

Research Report No. 17
July 1955

Measured crop performance
SMALL GRAIN
1955

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SMALL GRAIN VARIETIES RECOMMENDED

By

NORTH CAROLINA AGRICULTURAL
EXPERIMENT STATION AND EXTENSION SERVICE

(Revised July 1955)

MOUNTAINS

Oats

Forkeddeer
Arlington 5/
Atlantic

Wheat

Thorne

Barley

Colonial 2

PIEDMONT

Oats

Arlington
Victorgrain 48-93
Fulgrain
Fulwood
Woodgrain

Wheat 4/

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

Barley

Colonial 2
Davie
Marconee

COASTAL PLAIN

Oats

Arlington
Victorgrain 48-93
Fulgrain
Fulwood
Woodgrain

Wheat 4/

Anderson 1/
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. Taylor 49 high Mosaic resistance to be available in 1956.
- 4/ On mosaic land in Piedmont, Chancellor and Thorne may be used.
- 5/ Has winterkilled in Mountain area during severe winters.

Issued July 18, 1955

Approved: Agronomy and Plant
Pathology

Introduction

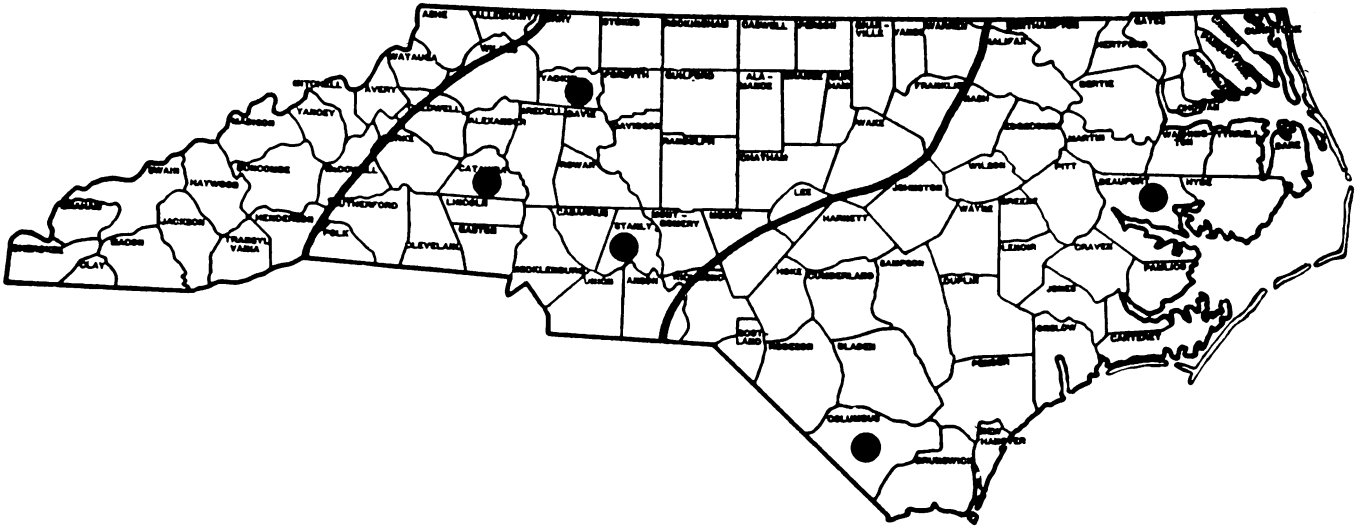
Variety evaluation trials are conducted each year on farmer fields by the North Carolina Agricultural Experiment Station, and this report presents records of performance of commercially available and prospective varieties of oats, wheat and barley. Seasonal conditions differ from year to year and a variety that appears to be excellent for a single year may not prove to be consistently superior. Records of three or more years duration present a better basis for choosing varieties that are more likely to consistently excel. Therefore only those that have been tested for three consecutive years (1953, 1954 and 1955) are compared in graphic form.

The annual performance (yield) records (1955) are presented in tables by areas and by crops.

Since small grains occupy a relatively small acreage in the mountain counties official variety tests are not conducted in this area.

The small grain breeding program utilizes the Mountain Research Station near Waynesville to evaluate its prospective new varieties for winter hardiness and cold tolerance. In conjunction with this a small variety test is conducted and used as a basis for recommending small grain varieties for the mountain counties.

LOCATION OF TESTS



Five field tests were conducted on private farms and branch research farms during the 1954 - 1955 season and represent different soil and climatic conditions and areas of most concentrated small grain production.

The testing agency recognizes the cooperative spirit and civic-minded service rendered by the following 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.

1. Farm of Fred A. Sigmon, Catawba County, Newton R#. County Agent J. F. Giles and Assistants cooperating.
2. Farm of C. L. Hatley, Stanly County, New London R#1. County Agent V. A. Honeycutt and Assistants cooperating.
3. Farm of J. M. Spear, Yadkin County, Boonville R#. County Agent R. D. Smith and Assistants cooperating.
4. Farm of W. B. Rodman, E. L. Slack, Mgr., Beaufort County, Pantego. County Agent M. P. Chesnutt and Assistants cooperating.
5. Border Belt 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.

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

Management of Test Fields

Cultural practices such as seedbed preparation, date of seeding, fertilization, amount and time of topdressing, were in accord with good farm practice and recommendations of N.C. Agr. Experiment Station and Extension Service.

Seasonal Conditions

Seedings were made under dry conditions in Piedmont but rain followed within one week after seeding and very good germination and stands were obtained with oats and wheat. Barley stands in Piedmont were less favorable.

The two tests in the Coastal Plain were planted under favorable conditions and excellent stands resulted.

Very good stands were maintained on winter-hardy and medium winter-hardy entries. In the Yadkin County test the less winter hardy, the early maturing oats were injured more by low temperatures and soil heaving. However satisfactory stands were maintained.

The late spring freeze (18 to 20 degrees on March 27, 28 and 29) injured or killed primary tillers of most varieties.

The earlier, more advanced varieties were damaged the most. The early maturing, less cold tolerant wheats in some locations were complete losses.

At the Stanly County location where the vegetative growth and development had been excellent, the barleys were damaged beyond recovery; therefore none of the varieties produced enough to be harvested.

The wheats at this location were severely damaged. Redheart, (5464 x Hardired), Knox and the other early maturing entries likewise were practically

complete losses. The late, more cold-hardy, entries, Ky. 35, Seneca and Thorne withstood the freeze very well.

There was less damage to the oats at the Stanly county location, but like the wheats and barleys the greatest loss was to the early types that had produced the most early growth.

An infestation of Army worms appeared about May 15 and did the most damage to the late varieties of both wheat and oats.

The damage by the Army worms to the late maturing and by the late spring freeze to the early maturing varieties of wheats were such that satisfactory evaluation of performance (yield) was impossible.

All of the oats in the Stanly County test that recovered from the late spring freeze were harvested and yields obtained. However, these yields are not included in the report because of the extreme variability.

Winter Hardiness

Less winter hardy oat varieties that are not injured by prevailing temperatures of the Coastal Plain are often damaged and stands reduced when grown in the Northwestern Piedmont and only the most winter hardy will survive in the Mountains.

Low temperatures (18 to 28 degrees) that occur in spring (March 15 to April 15) cause greater damage and reduction in yield to early maturing varieties than to those that mature later. Since spring freezes are likely to occur in about one year out of each five this factor should be kept clearly in mind when choosing extremely early maturing varieties.

Differences in Yield

Little significance should be attributed to very small differences in yield between varieties 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 1955. data as "Least 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.

Characteristics of Recommended Wheat Varieties

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

These characterizations based upon all available observations.

Characteristics of Recommended Oat Varieties*

Variety	Rust Re- sistance	Smut Re- sistance	Blight Re- sistance	Mosaic Re- sistance	Maturity	Cold Tol- erance	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*

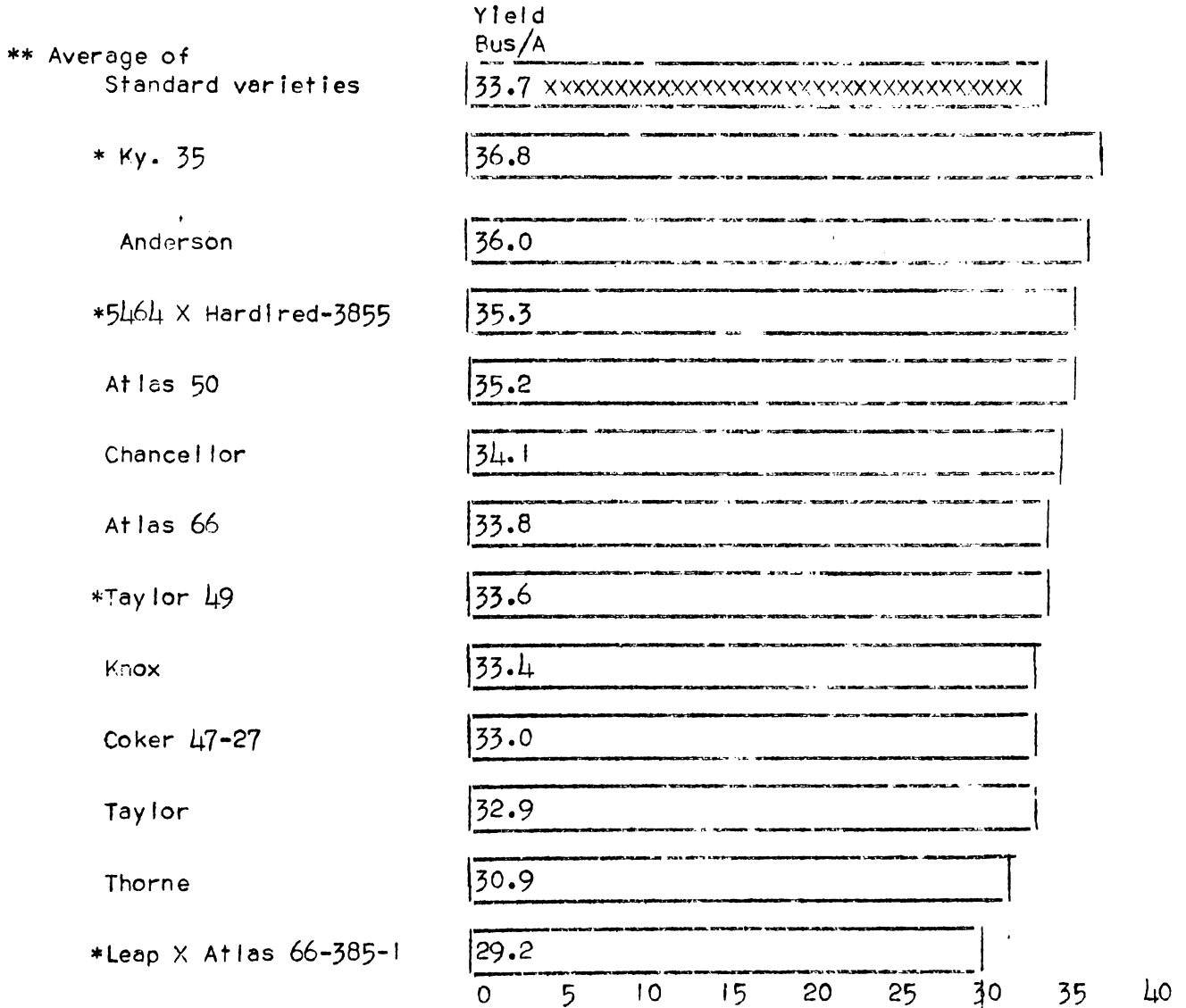
Variety	Loose Smut Re- sistance	Mildew Re- sistance	Rust Re- sistance	Scald Re- sistance	Lodging Re- sistance	Cold Tol- erance	Maturity	Amount of Straw	Test Wt. Per Bu.
1 Colonial 2	Poor	Poor	Poor	Poor	Good	Fair	Medium early	Light	Fair
2 Davie	Poor	Good	Good	Fair	Good	Fair	Medium early	Light	Fair
3 Marconee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

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

Chart 1

Performance of Wheat Varieties
Average Three Years Total Eight Tests
Piedmont
1953-1954-1955

Entries

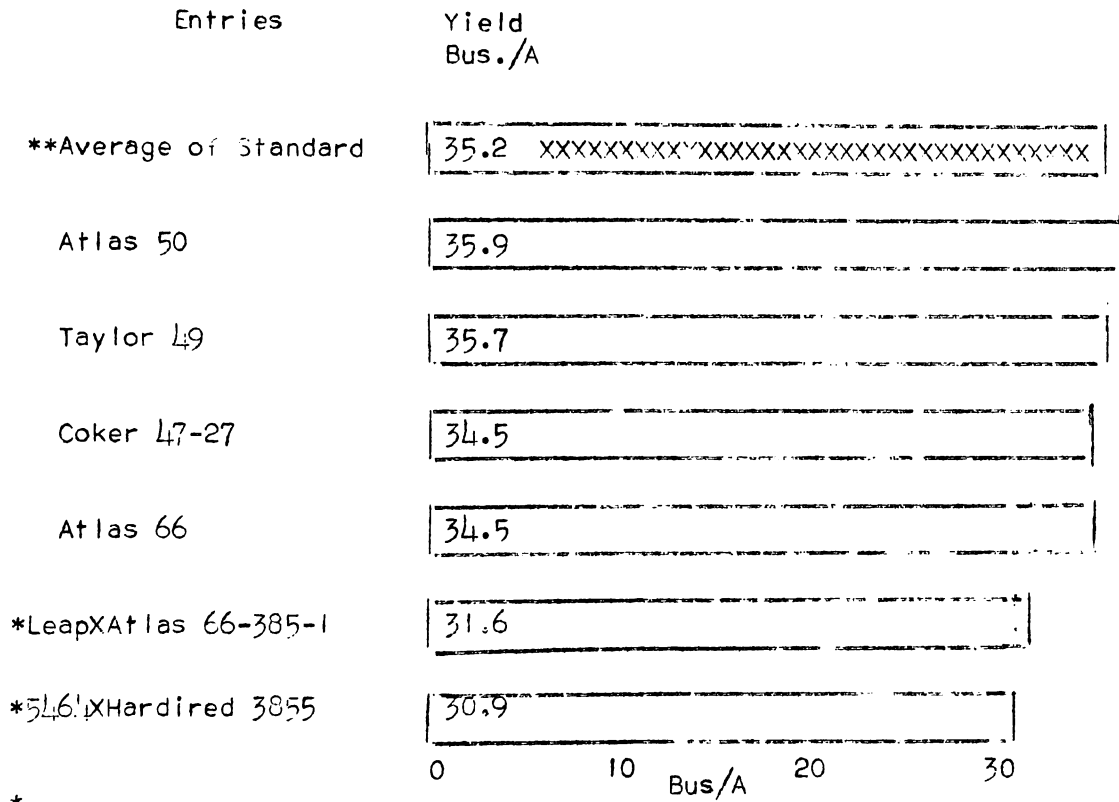


** Standards 1953-54 Atlas 50, Atlas 66 Coker 47-27 and Chancellor

1955 Atlas 50, Atlas 66, Taylor, Anderson, Knox and Coker 47-27

* Experimental Entries - not commercially available.

Chart II
Performance of Wheat Varieties
Average Three Years Total Six Tests
Coastal Plain
1953-1954-1955



40

*Standards: 1953-54 Atlas 50, Atlas 66
1955 Atlas 50, Atlas 66, Coker 47-27 and Anderson

*Experimental Entries - Not commercially available.

Table 1
Performance of Wheat Varieties
Piedmont
1955

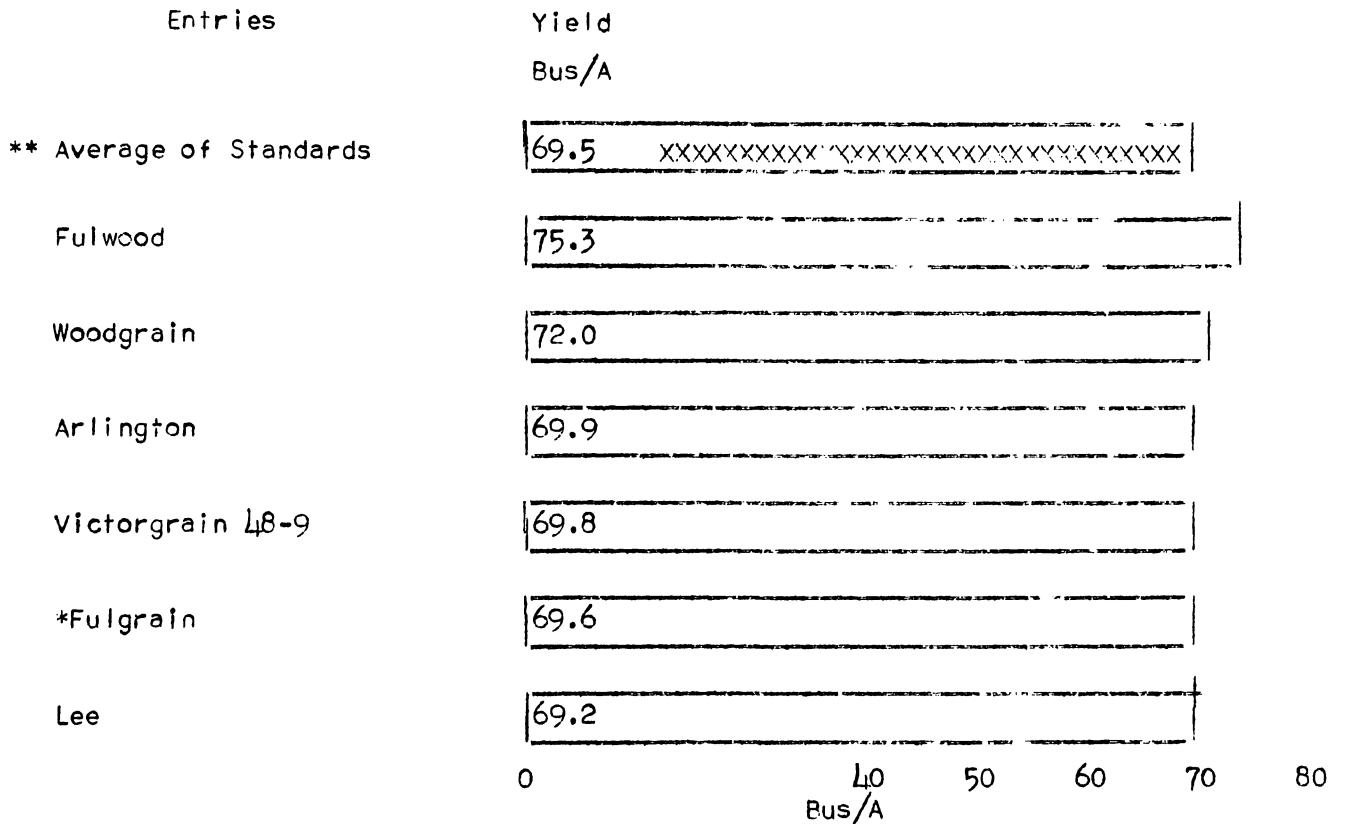
Entries	Locations		Average two tests Bus/A
	Catawba Co. Bus/A	Yadkin Co. Bus/A	
*Kentucky 35	40.6	38.3	39.5
**Anderson	38.0	36.2	37.1
*Coker 53-26	37.2	35.7	36.5
*Taylor 49	36.7	34.1	35.4
**Atlas 66	36.0	33.0	34.5
**Atlas 50	35.8	33.0	34.4
Chancel lor	32.5	36.1	34.3
Leap	34.7	32.6	33.7
Thorne	37.1	29.8	33.5
Seneca	36.9	29.7	33.3
*Coker 54-9	32.2	34.3	33.3
Gleason	37.1	29.0	33.1
**Taylor	35.0	30.7	32.9
*Coker 47-27	35.1	30.1	32.6
*Coker 54-15	28.8	33.9	31.4
*R-1341-B	33.6	28.4	31.0
*Taylor 10	34.6	27.2	30.9
*Coker 52-10	28.6	32.5	30.6
*Coker 52-3 (47-23)	29.8	29.7	29.8
*5464 X Hardired-3855	26.4	28.6	27.5
**Knox	21.9	31.8	26.9
Rechart	24.5	26.2	25.4
*Leap X Atlas 66-385-1	22.0	26.2	24.1
L.S.D. .05	4.6	4.0	
L.S.D. .01	6.1	5.3	
*Experimental Entries - Not Commercially Available.			
Ave. of Stds.	33.6	32.5	33.2

** Standards

Table 11
Performance of Wheat Varieties
Coastal Plain
1955

Entries	Location		Average two tests Bus/A
	Beaufort Co. Bus/A	Columbus Co. Bus/A	
* Kentucky 35	44.7	26.2	35.5
** Anderson	40.0	27.3	33.7
Seneca	39.6	27.8	33.7
Thorne	40.6	22.6	31.6
* Coker 54-15	38.4	24.8	31.6
* Coker 53-26	38.3	24.5	31.4
Chancellor	36.8	24.9	30.9
** Atlas 50	39.2	22.4	30.8
Taylor 10	34.0	26.9	30.5
* Coker 54-9	38.4	18.9	28.7
** Atlas 66	32.8	24.4	28.6
Taylor 49	28.6	27.2	27.9
* Coker 54-10	34.8	20.6	27.7
Leap	31.7	23.1	27.4
Taylor	25.5	24.4	25.0
Gleason	26.0	22.7	24.5
Coastal	22.5	21.3	21.9
* Coker 54-1	27.2	16.5	21.9
Knox	31.1	12.6	21.9
* 5464 X Hardired - 3855	26.9	16.7	21.8
** Coker 47-27	25.2	18.0	21.6
* R-1341-B	25.2	17.6	21.4
* Leap X Atlas 66-385-1	24.5	16.5	20.5
* Coker 53-3 (47-23)	18.6	12.9	15.8
Redhart	13.2	5.3	9.3
L.S.D. .05	6.1	4.5	
L.S.D. .01	8.0	6.0	
* Experimental entries - not commercially available.			
Ave. of Stds.	34.3	23.0	28.7
** Standards			

Chart III
Performance of Oat Varieties
Average Three Years Total Eight Tests
Piedmont
1953-1954-1955



**Standards: 1953-1954

Victorgrain 48-93, Fulgrain,
Arlington and Lee

1955 - Victorgrain 48-93, Fulgrains, Arlington, Fulwood and Woodgrain

* 7 locations only - complete failure in the Rockingham County test in 1954.

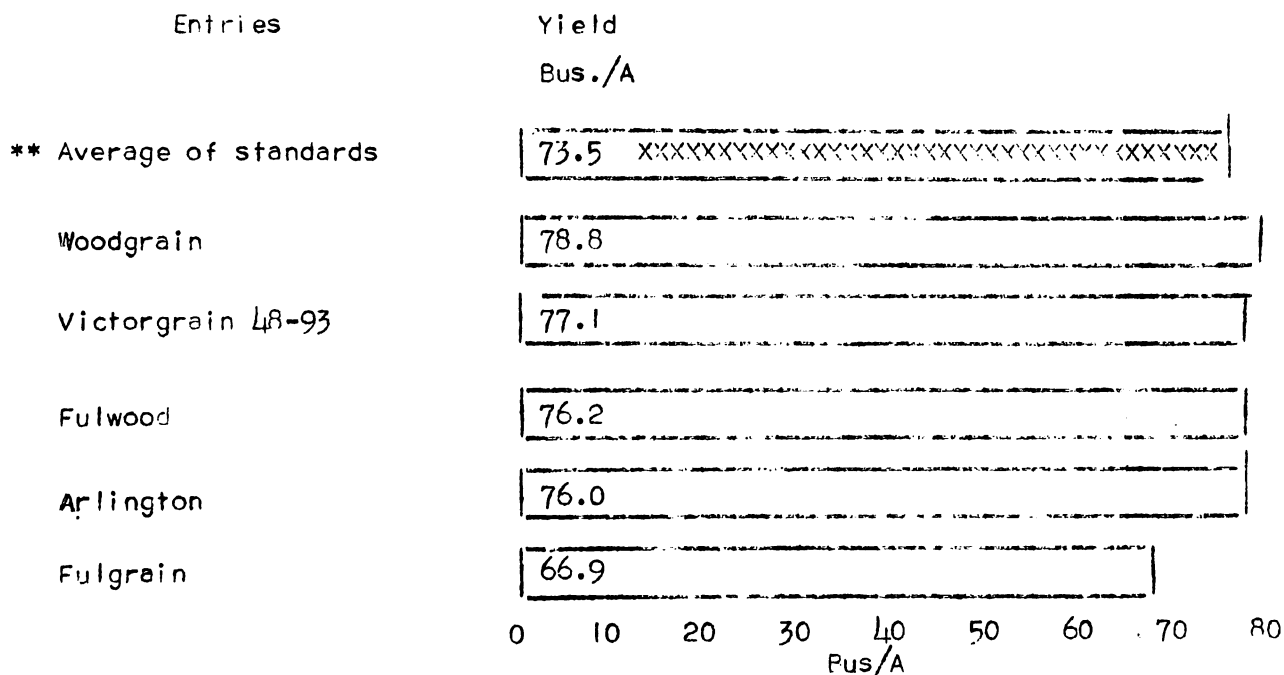
Chart IV

Performance of Oat Varieties

Average Three Years Total Six Tests

Coastal Plain

1953-1954-1955



1953-1954

** Standards: Victorgrain 48-93, Fulgrain and Arlington

1955

Victorgrain 48-93, Fulgrain, Arlington, Woodgrain and Fulwood

Table III
Performance of Oat Varieties
Piedmont
1955

Entries	Locations		Average two tests Pus/A
	Catawba Co. Bus/A	Yadkin Co. Pus/A	
*C.I. 6571	63.3	81.8	72.6
*C.I. 6575	60.5	73.4	67.0
*C.I. 6583	56.8	75.9	66.4
*Atlantic X CI ² SF 2288-96	58.8	65.2	62.0
*Coker 53-29	56.0	62.1	59.1
*C.I. 5873	57.9	60.0	59.0
*C.I. 6719	52.4	56.4	54.4
Arlington**	49.3	59.5	54.4
Lee	65.5	38.2	51.8
*Coker 54-29	60.3	42.1	51.2
Woodgrain**	43.1	58.7	50.9
Victorgrain 48-93 B.R.S. 1954**	54.5	45.3	49.9
*C.I. 6605	48.0	50.3	49.2
Fulwood**	50.0	47.6	48.8
*Coker 54-41	41.4	51.5	46.5
Victorgrain 48-93 B.R.S.(1953)	52.8	39.7	46.3
*Victorgrain 52-29	48.3	42.6	45.5
Williams	47.4	42.8	45.1
Fulgrain**	42.4	40.7	41.6
*C.I. 5371	36.8	46.0	41.4
*Coker 54-11	29.8	32.3	31.1
L.S.D. (.05)	12.7	8.3	
L.S.D. (.01)	16.8	11.0	
*Advanced experimental and are not commercially available. Ave. of Standards	47.9	50.4	49.2
** Standards			

Table IV
Performance of Oat Varieties
Coastal Plain
1955

Entries	Locations		Average two tests Bus/A
	Columbus Co. Bus/A	Beaufort Co. Bus/A	
* C.I. 6571	63.3	105.3	84.3
* C.I. 6575	60.0	92.4	76.2
* C.I. 6719	57.1	92.2	74.7
* C.I. 6583	61.4	83.7	72.6
* Atlantic X Cl ² SF. 2288-96	53.7	85.6	59.7
* Victorgrain 52-29	59.6	72.7	66.2
* C.I. 5873	51.3	76.6	64.0
** Victorgrain 48-93 B.R.S.(1954)	55.6	72.3	64.0
* Coker 53-29	52.4	74.3	63.4
* Coker 54-41	53.1	72.2	62.7
Lee	49.4	75.4	62.4
** Woodgrain	53.8	69.0	61.4
* C.I. 5371	47.8	70.6	59.2
* Coker 54-29	47.0	69.2	58.1
** Arlington	46.2	66.3	56.3
* C.I. 6605	46.3	65.7	56.0
** Fulwood	51.6	59.4	55.5
Williams	43.2	63.6	53.4
Victorgrain 48-93 B.R.S.(1953)	59.6	45.2	52.4
** Fulgrain	50.5	53.8	52.2
* Coker 54-11	45.4	57.5	51.5
L.S.D. (05)	8.8	17.0	
(01)	11.6	22.5	
* Advanced experimentals and are not commercially available.			
Ave. of Stds.	51.5	64.2	57.9
** Standards			

Chart V
Performance of Barley Varieties
Average Three Years, Total Eight Tests
Piedmont
1953-1954-1955

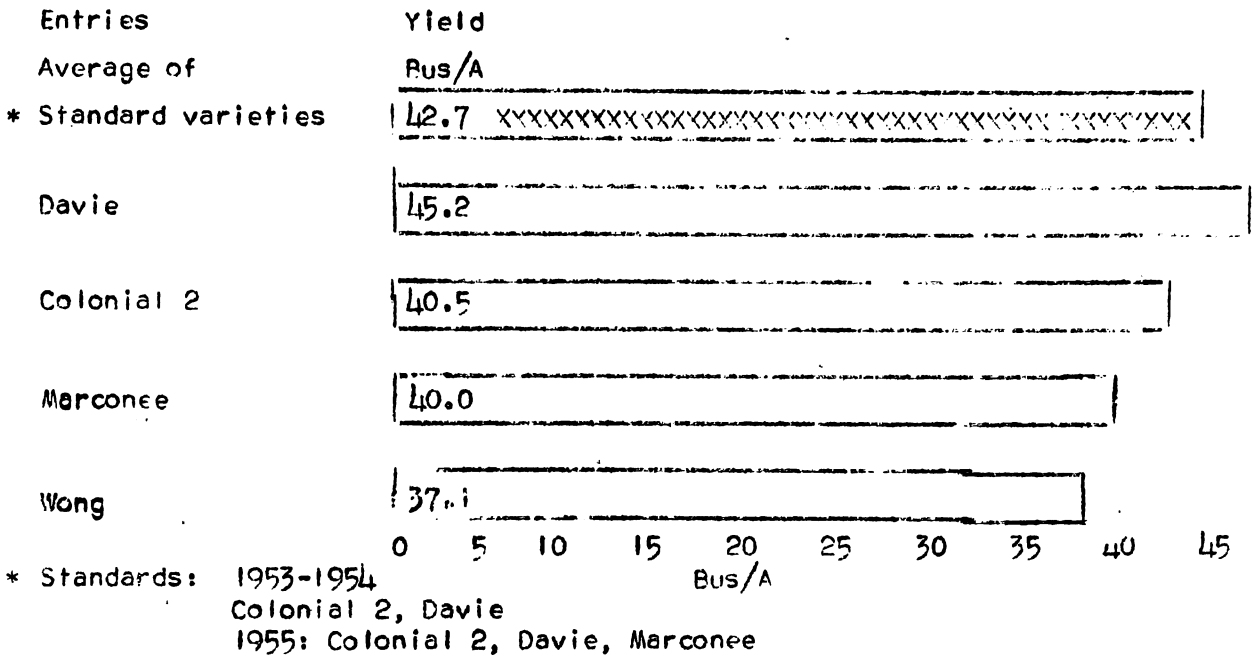


Chart VI
Performance of Barley Varieties
Average Three Years, Total Six Tests
Coastal Plain
1952-1953-1955

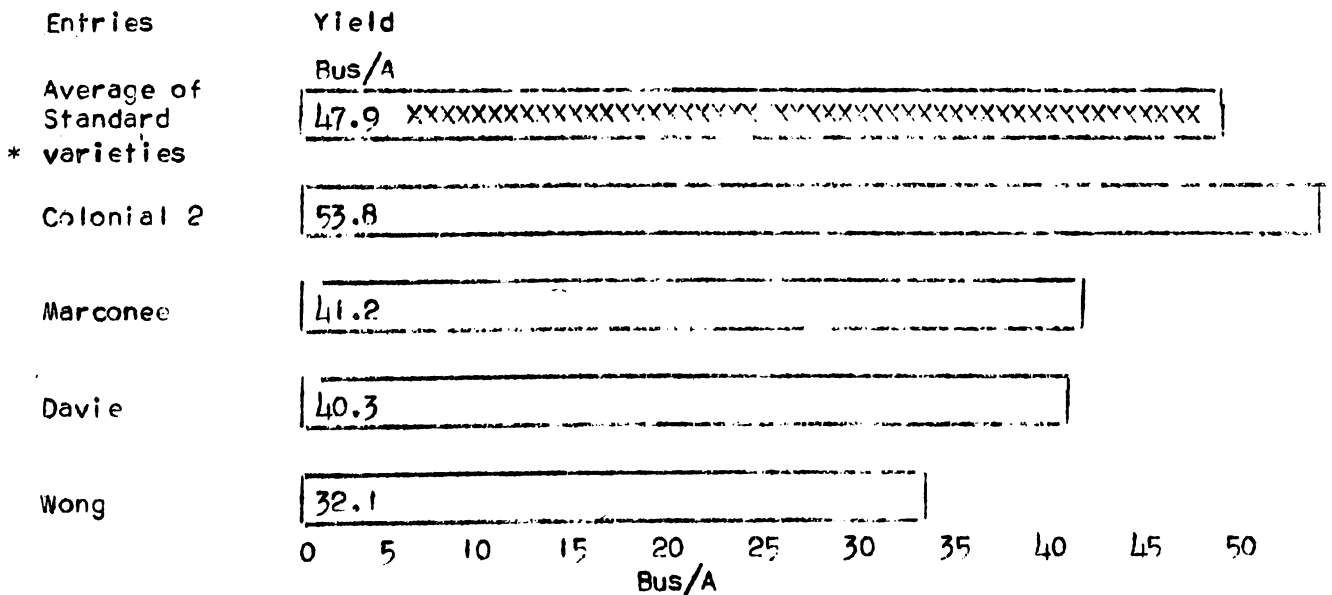


Table V
Performance of Barley Varieties
Piedmont
1955

Entries	Catawba Co. Bus/A	Yadkin Co. Bus/A	Average two test Bus/A
* Davie - 583	18.0	21.2	19.6
* Colonial-Bolivia-392	19.1	20.1	19.6
** Colonial 2	16.2	22.0	19.1
* Bolivia X Calhoun-649	18.4	19.0	18.7
Wong	14.2	20.5	17.4
* Sunrise - Bolivia 1027-448	15.7	16.7	16.2
** Marconee	14.7	17.4	16.1
* Sunrise - Bolivia 1027-463	15.3	15.8	15.6
** Davie	14.2	16.7	15.5
Patterson Awnless	12.7	13.6	13.2
L.S.D. .05	N S	5.2	
L.S.D. .01	N S	7.0	
* Advanced experimentals - Not commercially available. Ave. of Standards	15.0	18.7	16.0
** Standards			

Table VI
Performance of Barley Varieties
Coastal Plain
1955

Entries	Beaufort Co. Bus/A	Columbus Co. Bus/A	Average two tests Bus/A
* Colonial 2	27.9	19.0	23.5
Marconee	27.6	18.8	23.2
* Davie 583	23.2	20.9	22.1
* Bolivia X Calhoun 649	25.4	17.1	21.3
** Davie	21.4	17.4	19.4
* Sunrise - Bolivia 1027-448	19.7	14.9	17.3
* Colonial X Bolivia - 392	16.2	17.7	17.0
Wong	20.1	8.3	14.2
* Sunrise - Bolivia 1027-463	14.5	11.7	13.1
Patterson Awnless	12.1	9.6	10.9
L.S.D. .05	5.7	3.4	
L.S.D. .01	7.6	4.5	
* Experimental Entries - not commercially available.			
Ave. of Standards	21.7	18.2	21.5
** Standards			