatley, Stanly County, New London Rt. 1, County Agent, V.A. Honeycutt and assistants, cooperating.

3. Farm of W.P. Bevil, Rockingham County, Reidsville, Rt. 6, County Agent, J.E. Foil and assistants cooperating.

4. Rodman farm, E.L. Slack Mgr., Beaufort County, Pantego. County Agent, W.L. McGahey and assistants, cooperating.

5. Tobacco Research Farm, Wallace J. Dickens, Supt. Columbus County, Whiteville. County Agent, C.D. Raper and assistants cooperating.

Agencies Sponsoring Entries

Coker Pedigreed Seed Co., Hartsville, S.C.

T.W. Wood and Sons, Inc., Richmond, Va.

Marrett Farm and Seed Co., Westminster, S.C.

North Carolina Agricultural Experiment Station, Raleigh, N.C.

Management of Test Fields

Cultural practices such as seed bed preparation, date of seeding, fertilization, amount and time of applying nitrogen top dressing, were in accord with good farm practice and recommendations of N.C. Agricultural Experiment Station.

All planting, note taking, harvesting, and recording of data was directly supervised by personnel of the Department of Agronomy, North Carolina Agricultural Experiment Station.

Seasonal Conditions

Seedings were made under favorable conditions, in that smooth, firm and shallow seed beds were prepared, adequate fertilizer used, and optimum seeding dates observed. The soil moisture and rainfall following seeding was insufficient to germinate the seed in the Catawba and Rockingham locations. Five weeks elapsed before the grain sprouted in these two tests and as a result of this delay the seedlings entered December with few roots and minimum growth.

Under the prevailing conditions the stands of oats were reduced by low temperatures and soil heaving. The spring conditions for growth and development were good.

Winter Hardiness.

In Piedmont North Carolina the characteristic of winter hardiness in oat varieties is essential for the production of consistently superior yields. "A poor stand on the land is indicative of a poor yield on the field."

The less winter hardy oat varieties that produce excellent yields in southeastern North Carolina and the states lying to the south were not hardy enough to withstand the lower temperatures, and soil heaving that prevailed in the Northern and Western Piedmont North Carolina. In observing the winter survival of oat varieties in the Rockingham and Catawba tests during the spring of 1954 the winter hardy varieties maintained stands while the cold susceptible varieties were reduced.

Performance Records

The yield records of the 1954 small grain tests are given for the five locations.

Since a single year's record at a single location is usually less dependable and may not portray the true performance of a variety, the records of all varieties tested for three years are summarized.

Differences in Yield

Very small differences in yield between varieties should be considered cautiously, since it is not possible to determine the absolute performing ability. The size of difference that may have been due to chance has been computed and listed at the end of each table of the 1954 data as "Lease Significant Difference.(L.S.D.)." A similar value is not listed for the average of two or more years data, but the level of significance in such instances will be somewhat smaller than for the individual years. These measures of chance difference should be used to remind the reader not to misinterpret small yield differences.

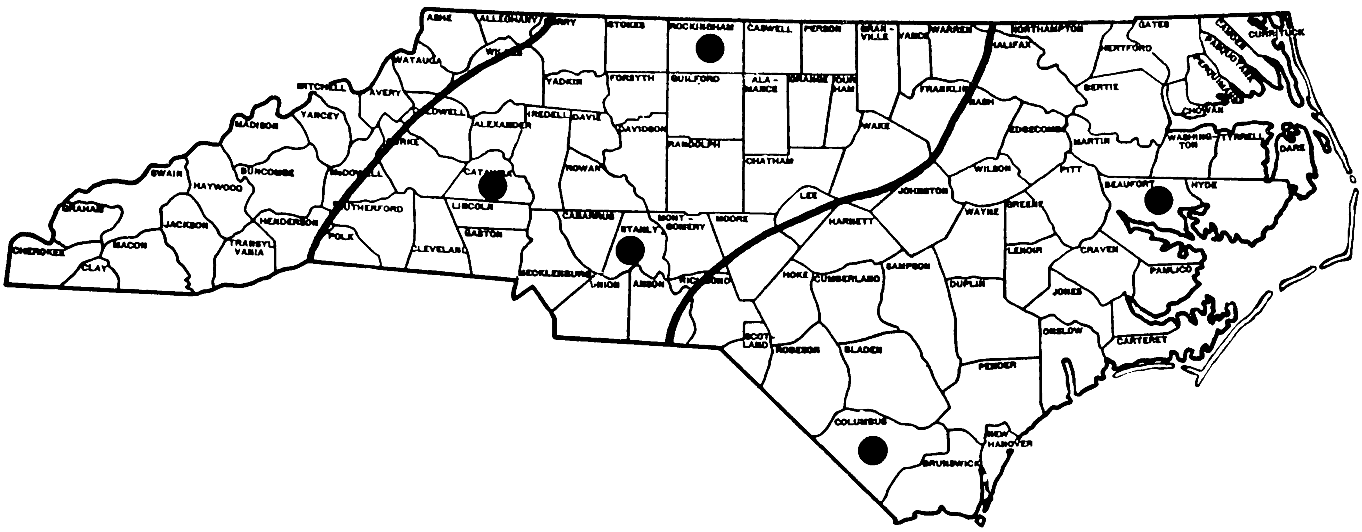
Choice of Variety

In choosing or deciding on a variety, yield usually receives first consideration. The characteristics that contribute to yield and quality may be as important as yield itself. Such characteristics as disease resistance, winter hardiness, lodging resistance, height of straw, ratio of grain to straw, ease of harvesting and storing, earliness or lateness of maturity, and market quality are all essential and should be considered.

LOCATION OF TESTS

AND

RECOMMENDED SMALL GRAIN VARIETIES 1954



MOUNTAINS

Oats

Forkedeer
Arlington 5/
Atlantic

Wheat

Thorne

Barley

Colonial 2

PIEDMONT

Oats

Arlington
Victorgrain 49-93
Fulgrain
Fulwood
Woodgrain

Wheat 4/

Anderson 1/
Atlas 50 2/
Atlas 66
Coker 47 - 27
Taylor 3/
Knox
[illegible]

Barley

Colonial 2
Davie
Marconee

COASTAL PLAIN

Oats

Arlington
Victorgrain 49-93
Fulgrain
Fulwood
Woodgrain

Wheat 4/

Anderson
Atlas 50 2/
Atlas 66
Coker 47 - 27

Barley

Colonial 2
Davie

1/ Should be harvested as early as possible to prevent excess weather damage to grain.
2/ Atlas 50 under heavy mildew conditions may be expected to excel.
3/ Has fair mosaic resistance.
4/ On mosaic land in Piedmont, Chancellor and Thorne may be used.
5/ Has winterkilled in Mountain area during severe winters.

Characteristics of Recommended Wheat Varieties

	Variety	Leaf Rust Resistance	Mildew Resistance	Mosaic Resistance	Maturity	Cold Tolerance	Lodging Resistance	Height of Straw	Test Weight per Bus.
1	Atlas 50	Fair	Good	Poor	Medium early	Fair	Fair to good	Medium	Fair
2	Atlas 66	Good	Fair	Poor	Medium early	Fair	Fair to good	Medium	Fair
3	Coker 47-27	Good	Fair	Poor	Medium early	Fair	Good	Medium tall	Good
4	Anderson	Good	Fair	Poor	Medium early	Good	Good	Tall	Good
5	Taylor	Good	Poor	Fair	Medium early	Good	Good	Tall	Fair
6	Thorne	Poor	Poor	Good	Medium late	Very good	Fair	Medium	Good
7	Chancellor	Fair -	Poor	Good	Early	Very good	Fair	Medium	Fair
8	Knox	Good	Fair	Good	Early	Good	Good	Short	Good

These characterizations based upon all available observations.

Characteristics of Recommended Oat Varieties*

	Variety	Rust Resistance	Smut Resistance	Blight Resistance	Mosaic Resistance	Maturity	Cold Tolerance	Lodging Resistance	Amount of Straw	Test Wt. Per Bu.
1	Arlington	Good	Good	Poor	Good	Medium early	Good	Fair	Heavy	Good
2	Victorgrain 48-93	Good	Good	Poor	Good	Early	Fair	Good	Medium	Good
3	Fulgrain	Good	Good	Poor	Good	Early	Fair	Good	Light	Good
4	Fulwood	**	**	Poor	Good	Very early	Fair	Good	Light	Good
5	Forkedeer	Poor	Poor	Good	Good	Medium late	Excellent	Fair	Medium	Good
6	Woodgrain	**	**	Poor	Good	Early	Fair	Good	Light	Good
7	Atlantic	Good	Good	Poor	Good	Medium early	Excellent	Fair	Heavy	Good

Characteristics of Recommended Barley Varieties*

	Variety	Loose Smut Resistance	Mildew Resistance	Rust Resistance	Scald Resistance	Lodging Resistance	Cold Tolerance	Maturity	Amount of Straw	Test Wt. Per Bu.
1	Colonial	Poor	Poor	Poor	Poor	Good	Fair	Medium early	Light	Fair
2	Davie	Poor	Good	Good	Fair	Good	Fair	Medium early	Light	Fair
3	Marconee	Poor	Fair	Poor	Poor	Good	Fair	Medium early	Light	Fair

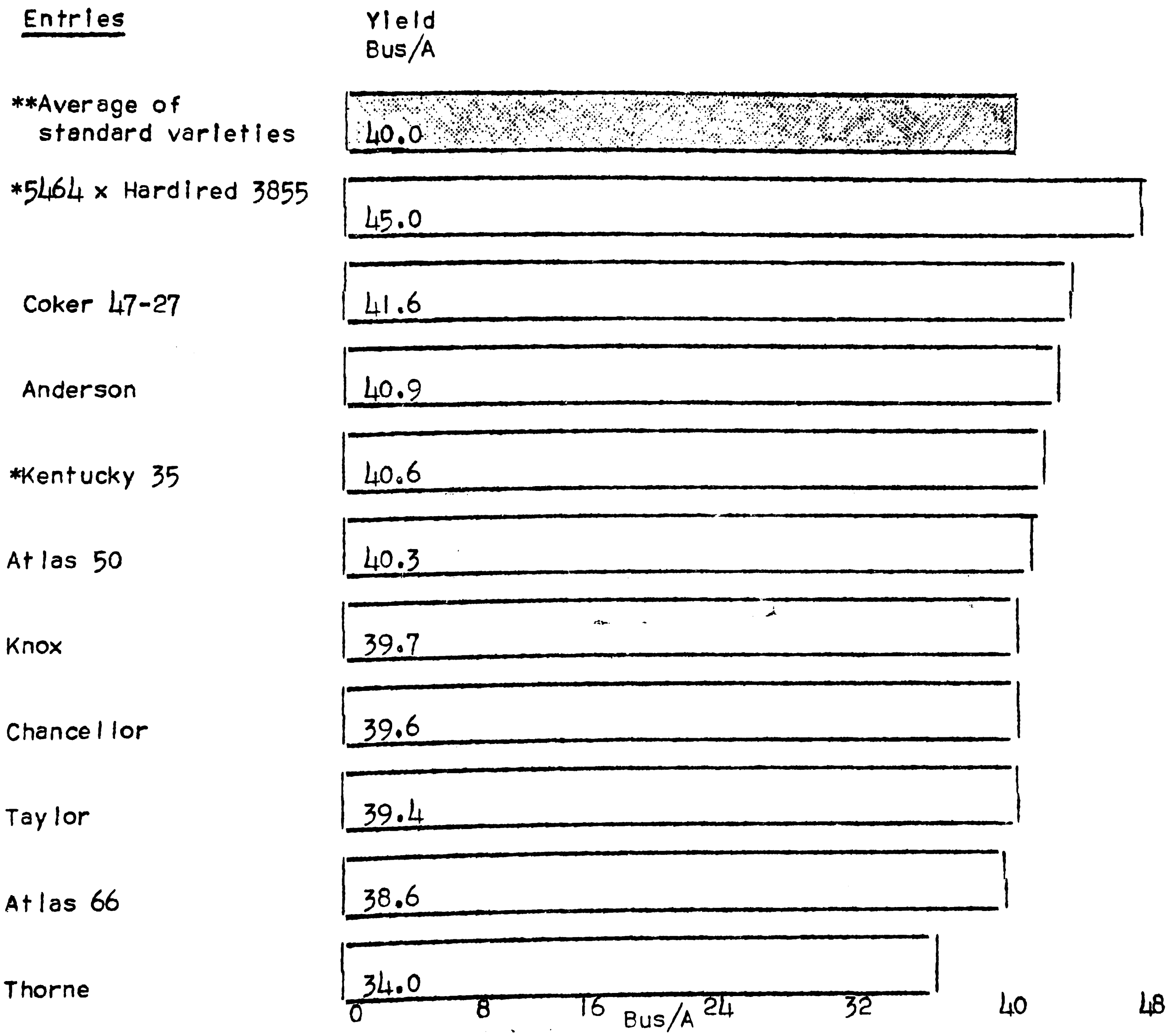
*These characterizations based upon all available observations.**Limited observations indicate good.

Chart I

Performance of Wheat Varieties

Average Three Years (1952, 1953 and 1954)

Piedmont, North Carolina

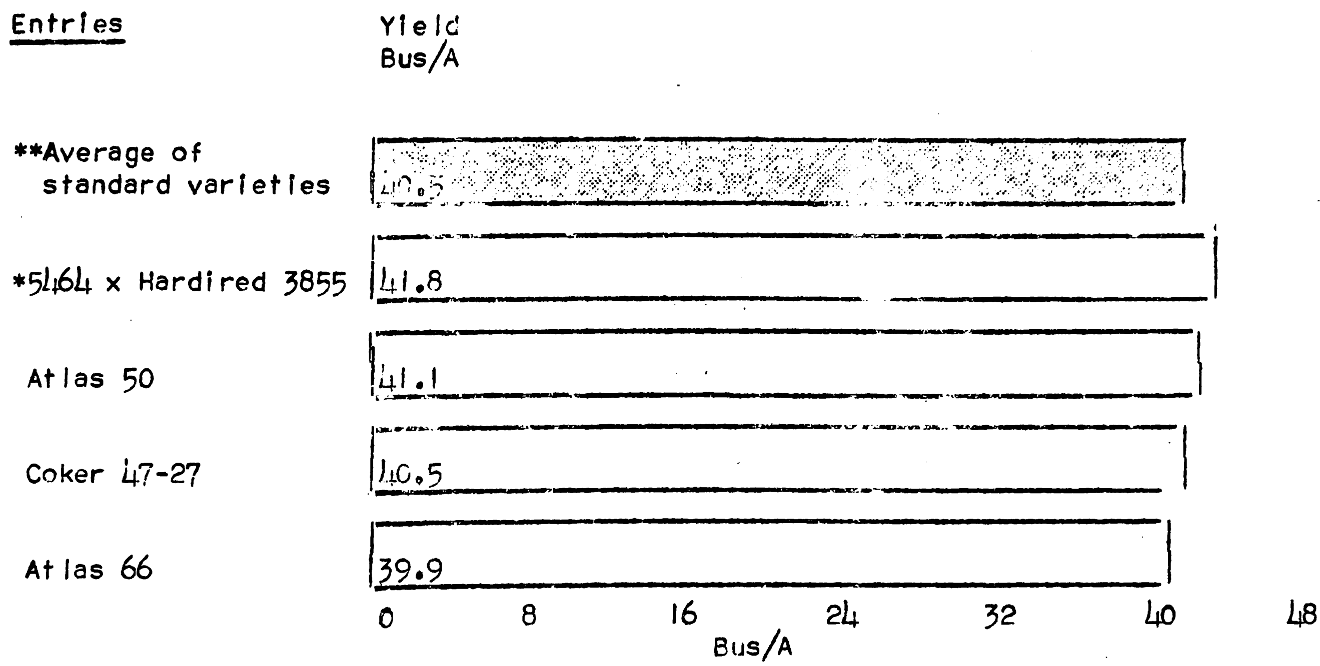


*Experimental Entries-Not Commercially Available

**Standard Varieties are Atlas 50, Atlas 66, Chancellor, and Coker 47-27.

Chart I (Continued)
Performance of Wheat Varieties
Average Three Years (1952, 1953 and 1954)

Coastal Plain, North Carolina



*Experimental Entries - Not Commercially Available

**Standard Varieties are Atlas 50 and Atlas 66

Table I
Performance of Wheat Varieties
Piedmont North Carolina
1954

	Locations			Average three tests
	Stanly Co. Bus/A	Catawba Co. Bus/A	Rockingham Co. Bus/A	Bus/A
* 5464:Hardired 3855	39.5	31.7	37.7	36.3
Anderson	42.3	32.5	33.8	36.2
* Taylor 10	41.2	33.6	33.4	36.1
* Kentucky 35	39.0	32.6	36.5	36.0
* Coker 53-8	36.5	33.6	35.9	35.3
Atlas 50	39.5	29.6	35.2	34.8
* Coker 54-12	36.8	33.9	32.2	34.3
* R 1341 B	37.7	34.0	30.7	34.1
Knox	40.2	29.7	30.7	33.5
Coker 47-27	32.9	31.8	35.2	33.3
* Coker 53-14	33.5	33.0	32.8	33.1
Chancellor	41.1	27.0	31.1	33.1
* Leap x Atlas 66-2156	37.4	28.5	32.9	32.9
* Taylor 49	33.2	31.7	33.7	32.9
Taylor	31.6	30.3	35.7	32.5
Seneca	34.8	29.6	32.5	32.3
* Leap x Atlas 66-385	33.1	28.6	34.2	32.0
* leap x Atlas 66-383	32.9	29.3	33.5	31.9
* Coker 53-26	33.5	28.5	32.6	31.5
Thorne	32.8	30.3	31.1	31.4
* Coker 53-3	27.6	32.4	33.1	31.0
Atlas 66	30.3	29.5	32.8	30.9
* R185 x PS	31.3	30.2	31.0	30.8
* Coker 54-15	32.6	28.7	30.4	30.6
Coastal	27.6	31.6	32.3	30.5
* R 1388	33.5	27.2	30.0	30.2

Table I
Performance of Wheat Varieties
Piedmont North Carolina
1954
(Continued)

Entries	Locations: Stanly Co. Bus/A	Locations: Catawba Co. Bus/A	Locations: Rockingham Co. Bus/A	Average three tests Bus/A
* Coker 53-6	31.1	31.1	28.0	30.1
Forward	29.8	27.2	31.6	29.5
* TWHHXAtlas 66-1305	33.6	26.7	27.6	29.3
L.S.D. (.05)	7.6	9.1	12.1	

* *Advanced experimentals and not commercially available.*

Table II
Perf rmance of Wheat Varieties
Coastal Plain, North Carolina

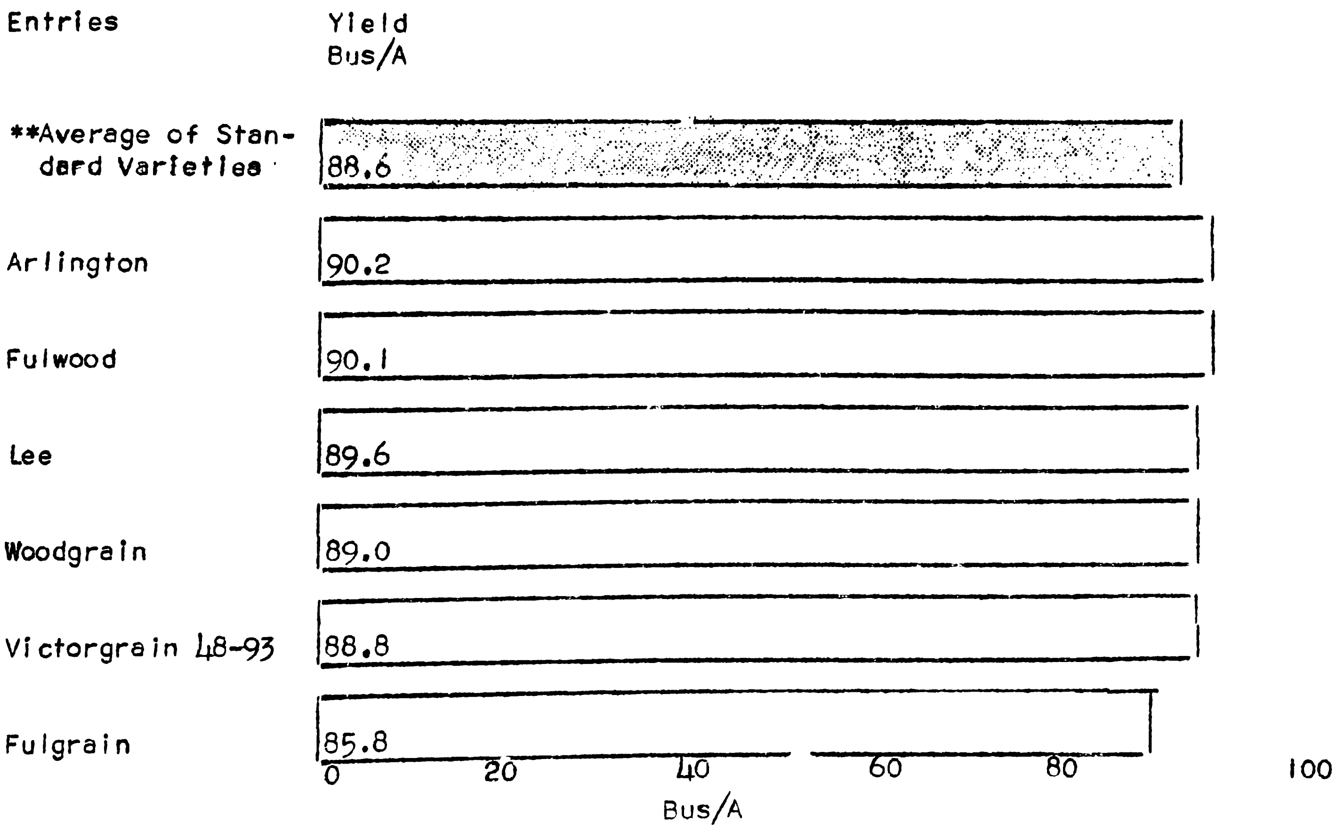
1954

Entries	Locations Beaufort Co. Bus/A	Columbus Co. Bus/A	Average two tests Bus/A
* Coker 53-14	38.7	40.0	39.4
Coastal	41.6	36.8	39.2
Coker 47-27	39.5	38.4	39.0
* Coker 53-8	39.0	38.6	38.8
* Taylor 49	36.8	37.8	37.3
* R1341 B	43.6	30.9	37.3
* Coker 53-3	38.5	34.8	36.7
Atlas 50	42.9	29.6	36.3
* Leap x Atlas 66-385	39.4	32.5	36.0
* Leap x Atlas 66-383	39.2	32.4	35.8
* Taylor 10	38.5	32.8	35.7
Atlas 66	38.5	32.7	35.6
* Coker 54-15	35.6	32.4	34.0
* 5464xHardired 3855	36.2	29.3	32.8
* Coker 53-6	32.1	33.5	32.8
* R185xPS	37.6	27.6	32.6
* Coker 53-26	35.7	28.2	32.0
* Coker 54-12	32.7	30.2	31.5
* LeapxAtlas 66-2156	35.0	27.8	31.4
* TWHHxAtlas 66-1305	32.7	26.2	29.5
Redhart	34.9	20.3	27.6
Seneca	35.0	18.3	26.7
Forward	33.8	18.3	26.1
Thorne	37.8	13.3	25.6
L.S.D.(.05)	6.0	5.3	

*Advanced Experimentals, and not commercially available.

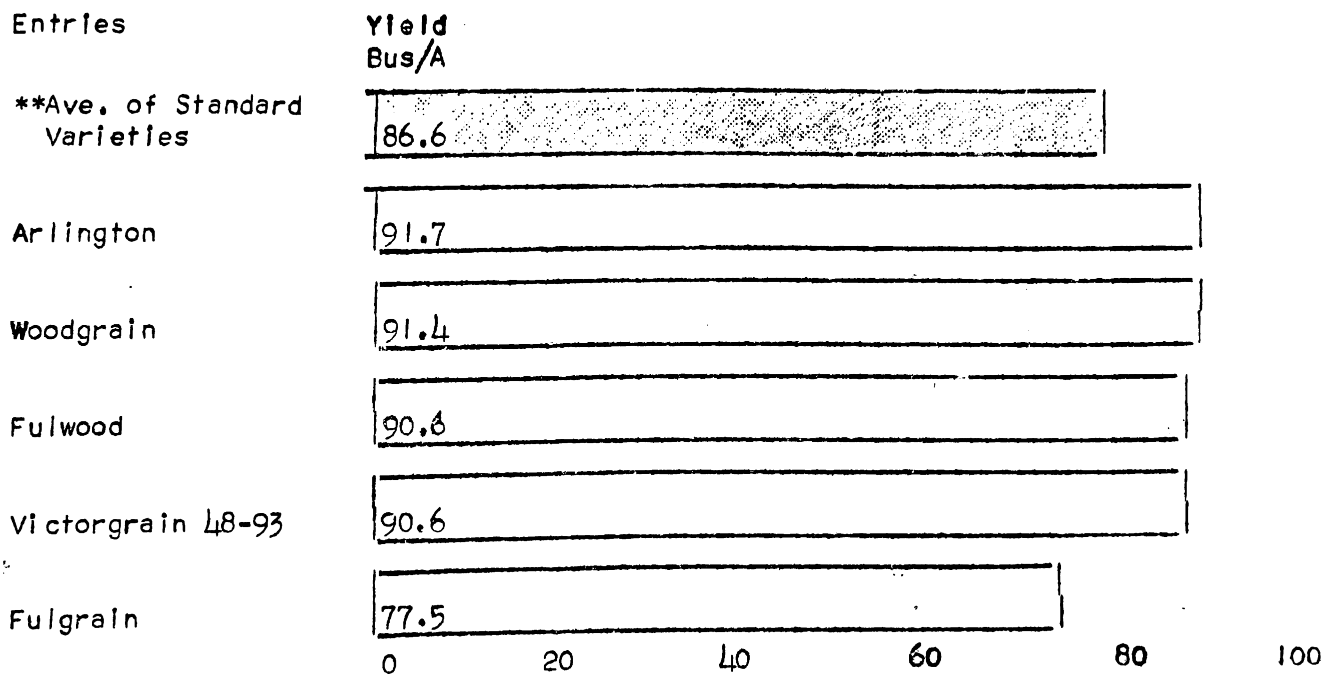
Chart II
Performance of Oat Varieties
Average Three Years (1952, 1953, and 1954)

Piedmont, North Carolina



**Standard varieties are Arlington, Victorgrain 48-93, Fulgrain and Lee.

Chart III
Performance of Oat Varieties
Three Years Average (1952, 1953, and 1954)
Coastal Plain, North Carolina



**Standard Varieties are Arlington, Victorgrain 48-93 and Fulgrain

Table III
Performance of Oat Varieties
Piedmont, North Carolina
1954

Entries	Locations Stanly Co. Bus/A	Catawba Co. Bus/A	Rockingham Co. Bus/A	Average Three Tests Bus/A
*C.I. 6575	99.7	69.1	(1)	84.4 (2)
*C.I.4658xCI^2-S.F. 301	92.9	68.2	77.4(1)	79.5 (2)
*C.I.6583	118.6	56.7	62.0	79.1
LeConte	103.0	52.0	69.0	74.7
*WinxCI^2-S.F. Fork.2391	84.3	65.6(1)	72.0	74.0(2)
*C.I.5372	96.0	63.5	60.6(1)	73.4(2)
*Fulgrain 52-44	99.4	43.5	(1)	71.5(2)
Fulwood	94.7	56.5	58.8	70.0
*Victorgrain 51-24	95.8	48.2(1)	65.3	69.8
*C.I.6730	77.6	(1)	60.4(1)	69.0(2)
*Coker 53-29	75.4	(1)	59.6	67.5(2)
Fulgrain	83.3	51.3(1)	(1)	67.3(2)
*C.I.6571	77.7	58.8	65.1	67.2
*WinxS.F.2387	80.8	56.3	64.3(1)	67.1(2)
*Williams	94.4	(1)	38.8(1)	66.6(2)
*Coker 52-30	94.6	47.8	55.8	66.1
*Victorgrain 52-29	100.3	42.8	50.6	64.6
Victorgrain 48-93	89.8	41.1	61.3	64.1
Woodgrain	76.8	49.7	65.3(1)	63.9(2)
*Coker 53-13	89.1	65.1	36.0	63.4
*Atlantic x CI^{2}SF2288-96	82.8	53.4(1)	51.9(1)	62.7(2)
Lee	88.4	67.7	31.8(1)	62.6(2)
*Fulgrain 52-39	93.1	30.3	(1)	61.7(2)
Anderson	84.0	39.4	(1)	61.7(2)
Arlington	83.2	42.9	56.3	60.8
*C.I.4658xCI^{2}S.F.2288-96	73.8	56.6	43.2	57.9
*Victorgrain 52-30	82.2	33.2(1)	35.8(1)	50.4(2)
L.S.D.(.05)	14.3	17.2	N.S.	

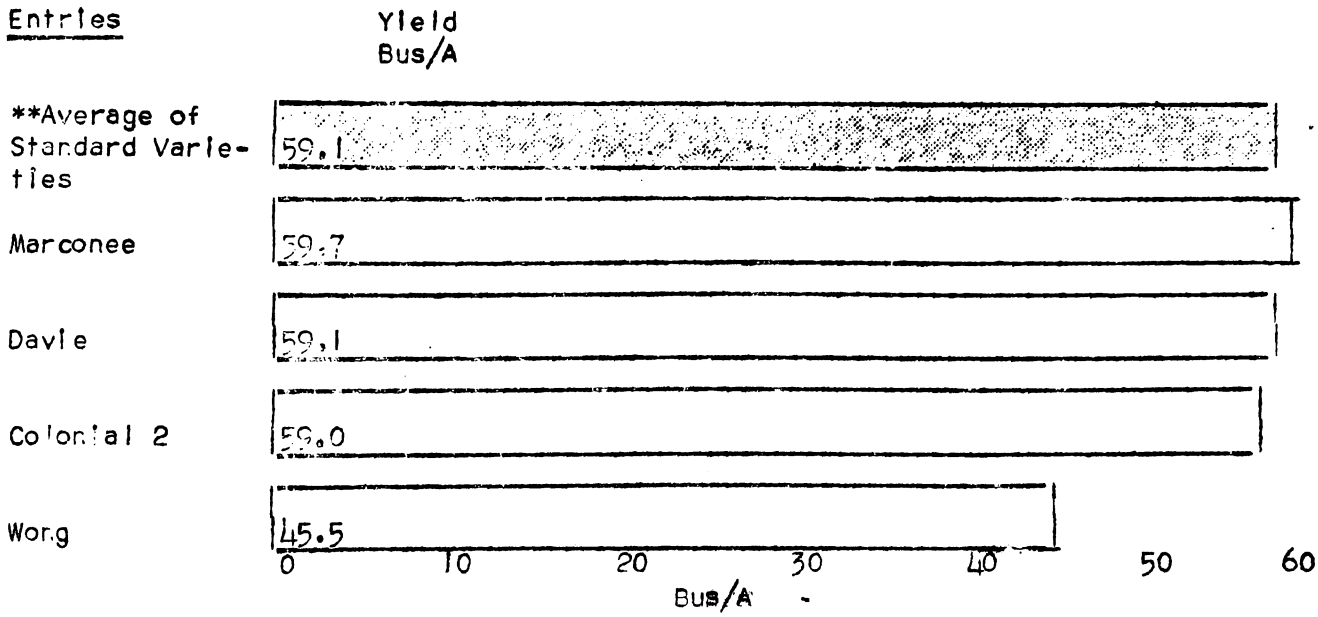
*Advanced Experimental not Commercially Available
(1) When one or more replications of a variety completely winter killed the variety was omitted from the statistical analysis. The average given in the table is based upon the replications that maintained reasonably good stands.
(2) These varieties winter killed in one or more replications in Catawba and Rockingham County. Tests therefore are not directly comparable.

Table IV
Performance of Oat Varieties
Coastal Plain, North Carolina
1954

Entries	Locations: Beaufort Co. Bus/A	Columbus Co. Bus/A	Average two tests Bus/A
*C.I.4658xCI^{2}SF301	82.9	63.1	73.0
*C.I.6571	77.2	68.4	72.8
*C.I.5371	74.0	66.9	70.5
*C.I.6575	76.4	61.8	69.1
*Victorgrain 51-24	84.6	52.8	68.7
*C.I.6719	82.5	54.0	68.3
*C.I.6583	84.5	51.6	68.1
Woodgrain	68.4	66.3	67.4
*Williams	71.5	60.7	66.1
*AtlanticxCI^{2}SF2288-96	78.8	50.6	64.7
*Coker 53-29	70.0	58.7	64.4
Anderson	64.1	64.7	64.4
Victorgrain 48-93	70.5	57.1	63.8
Southland	64.8	61.0	62.9
*Victorgrain 52-30	68.7	56.0	62.4
Fulwood	65.1	58.9	62.0
Arlington	62.8	60.9	61.9
*C.I.5873	62.7	59.0	60.9
Fulgrain	66.0	55.1	60.6
*Victorgrain 52-29	65.3	53.8	59.6
*C.I.6730	70.3	48.6	59.5
*Coker 53-30	61.5	55.6	58.6
*Fulgrain 52-44	55.7	56.0	55.9
*Fulgrain 52-39	57.0	51.5	54.3
*C.I.4658xCI^{2}SF848	58.9	47.3	53.1
*C.I.6605	58.5	38.6	48.6
*Coker 53-13	59.0	38.0	48.5
L.S.D. (.05)	15.7	12.4	

*Advanced experimentals and are not commercially available.

Chart III
Performance of Barley Varieties
Average Three Years (1952, 1953, and 1954)
Piedmont North Carolina



**Standard Varieties are Colonial 2 and Davie

Table V
Performance of Barley Varieties
Piedmont, North Carolina
1954

Entries	Locations Stanly Co. Bus/A	Catawba Co. Bus/A	Rockingham Co. Bus/A	Average Three tests Bus/A
Davie	45.8	57.6	45.8	49.7
SxB 1027-459	45.0	58.3	43.1	48.8
SxB 1027-463	44.5	55.8	44.4	48.2
SxB 1027-448	38.2	61.3	37.6	45.7
SxB 1027-467	36.9	54.3	40.7	44.0
Colonial 2	36.9	55.5	35.9	42.8
Marconee	34.7	65.3	22.9	41.0
Colonial x B392	34.2	48.9	35.1	39.4
B x Cal 649	32.7	45.9	35.2	37.9
Davie 583	33.7	40.4	36.9	37.0
Wong	32.8	44.2	30.6	35.9
Calhoun M450-4	27.3	49.2	29.3	35.3
BxCal. 199	28.8	44.4	31.3	34.8
L.S.D. (.05)	7.9	9.1	12.1	

* Advanced Experimentals not commercially available