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Measured crop performance

Part I Corn Hybrids
Part II Grain Sorghum
Part III Corn and Sorghum Silage
1963

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PERFORMANCE OF CORN HYBRIDS, GRAIN SORGHUM, AND CORN AND SORGHUM SILAGE IN NORTH CAROLINA

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Information on corn hybrids, grain sorghum and silage from each of these crops is important to the same general areas of production. For this reason the results of tests are compiled in one bulletin for easy assessability.

The bulletin is divided into three parts according to the above mentioned crops. Part I is concerned with corn hybrids and covers tests in all areas of production within the state. Part II deals with grain sorghums primarily in the Piedmont. Data from these tests would be applicable to most areas of production in North Carolina. Part III covers data on corn and sorghum silage. In many areas of the state silage is an important crop. Both crops are used for this purpose and the choice is dependent on which fits best in the farm operation.

Each part is complete in that it contains information on experimental procedure, locations of the test, a discussion of the data and the data for 1963, as well as summary tables for the past two and three years for each respective crop.

It is hoped that with the organization of the bulletin in this form it will provide data to those interested in the various crops in a complete form which is readily available in one bulletin. The large number of hybrids and varieties available for planting within this state makes it mandatory that information be available to seedsmen, growers and agricultural workers so that easy comparisons can be made.

Part I

CORN HYBRIDS

The adaptation of corn hybrids to a fairly wide range of environmental conditions is important to the grower. Drought conditions in the Northern Piedmont and Coastal Plains of North Carolina exaggerated this factor this season.

A top performing hybrid is one that will consistently give high returns to the grower. It must have good yield and standability as well as other desirable characteristics. Performance information from several locations over a period of years is desirable in order to properly evaluate a hybrid. However, it is not until the hybrid has been planted under farm conditions that it really receives its most thorough evaluation.

The data presented in this report provide information on the performance of commercial and experimental hybrids grown in various geographic areas of the state. Information of this nature serves as a guide to corn breeders in their development of hybrids for the different areas. It also provides a guide to agricultural workers and to growers in choosing hybrids to plant.

Results of the North Carolina Official Corn Trials for the 1963 season are presented in this report. Summaries of the results of tests conducted during the past three years are also presented.

EXPERIMENTAL PROCEDURE

Commercial and experimental hybrids developed by public and private agencies are included in this program. One requirement for inclusion is quantitative data from experiments in which the proposed entry is compared with recognized hybrids. These data must reveal meritorious performance in order for a hybrid to qualify for the test.

Entering Hybrids

Any individual or firm may make application for having hybrids tested. A fee is charged on an entry per area basis. Personnel of the testing program may also include entries about which further information is desired.

Early in February 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 in the 1963 tests are shown in Table 1.

Table 1. Name and address of sponsoring agencies in the 1963 North Carolina Corn Performance Trials along with designation used to identify the hybrids in the trials.

Name	Address	Hybrid Designation
Ag. Alumni - Purdue Univ.	Lafayette, Ind.	AA
Asgrow Seed Company	Atlanta 2, Georgia	Asgrow
Beam's Farm	Lawndale, N. C.	B & B
Birdseye Farming & Mgr. Co.	Rocky Mount, N. C.	Van's V8
Britt, Woodrow	Chadbourn, N. C.	Britt
Cargill, Inc.	Minneapolis, Minn.	Cargill
Coker Pedigreed Seed Co.	Hartsville, S. C.	Coker
DeKalb Agri. Assn., Inc.	DeKalb, Illinois	DeKalb
Edmund and Son Seed Co.	Chadbourn, N. C.	Edmund
Funk Brothers Seed Co.	Bloomington, Illinois	Funk
Greenwood Seed Co.	Thomasville, Georgia	Greenwood
Hollyview Farm	Mt. Airy, N. C.	Hollyview
Illinois Agri. Expt. Sta.	Champaign, Illinois.	Ill.

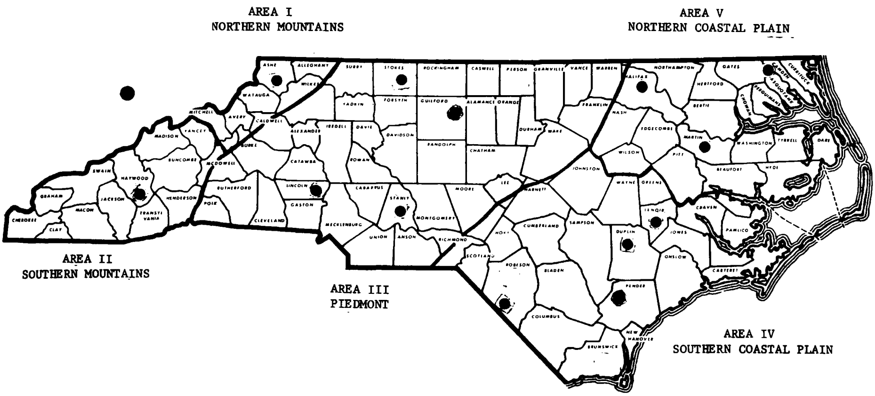
Table 1. Continued.

Name	Address	Hybrid Designation
Langley, C. G.	Stanly, N. C.	Langley
M & W Seed Company	Bethel, N. C.	M & W
McCurdy Seed Co.	Memphis, Tennessee	McCurdy
McNair Yield-Tested Seed Co.	Laurinburg, N. C.	McNair
Missouri Agri. Expt. Sta.	Columbia, Mo..	Mo.
N. C. Agri. Expt. Sta.	Raleigh, N. C.	N. C.
Ohio & Mich. Seed Co.	Green Springs, Ohio	Oh. & Mich.
Pfister Assoc. Growers, Inc.	Aurora, Illinois	P.A.G.
Pioneer Corn Company	Tipton, Indiana	Pioneer
R. R. Best and Sons	Faison, N. C.	Best
S. C. Agri. Expt. Sta.	Clemson, S. C.	S. C.
Speight Seed Farms	Winterville, N. C.	Speight
T. W. Wood and Sons	Richmond, Virginia	Wood
Todd Hybrid Corn Co.	Mt. Airy, Maryland	Todd
Tomahund Plantation	Williamsburg, Virginia	Hofmeyer's
Virginia Agri. Expt. Sta.	Blacksburg, Virginia	V.P.I.
Wagwood Farms	Gibsonville, N. C.	Wagwood
Watson Seed Farms	Rocky Mount, N. C.	Watson

Field-Plot Technique

The state is divided into five geographical areas according to soil type, maturity zone, and climatic conditions. The various areas and co-operators are shown in Figure 1. Where feasible, three or more locations with four replications were used in each area. In each of the mountain areas, (Areas I and II) where the acreage of corn is less, one location with six replications was used. Four locations, with four replications each, were used in Area III. The Stokes, Guilford and Stanly County sites had severe drought conditions and were discarded.

Figure 1- LOCATION OF CORN YIELD TRIALS



CO-OPERATORS 1963[1/]

Area I - Northern Mountains
Upper Mountain Research Station, Dana G. Tugman, Superintendent, Ashe County, Laurel Spring, N. C.

Area II - Southern Mountains
Mountain Research Station, J. R. Edwards, Superintendent, Haywood County, Waynesville, N. C.

Area III - Piedmont
Farm of William A. Hains, Pine Hall, N. C., Stokes County
Agricultural Agent S. B. Brandon and assistants, co-operating.
Farm of Clyde E. Apple, Elon College, N. C., Guilford County
Agricultural agent W. H. Kimrey and assistants, co-operating.
Farm of Clyde Wood, Vale, N. C., Lincoln County
Agricultural Agent G. A. Stoudemire and assistants, co-operating.
Farm of D. G. Harwood, New London, N. C., Stanly County
Agricultural Agent V. A. Huneycutt and assistants, co-operating.

Area IV - Southern Coastal Plain
Farm of V. S. Covil, Burgaw, N. C., Pender County
Agricultural Agent J. N. Honeycutt and assistants, co-operating.
Farm of W. G. Sullivan, Mt. Olive, N. C., Duplin County
Agricultural Agent V. L. Reynolds and assistants, co-operating.
Farm of Ossie T. Shackelford, Hookerton, N. C., Lenior County
Agricultural Agent F. J. Koonce and assistants, co-operating.
Farm of James R. Oliver, Fairmont, N. C., Robeson County
Agricultural Agent W. C. Williford and assistants, co-operating.

Area V - Northern Coastal Plain
Farm of W. L. Sawyer, Camden, N. C., Camden County
Agricultural Agent S. A. Tuten, co-operating.
Farm of J. J. Johnston, Scotland Neck, N. C., Halifax County
Agricultural Agent C. D. Peedin and assistant co-operating.
Farm of Henry Winslow, Williamston, N. C., Martin County
Agricultural Agent D. W. Brady and assistants, co-operating.

1/ The Official Variety Testing Program recognizes the co-operative spirit and civic-minded service rendered by the farmers who have furnished, prepared and cultivated the land for these trials.

The Agricultural workers in their respective areas contribute much to the success of these tests by aiding in the location of test sites, by holding field meetings, and also by their utilization of the information obtained.

Therefore, data from only one location in Area III are presented. There were four locations of four replications each in Area IV. Area V had three locations with four replications each, and there was a full and short season test at each. Drought affected the full season test in Martin County to the point that it was harvested but the data were not used.

The practice in the Northern Coastal Plain area, where short season corns are grown on many farms, is toward planting high populations and fertilizing heavy. It seemed desirable to compare these corns under this type of management to determine their response. Based on the 1962 test results, utilizing two levels of fertilizer and two plant populations, the 1963 tests were planted 8 inches in the drill. Soil tests were made and fertilization was applied in accordance with recommendations. An additional 50 pounds of liquid nitrogen at topdressing time was applied on each of the short season test in Area V.

Depending upon the number of entries, the following experimental designs were used: A 5 x 6 balanced and 7 x 8 triple rectangular lattice and a 7 x 7 triple lattice. Data were analysed by locations and combined over locations within an area. Only the combined data are shown.

A cone hopper was mounted on a John Deere planter and the tests were mechanically planted. Fifty percent extra kernels were planted and the plots were thinned to plants 12 inches apart in the row. Row width of the various tests ranged from 36 to 40 inches. The plots were two rows wide and 14 feet long with 13 kernels planted per row, except for the short season tests, which had 19 kernels per row.

A mixed fertilizer was applied at planting with a fertilizer attachment on the planter and the plots were topdressed with adequate nitrogen to give a medium to high fertility level. The test in Martin County received an additional 100 pounds of anhydrous ammonia immediately following planting. Simazine was used as a herbicide on most tests at planting. At layby, herbicides were applied in the form of liquid nitrogen, Lorox and 2, 4-D to control late grass and weeds. Excellent weed control was obtained in all tests except Pender and Duplin Counties. Cultural practices for each of the tests are shown in Table 2. Planting, collecting data, and harvesting were directly supervised by personnel of the North Carolina Agricultural Experiment Station.

All tests, except the mountain test in Area I, were harvested with a picker-sheller combine. A two row picker-sheller was slightly modified for harvesting individual plots. Grain from individual plots was caught as it came from the elevator and weighed. The combine was stopped at the end of each plot for a short interval of time in order for the machine to clean out between plots prior to weighing the corn from the plot. The machine appeared to give very satisfactory results. A sample of corn was taken from each plot for moisture determination. A picker-sheller was used to more nearly simulate the conditions under which these corns would be harvested on farms. The only corn harvested was that which came through the picker-sheller. If the machine failed to pick up a stalk due to lodging, this corn was not harvested.

Seasonal Conditions

The 1963 growing season in North Carolina was generally favorable for the production of corn except in the Northern Piedmont area and the

Table 2. Cultural practices used on the corn tests.

Area and Cooperator	Fertilizer Lbs/A	Herbicide[1/] Pre emerge	Top Dressing Lbs/A	Row Spacing In.	Date of Planting	Date of Harvest
Area I						
Upper Mt. Res. Sta.	250					
Dana G. Tugman	10-20-20	Simazine	100 liq. nit.	40"	May 13	Nov. 7
Area II						
Lower Mt. Res. Sta.	250					
J. R. Edwards	10-20-20	Simazine	100 liq. nit.	40"	May 14	Nov. 11
Area III						
Clyde Wood, Lincoln County	250, 10-20-20	Simazine	130 liq. nit.	40"	April 22	Oct. 21
Area IV						
W. G. Sullivan, Duplin County	250, 10-20-20	Simazine	100 liq. nit.	40"	April 12	Oct. 15
O. T. Shackerlford, Lenior County	250, 10-20-20	Simazine	100 liq. nit.	40"	April 12	Oct. 10
J. R. Oliver, Robeson County	250, 10-20-20	Simazine	100 liq. nit.	40"	April 14	Sept. 10
V. S. Covil, Pender County	250, 10-20-20	Simazine	100 liq. nit.	36"	April 16	Oct. 17
Area V						
W. L. Sawyer, Camden County	250, 10-20-20	Simazine	150 liq. nit.	40"	April 10	Short Season Sept. 9
			100 liq. nit.			Full Season Oct. 8
Henry Winslow, Martin County	600, 6-12-12 100 lbs. Anhydrous Ammonia	Simazine	150 liq. nit.	36"	April 11	Short Season Sept. 4

1/ Top dressed with liquid nitrogen and 14 oz./A of 2, 4-D used at all locations. In Lincoln, Pender and Duplin Counties 1 1/4 lbs./A Lorox was applied with 2, 4-D at layby. In Lenoir and Camden Counties 1 lb./A atrazine was applied with 2, 4-D at layby for late weed control.

Northern Coastal Plain area. At planting time, there was good soil moisture at all locations and a good stand was obtained in each test. Extreme drought conditions at pollinating time resulted in poor pollination in the Halifax, Guilford and Stokes County tests. The earlier hybrids had the better seed set since pollination occurred prior to the most severe drought. These three tests were abandoned prior to harvest time.

In Camden County the weather conditions were good with adequate rainfall during the early season. A shortage of soil moisture at pollination reduced the yield of the full season test, however, the earlier short season test had good yields.

The full and short season tests located in Martin County had their yields reduced as a result of the dry weather. There was more soil variation than normal and this was accentuated by the lack of adequate rainfall in the full season test. Heavy wind and rain around the middle of August caused some lodging. The rain was too late to help the short season much, but it did aid the full season test. However, due to field variation, the full season test was discarded.

The Lenoir County test had a very good growing season throughout and was a good test. Wind, rain and hail in late July caused severe lodging, more than any other tests. The quality of the corn was somewhat lower than other locations due to ears being on the ground as a result of the lodging.

Probably the best test was at Duplin County. Although it was never plowed because of excess moisture, yields were very high. Chemicals applied at the time of topdressing killed the grass, however, more came back and was removed prior to harvest.

The weather conditions were also good at the Pender County test except for very heavy (10.5 inches) rains on July 1 and 2, just after topdressing. The nitrogen was leached and this resulted in lower yields. Also, the herbicides failed to control weeds in this test.

The Robeson County test had a good growing season and was considered a very good test.

Only the Southern Piedmont had adequate rainfall. The Lincoln County test was generally good although it suffered from a lack of water at pollination. The later hybrids were more affected. Yields were moderate to low for the area.

The test in Stanly County was planted in late April, and as a result of the cool season, serious flea bug damage occurred which caused a poor stand. The test was replanted three weeks later, but the dry weather was severe at pollinating time which resulted in erratic yields. The earlier hybrids had moisture and yielded most. The test was harvested but the data was not used.

The two mountain tests had adequate rainfall and a good growing season. Yields were good at both locations, however, the later maturing hybrids were too late for the Ashe County location, where the growing season is very short.

Data[2/]

Data were collected on each plot at each location on yield, stand, moisture, lodging, ear height, ears per 100 stalks, exposed ear tips, and quality. Statistical analyses were made on each of the above

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2/ Statistical analyses were made in the Statistical Laboratory under the supervision of John O. Rawlings, Frank Verlinden and R. D. Weems. This assistance is gratefully acknowledged.

listed characters for individual locations and combined over locations within an area. The C. V. and L. S. D. are listed at the bottom of the various columns of the 1963 tables. Variety x location mean squares were used to compute the L. S. D.'s. Only the summary data by areas are shown for 1963. Comparisons of hybrids should be made only within areas and not between areas.

The percentage data presented in this report were not transformed and the L. S. D. and C. V. values listed are for the untransformed data. This resulted in the C. V.'s and L. S. D.'s being rather high for percent lodged and percent ear tips exposed.

Stand and Yield Adjustments

All plots having less than a 70 percent stand were adjusted to 70 percent of the maximum stand for statistical analysis. Any plot having a stand of 70 percent or above was not adjusted.

Yield adjustments were made by determining the average yield per plant of the particular variety in unadjusted plots and multiplying this value by the adjusted number of plants.

Yield

Weight of shelled corn was obtained by harvesting and weighing each plot of four replications of each entry at each location tested in Areas III, IV, and V. Six replications were harvested in Areas I and II. Area I was harvested by hand and weights of ear corn were converted to shelled corn basis. All plot yields were adjusted to 15.5 percent moisture.

<u>Stand</u>

Stand percent was determined by counting the number of plants per plot and dividing by 26 for the normal population tests and 38 for the high population tests.

<u>Moisture at Harvest</u>

Moisture content of grain at harvest is an index of maturity. Moisture percentage was determined from samples obtained from each plot at each location except in Area I, where the sample was taken on three replications. Samples were obtained by taking a sample from each plot immediately after the grain was weighed. The samples were placed in waterproof plastic-coated paper bags and analysed shortly thereafter on a Tag Heppenstall moisture meter.

<u>Lodging</u>

Lodging is a term used to describe stalks that are broken, leaning, or fallen to the ground. All plants broken below the ear or leaning more than 45° are considered lodged. Data were taken on each plot and a lodging percent calculated.

<u>Ear Height</u>

Ear height was determined by measuring the distance from the ground to the node where the ear is attached to the stalk.

<u>Ears Per 100 Stalks</u>

The number of ears per 100 stalks is a measure of prolificness and indicates whether a hybrid tends to be a single-ear or prolific type. Ears per plot were counted in each replication at every location prior to harvest. Ears per plot divided by plants per plot give the number of ears per plant. This figure multiplied by 100 gives the number of ears per 100 stalks. A fallacy in this method is that the count is made without shucking the corn out so some undeveloped ears may be counted.

Exposed Ear Tips

The number of exposed ear tips were counted in each plot. This number divided by the total number of ears per plot gives percent exposed tips.

Quality

Quality readings are based primarily on ear rot damage. The following scale was used to determine rating:

Rating	Per Cent of Damage Per Plot
1	0 - 10
2	10 - 20
3	20 - 30
4	30 - 40
5	40 - 50

The data were taken on each plot on the shelled corn, except in Area I.

Diseases

The reaction of hybrids to the major corn diseases (including the common leaf blights) is evaluated yearly. It is difficult to make adequate comparisons of hybrids over a period of successive years due to the fact that all hybrids are severely damaged during years of severe disease development. Preliminary observations indicate little difference in reaction of hybrids to the common leaf blight present in the Coastal Plain Area.

Insect Damage

Weevils and other stored grain insects often cause kernel damage to ears of corn before they are harvested. The tests included in this report were all harvested relatively early; therefore, stored insect damage was negligible.

RESULTS

Data are presented by areas for three year, two year and one year performance. Hybrids are divided into four groups in the tables, commercial yellow and white, and experimental yellow and white hybrids. There are numerous corn hybrids available to farmers for planting. These hybrids differ in yield, maturity, lodging, disease and insect resistance, grain quality and other factors. Hybrids that are outstanding in one or more characteristics may be inferior in others and should, therefore, be selected on the basis of overall performance.

Hybrids tested more than one year have a more accurate estimate of their general performance since they have been tested under more diverse environments. Growers should select a top performing hybrid for planting. A top performer is not necessarily the highest yielder, but it should have a high yield, mature within the desired time, stand upright at harvest, and also be reasonably good in other agronomic characteristics. All hybrids yielding above the mean of the test would be considered reasonably good performers.

The 1963 tests for all areas, except Area III, were good and the performance should be representative of the hybrids. Comparisons can be made directly in these summary tables.

Three of the four tests in Area III were abandoned. The data from the other test reported herewith appear to be representative.

Short season corn is early maturing and is usually sufficiently dry to be harvested and marketed in late August and early September. This type supplies an early (August and September) market demand, and the production of it has been limited primarily to the northeastern counties. The short season corn is grown for two specific purposes; (1) early market and (2) hogging off. The keeping quality of the short season hybrids is usually inferior, and unless the grower exercises extra precautions, the quality and feed value are likely to deteriorate rapidly from insect damage. Short season hybrids are usually less suitable for storing on the farm because of this rapid deterioration.

For general farm storing and feeding, full season corn is more likely to preserve its quality and usually is damaged less by insects. Full season corn requires from two to three weeks longer than short season hybrids to reach maturity and to become sufficiently dry to harvest and store. Usually, full season corn is dry enough to be harvested and stored in late September.

Table 3. Comparison of hybrids for certain characteristics

Northern Mountains - Area I

Three-Year Average - 1961-1962-1963

Average of 3 locations

Hybrid Designation	Yield Bus/A	Stand %	Moisture %	Lodged %	Ear Height Inches	Ears/100 Stalks	Ear Tips Exposed %	Quality
			Commercial Hybrids					
			Yellow Entries					
DeKalb 805	114	98	28.95	2	47	105	19	1.8
Pioneer 345A	113	97	27.31	9	45	120	40	2.5
DeKalb 640	101	97	29.69	3	53	136	16	2.1
Hollyview 100	99	97	33.10	8	53	141	16	2.5
Wood's V-26Y	98	94	28.54	11	44	122	23	1.7
Mean of Test	97	95	29.60	7	49	127	28	2.4
McNair 304A	95	95	31.76	9	53	152	6	2.2
V.P.I. 648	95	93	29.55	9	50	118	63	2.9
U.S. 282	84	95	33.56	19	59	128	30	2.5

Table 4. Comparison of hybrids for certain characteristics

Southern Mountains - Area II

Three-Year Average - 1961-1962-1963

Average of 3 locations

Hybrid Designation	Yield Bus/A	Stand %	Moisture %	Lodged %	Ear Height Inches	Ears/100 Stalks	Ear Tips Exposed %	Quality
			Commercial Hybrids					
			Yellow Entries					
Pioneer 309A	122	97	25.79	8	52	138	10	2.3
Dekalb 805	120	97	22.18	6	47	102	15	2.3
Pioneer 309B	119	94	26.07	6	52	144	6	2.2
Wagwood 200	119	97	28.49	10	54	167	3	2.7
Mean of Test	115	95	24.14	9	50	129	19	2.2
McNair 304A	111	95	24.94	6	50	134	7	2.0
V.P.I. 648	107	93	23.75	8	50	114	48	2.2
U.S. 282	106	94	24.82	19	58	126	32	2.0

Table 5. Comparison of hybrids for certain characteristics

Piedmont - Area III

Three-Year Average - 1961-1962-1963

Average of 6 locations

Hybrid Designation	Yield Bus/A	Stand %	Moisture %	Lodged %	Ear Height Inches	Ears/100 Stalks	Ear Tips Exposed %	Quality
			Commercial Hybrids					
			Yellow Entries					
Wagwood 200	107	92	15.71	1	46	144	1	1.7
McNair 444	100	88	15.08	5	51	149	1	1.3
Coker 67	99	88	16.16	2	52	161	1	1.1
Pioneer 309B	97	87	14.80	4	45	140	1	1.4
Coker 15	96	89	14.14	5	45	139	2	1.4
Dixie 82	96	83	16.35	6	55	150	1	1.9
N.C. 270	95	88	18.24	4	50	131	5	1.3
N.C. 27	93	87	14.89	7	53	143	2	1.3
Mean of Test	93	87	15.39	4	47	118	3	1.5
N.C. 288	92	87	16.04	3	53	136	1	1.5
Speight D-14	85	89	16.27	2	44	129	1	1.2
Dekalb 805	83	88	13.04	0	39	104	12	2.3
N.C. 46	77	88	14.14	5	43	118	3	1.7
			White Entries					
Coker 911	99	92	14.67	2	48	143	3	1.1
Dixie 29	96	85	15.03	9	51	152	2	1.1
McNair 425	92	83	15.24	3	49	155	2	1.1
Dekalb 925	83	86	13.87	5	45	112	4	1.5

Table 6. Comparison of hybrids for certain characteristics

Southern Coastal Plain - Area IV

Three Year Average - 1961, 1962, 1963

Average of 11 locations

Hybrid Designation	Yield Bus/A	Stand %	Moisture %	Lodging %	Ear Height Inches	Ears/100 Stalks	Ear Tips Exposed %	Quality
			Commercial Hybrids Yellow Entries					
Dixie 18	123	93	16.67	12	59	156	1	1.2
Coker 67	120	97	16.55	4	47	165	2	1.2
Coker 71	119	95	16.69	5	48	160	2	1.2
Britt 33	116	95	16.62	9	49	138	2	2.0
N.C. 270	114	94	18.17	9	47	129	5	2.0
Dixie 82	114	91	16.57	13	49	156	1	1.8
M & W 120	114	95	15.87	15	41	149	3	1.9
Mean of Test	112	94	16.69	10	46	144	3	1.7
McNair 444	111	93	15.83	17	48	144	1	1.7
Pioneer 309B	109	90	15.86	10	40	146	3	1.7
N.C. 27	107	93	16.13	16	51	145	3	1.9
Edmund 121	106	95	19.34	9	44	129	2	1.9
Speight D-14	105	95	16.74	7	40	128	2	1.7
Best X3	91	88	16.14	6	42	116	14	2.6
			White Entries					
Coker 811A	126	95	16.42	4	45	173	1	1.4
Coker 911	123	96	15.86	8	46	155	2	1.2
Dixie 29	105	90	15.50	13	43	153	1	2.1
			Experimental Hybrids Yellow Entries					
NC 1036-09	113	94	16.93	6	46	147	3	1.5

Table 7. Comparison of hybrids for certain characteristics

Northern Coastal Plain - Area V

Three-Year Average - Full Season - 1961-1962-1963

Average of 7 locations

Hybrid Designation	Yield Bus/A	Stand %	Moisture %	Lodged %	Ear Height Inches	Ears/100 Stalks	Ear Tips Exposed %	Quality
			Commercial Hybrids					
			Yellow Entries					
M & W 120	112	94	20.76	9	44	136	3	2.0
McNair 444	108	94	19.69	6	49	136	2	1.7
Dixie 82	106	92	21.76	5	50	140	2	1.8
Dekalb 1051	103	92	20.47	5	52	106	10	2.0
Mean of Test	103	93	21.54	7	47	129	4	1.8
N.C. 288	102	92	21.67	7	51	127	1	1.7
N.C. 27	99	90	20.44	13	50	144	2	1.8
Speight D-14	99	96	21.83	4	43	121	3	1.8
N.C. 270	98	93	24.22	10	49	120	3	1.8
			White Entries					
Coker 911	111	96	20.53	6	47	146	5	1.6
Dixie 29	97	91	20.21	10	46	134	2	1.6

Table 8. Comparison of hybrids for certain characteristics

Northern Coastal Plain - Area V

Three-Year Average - Short Season - 1961-1962-1963

Average of 8 locations

Hybrid Designation	Yield Bus/A	Stand %	Moisture %	Lodged %	Ear Height Inches	Ears/100 Stalks	Ear Tips Exposed %	Quality
			Commercial Hybrids					
			Yellow Entries					
Pioneer 345A	115	96	18.49	7	37	109	27	2.4
McNair 304A	113	94	23.39	9	37	123	6	1.9
Coker 15	112	96	22.25	16	40	130	5	1.2
Hofmeyer H-601	108	91	22.45	8	38	105	32	1.4
Mo. 916	108	92	23.43	8	42	111	16	1.8
Dekalb 805	104	92	19.76	10	36	99	6	1.7
Watson 401	102	87	22.12	5	35	103	9	1.4
Wood V-51A	101	88	22.79	27	41	115	22	1.7
Dekalb 803	101	93	20.57	6	38	100	7	1.9
Mean of Test	101	91	20.93	10	37	108	16	1.9
V.P.I. 648	100	93	21.49	9	38	101	32	1.9
Funk G-83	99	93	19.18	9	30	103	12	2.1
Dekalb 633	99	92	20.22	5	37	103	11	2.2
Cargill 285	96	90	19.17	5	34	103	9	2.4
N.C. 46	96	94	21.75	16	37	114	9	1.8
Wood V-26Y	94	90	20.08	7	34	100	20	2.0
Ohio C-54	83	91	18.71	12	24	105	23	1.8
			White Entries					
Wood V-125W	100	88	21.43	19	41	101	9	1.6

Table 9. Comparison of hybrids for certain characteristics

Northern Mountains - Area I

Two-Year Average - 1962-1963

Average of 2 locations

Hybrid Designation	Yield Bus/A	Stand %	Moisture %	Lodged %	Ear Height Inches	Ears/100 Stalks	Ear Tips Exposed %	Quality
			Commercial Hybrids					
			Yellow Entries					
Pioneer 345A	114	95	27.42	10	46	128	30	2.8
DeKalb 805	114	98	27.92	1	48	106	12	1.8
Pioneer 3166	108	95	28.72	7	47	122	25	2.6
DeKalb 640	99	96	29.24	4	52	143	4	2.2
DeKalb 824	99	94	27.76	4	50	122	19	2.2
Wood V-26Y	97	92	27.31	6	44	119	17	1.6
Mean of Test	95	93	28.85	7	48	129	24	2.4
McNair 304A	94	93	31.74	9	52	164	4	1.8
Hollyview 100	92	96	33.75	6	55	138	6	2.6
V.P.I. 648	90	90	28.82	10	50	120	48	2.3
U.S. 282	85	93	33.51	19	56	136	26	2.3
			Experimental Hybrids Yellow Entries					
AA 809	95	96	28.89	6	48	149	26	21

Table 10. Comparison of hybrids for certain characteristics
Southern Mountains - Area II
Two-Year Average - 1962-1963
Average of 2 locations

Hybrid Designation	Yield Bus/A	Stand %	Moisture %	Lodged %	Ear Height Inches	Ears/100 Stalks	Ear Tips Exposed %	Quality
			Commercial Hybrids					
			Yellow Entries					
Pioneer 309A	116	96	24.18	10	54	131	11	2.0
Pioneer 3166	116	97	20.70	20	44	110	33	2.3
Dekalb 805	113	95	20.32	8	48	102	16	2.0
Wagwood 200	110	96	26.54	14	54	154	2	2.5
Pioneer 309B	108	94	24.36	9	54	142	5	1.8
Best X 3	108	92	22.06	12	56	119	20	2.0
Mean of Test	106	94	22.12	14	50	122	20	2.0
McNair 304A	106	94	22.90	8	52	132	8	1.9
V.P.I. 648	100	96	21.28	11	50	109	50	1.8
U.S. 282	96	92	22.38	28	60	118	25	2.0
Mo. 916	96	98	27.37	14	56	118	16	2.2
N.C. 980	87	92	24.80	8	28	110	21	2.2
			White Entries					
Dekalb 925	96	96	22.24	30	53	124	6	1.6
			Experimental Hybrids					
			Yellow Entries					
Va. 219	114	97	20.46	12	48	110	34	1.8
Va. 148C	106	96	20.58	10	48	118	30	2.1

Table 11. Comparison of hybrids for certain characteristics
Piedmont Area - Area III
Two-Year Average - 1962-1963
Average of 3 locations

Hybrid Designation	Yield Bus/A	Stand %	Moisture %	Lodged %	Ear Height Inches	Ears/100 Stalks	Ear Tips Exposed %	Quality
			Commercial Hybrids					
			Yellow Entries					
Wagwood 200	108	90	14.46	1	44	150	0	1.5
McNair 444	102	84	13.52	6	50	160	2	1.4
Funk G-732	101	86	13.92	1	46	144	3	1.4
Coker 67	99	85	14.28	2	52	174	0	1.2
Dixie 82	94	78	14.68	4	50	166	0	1.9
N.C. 270	94	82	16.26	4	46	138	6	1.4
N.C. 27	93	82	13.69	8	50	158	2	1.4
Mo. 916	92	85	14.40	2	46	114	7	1.7
Coker 15	92	85	13.30	6	42	146	2	1.6
Pioneer 309B	91	84	13.70	4	43	150	1	1.6
N.C. 288	90	83	14.56	3	50	150	2	1.8
Mean of Test	87	84	14.18	4	44	136	5	1.7
S.C. 236	86	87	14.40	3	48	138	1	1.4
Wagwood 300	86	80	15.45	4	42	142	1	1.6
Speight D-14	79	84	13.95	2	41	137	0	1.3
Dekalb 1004	78	86	13.77	11	46	104	8	1.8
N.C. 46	71	84	13.20	7	41	122	6	1.6
Dekalb 805	70	82	12.62	1	37	106	16	2.4
V.P.I. 648	67	84	13.44	2	41	108	32	2.0
			White Entries					
Coker 911	96	90	13.15	2	46	150	1	1.2
Dixie 29	92	81	13.84	12	47	162	2	1.2
McNair 425	90	84	13.91	4	48	160	1	1.2
Dekalb 925	74	82	12.90	6	40	119	2	1.6
			Experimental Hybrids					
			Yellow Entries					
NC 1075-09	102	83	13.98	2	44	144	0	1.6
NC 1037	101	84	14.78	5	48	154	2	1.8
NC 1040	96	82	14.66	5	42	152	1	1.6
NC 1066-13	92	82	15.29	2	42	142	0	1.8
NC 1402	91	84	14.56	4	42	142	2	1.5
NC 1068-09	84	78	16.08	2	48	132	4	1.6
NC 1403	84	84	15.01	3	44	144	0	1.6

Table 12. Comparison of hybrids for certain characteristics
Southern Coastal Plain - Area IV
Two-Year Average - 1962-1963
Average of 8 locations

Hybrid Designation	Yield Bus/A	Stand %	Moisture %	Lodged %	Ear Height Inches	Ears/100 Stalks	Ear Tips Exposed %	Quality
			Commercial Hybrids					
			Yellow Entries					
Dixie 18	137	92	15.86	11	58	169	0	1.4
Funk G-732	133	95	15.58	5	44	150	6	1.7
S.C. 236	132	94	15.80	4	45	168	3	1.4
Coker 67	131	95	15.72	4	46	176	2	1.4
Coker 71	128	94	15.94	4	47	168	3	1.3
Britt 33	124	94	16.08	8	44	143	4	2.0
Edmund's 200	124	94	16.50	10	42	156	2	2.0
Greenwood 471	124	89	15.68	6	48	170	2	1.4
M & W 120	122	94	15.41	18	39	161	3	1.8
<u>Mean of Test</u>	<u>121</u>	<u>92</u>	<u>15.98</u>	<u>10</u>	<u>44</u>	<u>153</u>	<u>4</u>	<u>1.8</u>
Dixie 82	120	88	16.01	17	48	168	2	1.8
N.C. 270	118	91	17.30	11	46	140	7	2.0
McNair 444	118	90	15.14	18	46	156	2	1.6
N.C. 27	117	91	15.20	18	49	161	4	1.8
Edmund's 121	117	94	17.81	12	44	144	2	1.8
Pioneer 309B	116	88	15.20	12	39	159	4	1.5
Best X-7	116	90	17.28	13	43	136	6	2.0
Speight D-14	111	94	15.96	8	40	135	3	1.6
Best X-9	110	92	16.20	14	42	147	2	2.2
M & W 130	109	91	16.58	8	39	123	8	2.3
Best X-3	99	84	14.71	8	40	124	16	2.4
			White Entries					
Coker 911	136	96	15.18	10	44	166	4	1.4
Coker 811A	136	93	15.93	4	42	182	1	1.2
McNair 425	130	92	15.50	12	46	172	4	1.5
Dixie 29	114	88	14.96	16	44	168	2	1.6
			Experimental Hybrids					
			Yellow Entries					
NC 1403	128	93	16.40	6	40	148	2	1.6
NC 1402	122	94	16.50	8	42	158	2	1.8
NC 1036-09	120	93	15.99	6	44	158	2	1.8
NC 1037-15	120	91	16.11	10	42	147	4	2.2
NC 1068-13	111	92	16.36	3	45	126	6	2.1

Table 13. Comparison of hybrids for certain characteristics

Northern Coastal Plain - Area V

Two-Year Average - Full Season - 1962-1963

Average of 4 locations

Hybrid Designation	Yield Bus/A	Stand %	Moisture %	Lodged %	Ear Height Inches	Ears/100 Stalks	Ear Tips Exposed %	Quality
			Commercial Hybrids					
			Yellow Entries					
M & W 120	121	92	19.64	14	45	146	4	2.0
Pioneer 309A	120	92	19.68	2	43	122	8	1.5
Funk G-732	118	94	21.68	4	48	134	10	1.6
Pioneer 309B	117	84	19.65	6	43	151	8	1.7
Dixie 82	112	90	20.99	6	50	148	2	1.8
McNair 444	112	92	19.23	7	49	140	2	1.5
Dekalb 1051	110	91	19.86	5	52	108	13	2.0
Mean of Test	109	92	20.76	6	46	131	6	1.7
M & W 130	108	90	21.89	2	42	112	14	2.0
Speight D-14	108	95	20.90	4	46	128	4	1.7
N.C. 27	106	90	19.46	16	50	152	2	1.7
N.C. 288	106	90	20.90	7	52	131	2	1.5
N.C. 270	101	93	23.68	12	48	124	4	1.7
			White Entries					
Coker 911	119	95	19.59	8	48	152	6	1.4
McNair 425	118	92	20.14	5	49	150	4	1.7
Dixie 29	102	88	19.37	11	47	136	2	1.4
			Experimental Hybrids					
			Yellow Entries					
NC 1422	120	90	22.78	5	46	142	2	1.8
NC 1037	118	96	21.22	9	46	134	2	2.0
NC 1040	112	94	21.83	6	44	136	4	1.9
NC 1403	107	95	22.35	6	44	124	2	1.6
NC 1068-13	100	90	22.40	3	46	113	4	1.7

Table 14. Comparison of hybrids for certain characteristics
Northern Coastal Plain - Area V
Two-Year Average - Short Season - 1962-1963
Average of 5 locations

Hybrid Designation	Yield Bus/A	Stand %	Moisture %	Lodged %	Ear Height Inches	Ears/100 Stalks	Ear Tips Exposed %	Quality
			Commercial Hybrids					
			Yellow Entries					
Pioneer 310	126	96	22.78	2	37	108	14	1.9
Pioneer 345A	125	96	19.34	6	37	110	34	2.2
McNair 304A	123	94	24.68	8	36	122	6	1.8
Coker 15	120	97	23.47	22	40	127	7	1.2
Hofmeyer's H-601	114	91	23.63	6	40	105	36	1.6
Pioneer 323	113	94	21.75	2	36	102	26	2.1
Funk G-83	112	92	19.87	4	32	102	14	1.8
Cargill S-440	110	90	21.48	6	38	96	25	2.2
V.P.I. 648	108	92	21.93	8	37	100	36	1.8
Dekalb 824	108	95	21.35	7	38	101	13	2.3
Dekalb 805	108	92	20.64	6	38	96	8	1.6
Mean of Test	108	91	21.74	8	37	105	18	1.8
Mo. 916	107	94	25.39	11	44	108	11	1.6
Dekalb 803	106	92	21.26	6	39	99	8	1.8
Dekalb 633	105	92	21.24	2	37	99	14	1.8
Best X-3	105	83	22.84	16	40	110	18	2.0
Watson 401	104	83	22.74	4	36	102	11	1.6
Cargill 285	103	90	19.90	2	36	102	10	2.0
Cargill 340	103	87	20.02	6	36	101	12	2.1
Wood V-26Y	102	89	20.62	4	36	100	24	1.8
Wood V-51A	102	86	24.13	30	40	116	23	1.5
N.C. 46	99	92	22.98	20	36	116	10	1.8
Funk G-72	96	90	19.56	2	31	102	20	1.7
Ohio C-54	90	90	19.22	8	32	106	26	1.7
			White Entries					
Funk G-580W	109	90	24.23	10	38	134	3	1.2
Wood V-125W	102	84	22.84	22	41	100	8	1.5
			Experimental Hybrids					
			Yellow Entries					
Va. 30	115	92	20.54	6	34	110	16	2.0
Va. 219	106	92	21.40	4	35	96	23	2.2

Table 15. Comparison of hybrids for certain characteristics

Northern Mountains - Area I

Ashe County - 1963

Hybrid Designation	Yield Bus/A	Stand %	Moisture %	Lodged %	Ear Height Inches	Ears/100 stalks	Ear Tips Exposed %	Quality
				Commercial Hybrids				
				Yellow Entries				
Pioneer 345A	106	99	29.53	16	44	141	12	2.5
Pioneer 3166	96	100	30.25	10	46	125	28	2.2
Dekalb 640	93	100	30.68	6	50	163	8	2.0
Hollyview 60	92	97	29.03	2	46	112	25	1.8
Pioneer 310	91	98	34.82	7	47	163	15	2.3
McNair 304A	90	98	35.07	10	50	169	5	1.7
Dekalb 624	90	97	28.40	7	44	148	16	1.8
Dekalb 805	88	97	27.65	2	43	111	25	1.8
Funk's C-83	85	98	26.77	16	39	119	18	1.3
Wood's V-26Y	85	99	27.82	10	41	118	20	1.2
Dekalb XL-361	83	98	27.31	5	44	125	33	1.8
B & B X420	82	96	24.74	49	32	112	19	2.0
McCurdy 123-2	82	99	29.72	8	47	121	30	2.3
Mean of Test	82	98	30.40	11	47	134	23	2.1
Funk's G-81	81	98	28.60	16	40	136	22	1.7
McCurdy 7 X 11	81	97	26.25	7	50	112	50	1.5
Dekalb 824	80	95	29.23	4	49	133	26	2.0
Best X-3	75	87	35.96	6	51	158	25	3.3
V.P.I. 648	70	96	29.85	20	47	113	38	1.5
Mo. 916	68	98	39.10	2	60	159	0	3.0
U.S. 282	67	98	36.88	32	54	140	27	2.8
Hollyview 100	64	97	39.10	10	56	145	4	3.0
				Experimental Hybrids				
				Yellow Entries				
Funk's 15353	91	97	29.63	6	50	130	26	1.7
AA 467	84	99	25.30	2	46	129	32	2.0
AA 804	82	96	27.85	8	45	142	24	2.7
AA 890	81	100	30.55	10	55	136	24	2.8
AA 841	81	99	27.83	8	49	139	26	2.7
Dekalb X13-251	79	98	29.99	3	44	121	19	2.0
AA 622	72	99	30.68	7	49	127	41	2.7
AA 809	72	98	30.88	11	46	141	21	2.2
AA 862	70	96	32.55	16	53	128	33	1.8
L.S.D. (.05)	10	4	1.68	13	4	15	12	.8
(.01)	13	5	2.22	17	5	20	16	1.0
C. V. (%)	10	3	5	106	7	10	47	32

Table 16. Comparison of hybrids for certain characteristics
Southern Mountains - Area II
Haywood County - 1963

Hybrid Designation	Yield Bus/A	Stand %	Moisture %	Lodged %	Ear Height Inches	Ears/100 stalks	Ear Tips Exposed %	Quality
			Commercial Hybrids					
			Yellow Entries					
McCurdy M97	123	98	22.69	46	60	125	13	1.5
Pioneer 309A	121	99	24.76	19	56	136	12	2.0
Pioneer 310	119	95	23.67	23	51	143	19	1.7
Pioneer 3166	113	97	22.39	32	46	119	22	1.8
McCurdy 972 X 7	112	96	19.62	14	58	113	8	1.2
Pioneer 309B	112	99	27.61	14	57	141	5	1.7
Dekalb 805	107	96	19.74	11	52	106	20	1.8
Funk's G-707	106	98	25.04	14	55	132	10	1.7
Best X-3	105	94	23.72	18	56	117	16	2.0
Mean of Test	105	97	23.63	21	53	122	16	1.7
Wagwood 200	102	99	31.87	25	54	141	4	2.0
Dekalb 824	102	94	22.14	18	49	106	10	2.0
McNair 304A	100	98	26.41	15	51	119	9	1.5
Dekalb 1006	99	97	24.99	21	57	124	10	2.0
Dekalb 1004	98	100	22.66	21	58	109	9	1.7
V.P.I. 648	92	98	22.06	19	49	111	33	1.5
B & B X391	91	96	21.47	31	54	114	10	1.2
U.S. 282	91	96	26.27	40	62	113	25	2.0
N.C. 980	81	95	26.70	5	29	116	26	2.3
Mo. 916	76	97	33.74	25	61	123	9	2.0
			White Entries					
Hollyview 711W	103	96	21.77	29	51	126	18	1.2
Dekalb 925	96	100	22.67	47	56	121	6	1.0
			Experimental Hybrids					
			Yellow Entries					
AA 887	133	99	21.20	15	54	140	19	1.5
AA 273	127	100	20.98	13	52	118	22	1.8
Hollyview 160	125	98	20.42	29	61	126	24	1.5
Va. 219	110	99	21.02	18	51	115	21	1.2
Va. 227	106	97	20.90	9	48	119	51	1.2
Funk's 13023	106	96	22.01	14	55	139	13	1.8
Funk's 11549	106	99	25.74	31	54	116	16	1.5
Va. 148C	103	98	21.45	17	50	124	18	1.7
Dekalb X13-279	95	96	23.23	10	56	108	17	2.0
L.S.D. (.05)	15	5	2.04	12	3	18	13	.6
(.01)	20	7	2.70	16	4	23	17	.8
C. V. (%)	13	4	8	50	5	13	68	33

Table 17. Comparison of hybrids for certain characteristics

Piedmont - Area III

Lincoln County - 1963

Hybrid Designation	Yield Bus/A	Stand %	Moisture %	Lodging %	Ear Height Inches	Ears/100 Stalks	Ear Tips Exposed %	Quality
			Commercial Hybrids					
			Yellow Entries					
B & B X395	94	91	14.42	1	44	125	2	1.2
Wagwood 200	92	97	14.13	1	43	113	0	1.5
Wagwood 200A	88	93	13.82	6	44	117	0	1.2
Dekalb 1006	87	90	12.02	3	44	116	2	1.8
Pioneer 309B	86	90	12.79	6	42	137	0	1.5
Funk's G-707	86	91	12.82	4	43	144	2	1.0
McNair 444	85	90	12.45	5	46	134	0	1.2
Pioneer 310	84	94	12.12	2	33	116	1	1.5
Mo. 916	83	89	14.59	1	46	113	0	1.2
Funk's G-732	82	88	13.43	2	44	118	1	1.2
Coker 67	82	86	13.47	3	49	159	0	1.2
N.C. 288	81	93	13.92	1	50	129	1	1.8
Pioneer 3037	81	92	13.94	14	49	124	1	1.2
Dixie 82	80	82	13.86	5	49	151	0	1.8
Coker 15	80	90	12.41	5	41	118	0	1.5
Dekalb 824	80	100	11.92	4	33	100	3	1.8
N.C. 27	80	87	12.88	6	49	139	0	1.2
Asgrow 200	79	84	13.40	3	40	117	1	1.5
Asgrow 502	79	80	16.49	0	54	124	1	2.0
Pioneer 3048	77	82	13.62	3	45	134	0	1.5
<u>Mean of Test</u>	<u>77</u>	<u>88</u>	<u>13.37</u>	<u>5</u>	<u>42</u>	<u>123</u>	<u>1</u>	<u>1.4</u>
Watson 401A	76	95	12.94	4	32	104	1	1.2
McNair 304A	75	86	12.90	0	36	120	0	1.8
S.C. 236	73	89	14.10	3	45	121	0	1.5
Dekalb 1004	73	88	12.44	15	46	100	1	1.2
N.C. 270	72	87	16.12	5	44	111	0	1.2
Best X-11	72	83	14.32	7	42	131	1	1.5
Pioneer 309A	71	88	12.73	0	40	110	2	1.2
Wagwood 300	70	78	14.40	6	38	141	0	1.2
V.P.I. 648	69	94	12.07	4	38	101	10	1.2
Dekalb 805	65	87	11.33	1	36	101	1	1.5
Speight's D14	62	90	13.20	1	37	116	0	1.0
N.C. 46	60	85	12.01	8	38	116	1	1.0
			White Entries					
Dixie 29	96	92	12.89	12	43	153	1	1.0
Funk's G-580	82	85	12.43	22	40	142	1	1.0
Coker 911	78	95	12.40	3	43	135	0	1.0
McNair 425	72	95	12.72	8	46	130	0	1.0
Dekalb 925	66	86	11.61	7	38	116	1	1.2
			Experimental Hybrids					
			Yellow Entries					
NC 1075-09	82	84	12.96	5	39	123	0	1.8
Langley 1040	82	94	12.84	2	41	125	0	1.2
NC 1423	81	88	16.44	6	45	129	0	1.8
NC 6082	80	91	12.74	0	44	115	0	1.5
NC 1037	78	81	14.25	7	45	133	0	1.8
Funk's 11549	77	93	13.70	5	38	125	0	1.0
NC 2042-16	77	80	12.68	6	40	145	0	1.5
NC 1068-09	77	76	15.35	4	43	131	1	1.2
NC 1040	76	81	13.63	7	38	137	1	1.5
NC 1066-13	76	87	14.38	1	38	117	0	1.8
Funk's 13857	75	95	13.46	1	41	115	0	1.0
NC 1402	73	90	13.63	6	41	125	0	1.5
NC 2059	70	84	12.04	5	33	93	1	1.5
NC 1403	70	88	14.42	5	43	127	0	1.5
NC 2032	66	89	13.22	8	38	101	0	1.2
Dekalb C919	65	69	14.28	9	47	138	0	1.0
NC 1068-04	64	76	15.32	8	41	124	1	1.5
NC 2043-16	63	85	12.16	4	41	118	0	1.2
NC 2035	60	87	12.11	6	37	112	2	1.5
L.S.D. (.05)	18	12	.91	7	5	25	2	.7
(.01)	24	16	1.20	9	6	34	3	.9
C. V. (%)	17	10	5	104	8	15	228	36

Table 18. Comparison of hybrids for certain characteristics

Southern Coastal Plain - Area IV

Robeson, Duplin, Lenior, Pender Counties - 1963

Hybrid Designation	Yield Bus/A	Stand %	Moisture %	Lodging %	Ear Height Inches	Ears/100 Stalks	Ear Tips Exposed %	Quality
			Commercial Hybrids Yellow Entries					
P-A-G 751	160	100	15.83	5	43	186	2	1.4
Wagwood 200	159	100	16.08	12	40	174	1	1.5
Dixie 18	159	100	16.01	12	56	172	0	1.2
Greenwood 2437	154	100	16.87	7	43	180	0	1.3
Britt 33	151	100	16.45	6	42	154	1	1.9
Britt 44	148	100	17.29	12	40	172	1	2.0
Coker 67	147	100	15.84	5	44	180	2	1.3
Funk's G-732	147	99	15.55	5	42	153	4	1.6
Pioneer 3037	146	100	16.12	17	42	176	4	1.6
S. C. 236	144	96	16.09	1	42	172	2	1.5
Pioneer 309B	142	95	14.99	13	36	174	2	1.4
Dekalb 1212	142	99	15.44	13	45	150	3	1.6
N.C. 270	141	100	17.71	9	44	139	3	1.6
N.C. 27	141	100	15.20	15	46	166	3	1.8
Pioneer 3048	141	98	15.53	12	40	149	3	1.9
Dixie 82	139	97	16.32	15	46	162	1	1.9
Mean of Test	139	98	16.07	10	41	156	3	1.6
McNair 444	138	98	15.08	20	45	164	2	1.4
Greenwood 471	137	96	15.76	6	45	161	2	1.2
Coker 71	137	96	15.88	4	44	173	2	1.1
Dekalb 1213	137	100	15.42	9	48	154	4	1.4
Edmund 200	137	99	16.81	7	38	152	2	1.7
M & W 120	134	98	15.42	18	36	164	2	1.6
Asgrow 502	131	99	16.88	9	49	142	3	1.8
Edmund 121	131	98	18.22	12	41	150	1	1.8
Speight D-14	131	100	16.03	9	37	135	2	1.3
Best X 7	125	94	17.57	11	40	137	7	1.8
M & W 130	121	96	16.96	9	37	126	7	2.3
McNair 304A	119	98	15.54	15	34	141	3	1.8
Dekalb 1006	118	100	14.68	12	40	130	2	2.0
Best X 9	114	97	16.21	16	37	138	3	2.0
Asgrow 200	111	94	14.62	29	39	132	6	1.9
Best X 3	111	81	14.22	6	39	135	13	2.3
Dekalb 1004	111	100	14.80	19	42	120	4	2.1
Watson 401A	96	95	15.24	6	34	108	8	1.8
			White Entries					
Coker 911	156	100	15.17	10	42	170	3	1.3
Coker 811A	151	98	16.06	4	40	180	0	1.1
McNair 425	149	98	15.39	15	45	175	4	1.3
Dixie 29	128	95	14.51	19	42	168	2	1.4
			Experimental Hybrids Yellow Entries					
Funk's 13137	163	100	17.80	11	47	181	6	1.5
Greenwood 2629	160	100	17.39	3	42	169	0	1.6
NC 1072-13	154	99	15.83	7	42	157	2	1.6
NC 1424-15	154	100	18.53	14	40	159	2	1.9
Funk's 14486	151	100	16.34	9	47	173	6	1.5
NC 1406	149	100	16.02	16	37	162	2	1.9
NC 1072-15	148	97	15.81	10	37	162	2	1.5
NC 1075-09	145	98	14.81	8	38	153	3	1.8
NC 1403	143	96	16.50	9	38	158	2	1.6
NC 1075-13	142	99	15.43	13	39	155	1	1.7
NC 1036-09	139	99	16.38	3	41	154	2	1.8
NC 1037-15	139	98	16.02	7	38	153	2	1.9
NC 1402	138	99	16.81	8	41	163	1	1.7
NC 1068-04	136	100	16.92	7	40	140	3	2.1
NC 1407-15	134	98	16.22	6	35	140	7	1.4
Greenwood 2445	133	98	17.23	1	46	142	3	1.7
Speight D-16	128	99	15.69	7	34	161	2	1.8
NC 1068-13	127	97	16.41	3	39	132	2	1.8
L.S.D. (.05)	15	4	.70	9	3	14	3	.4
(.01)	19	6	.90	12	4	19	4	.5
C. V. (%)	14	6	5	79	9	12	117	30

Table 19. Comparison of hybrids for certain characteristics
Northern Coastal Plain - Area V
Camden County - Full Season Test - 1963

Hybrid Designation	Yield Bus/A	Stand %	Moisture %	Lodged %	Ear Height Inches	Ears/100 Stalks	Ear Tips Exposed %	Quality
				Commercial Hybrids				
				Yellow Entries				
Pioneer 309B	139	92	20.20	3	38	159	7	1.8
M & W 120	134	95	20.27	6	41	145	2	2.0
Pioneer 309A	131	95	20.86	1	38	126	6	1.5
P-A-G 751	131	97	21.78	1	47	126	4	1.5
Dekalb 1006	131	99	19.39	3	48	129	6	2.0
Funk's G-732	129	96	22.76	0	45	134	11	1.8
Dixie 82	127	97	22.08	2	45	141	4	1.8
N.C. 27	125	99	20.11	10	47	146	1	1.8
McNair 444	123	99	19.66	1	46	131	0	1.5
Pioneer 3048	123	86	22.18	2	42	143	3	2.0
Dekalb 1212	122	95	20.36	3	46	128	3	1.8
Dekalb 1051	119	92	20.02	4	50	111	9	1.8
Mean of Test	119	96	21.62	3	42	130	5	1.7
S.C. 236	118	98	21.40	3	48	144	1	1.0
Asgrow 502	118	96	22.75	4	50	116	13	1.8
Coker 67	117	98	22.80	0	45	156	1	1.8
McNair 304A	117	95	20.95	2	38	128	2	1.2
Coker 71	116	100	21.98	2	45	134	3	1.2
Dekalb 1213	115	97	20.95	8	46	115	5	2.0
N.C. 288	115	93	21.40	4	49	132	0	1.2
Best X-11	115	98	21.70	2	42	138	3	2.0
Asgrow 200	114	96	19.18	3	38	122	5	2.2
Funk's G-707	114	99	20.65	1	40	122	6	1.5
M & W 130	114	92	22.48	1	35	116	8	1.5
N.C. 270	113	98	24.86	4	46	119	3	1.8
Speight's D-14	106	99	22.10	1	40	127	2	1.8
				White Entries				
McNair 425	128	96	21.18	2	44	137	3	2.0
Coker 911	124	98	20.58	3	44	143	7	1.5
Dixie 29	114	94	20.04	7	42	132	3	1.5
				Experimental Hybrids				
				Yellow Entries				
NC 1072-13	135	97	21.52	0	45	148	1	1.2
NC 1422	133	98	23.67	1	42	131	1	1.8
NC 1424-15	129	97	23.55	5	40	127	9	1.8
NC 1075-13	126	99	20.46	0	40	137	1	1.8
NC 1072-15	126	98	21.40	3	38	124	8	1.5
Funk's 13857	122	97	21.40	2	41	123	16	1.5
NC 1404	122	98	22.00	1	40	121	5	1.2
NC 1037	121	99	21.45	3	39	126	3	2.0
NC 1068-04	121	98	23.45	0	44	117	4	2.0
NC 1040	119	97	23.06	5	41	132	4	2.0
Funk's 13147	118	100	20.30	2	36	128	24	1.8
NC 1423-04	118	100	25.08	4	39	123	5	1.5
NC 1411	116	97	21.85	2	40	132	0	2.0
NC 1406	113	97	22.35	2	37	125	3	1.2
NC 1407-15	113	96	22.18	1	37	132	8	2.0
NC 2043-16	113	97	20.65	1	41	124	2	1.8
NC 1403	109	100	22.90	1	38	118	2	1.8
NC 1431-15	107	95	21.48	2	35	130	13	2.0
NC 1068-13	103	95	23.01	2	40	112	2	1.5
Dekalb C919	102	80	22.68	0	46	122	1	1.5
Speight's D-16	84	94	20.28	6	32	122	0	1.5
L.S.D. (.05)	19	6	1.29	5	5	23	6	.8
(.01)	25	8	1.70	7	7	30	8	1.1
C. V. (%)	11	5	4.00	49	9	12	93	35

Table 20. Comparison of hybrids for certain characteristics

Northern Coastal Plain - Area V

Martin, Camden Counties - Short Season Test - 1963

Hybrid Designation	Yield Bus/A	Stand %	Moisture %	Lodging %	Ear Height Inches	Ears/100 Stalks	Ear Tips Exposed %	Quality
			Commercial Hybrids Yellow Entries					
Pioneer 345A	145	97	22.27	2	32	108	28	2.1
P-A-G SX63	140	96	24.98	2	31	102	23	1.6
Watson 401A	129	98	26.68	2	33	103	19	1.5
Funk's G-83	128	95	22.94	4	25	101	13	2.0
McNair 304A	128	97	28.36	2	32	116	2	1.8
Todd 645	123	97	23.10	3	30	102	14	2.1
V.P.I. 648	122	98	25.06	2	32	95	22	2.0
Coker 15	121	99	27.74	3	35	115	4	1.3
Pioneer 310	120	95	27.16	1	30	100	13	1.9
Cargill 360	117	89	26.42	4	32	103	7	2.0
Wood's V-26Y	117	98	23.65	3	29	97	19	1.9
DeKalb 824	117	98	25.00	5	31	98	9	2.5
Wood's V-51A	116	87	28.76	8	36	108	11	1.4
Mean of Test	116	94	25.58	2	32	99	13	1.8
Wood's S.C. 25	114	91	24.43	3	30	94	5	1.8
DeKalb 633	114	95	25.07	2	32	98	11	1.9
DeKalb 803	114	96	24.52	3	34	97	10	2.1
Pioneer 323	114	97	25.70	1	31	95	18	2.1
P-A-G SX59	113	95	27.10	4	31	91	16	2.0
Hofmeyer H-601	113	94	27.76	3	35	96	33	1.3
Cargill S 440	112	93	25.45	1	33	92	29	2.3
Best X-3	111	80	27.37	1	36	105	14	1.6
Van's V8-102	111	100	28.62	0	37	95	2	1.8
Cargill 285	110	91	23.30	2	31	102	8	2.0
Cargill 340	109	91	23.23	1	31	96	10	2.1
MO. 916	107	97	33.28	1	41	96	1	1.1
NC 46	106	97	26.86	1	34	104	5	1.8
Watson 401	105	76	25.77	0	30	102	8	1.4
Funk's G-72	105	93	22.51	1	23	98	15	1.6
DeKalb XL-45	104	90	21.42	0	22	102	40	2.0
DeKalb 805	104	93	24.08	1	32	90	11	1.9
P-A-G SX 9	103	98	21.76	1	26	94	22	2.0
Todd 635	103	94	24.70	1	30	91	9	1.6
Ohio C-54	97	89	21.94	1	25	100	20	1.6
			White Entries					
Pioneer 509W	121	97	26.00	5	36	110	6	1.0
Wood's V-125W	118	88	27.29	8	38	96	6	1.3
Funk's G-580W	107	94	29.16	4	33	107	3	1.0
			Experimental Hybrids Yellow Entries					
AA 842	134	96	23.18	1	34	100	24	1.5
AA 890	131	95	26.33	4	36	105	18	1.5
AA 841	128	95	23.02	1	32	105	25	1.8
Todd T 706	127	90	24.71	7	37	98	1	1.8
McNair 006	125	93	24.43	1	32	96	7	2.1
Watson 202	125	98	26.81	1	32	98	5	1.9
VA 30	124	93	23.37	2	26	110	10	2.3
Ohio & Mich, G-765	124	99	23.70	2	30	101	22	2.0
DeKalb X60-8136	122	98	25.38	1	32	100	15	1.6
Funk's 15353	121	95	26.54	3	35	98	22	1.9
Watson 204	116	100	26.31	0	26	91	2	2.0
Van's V8-X02	116	92	28.14	1	34	94	1	1.6
McNair 008	116	91	25.18	0	33	101	20	2.0
Watson 201	113	91	28.67	0	29	97	6	1.5
Van's V8-102A	111	98	28.40	1	38	97	4	1.9
Hofmeyer H-501	111	95	23.93	3	32	98	15	2.1
VA 219	110	93	25.40	1	30	87	17	2.3
Watson 203	107	100	26.91	0	27	88	3	2.0
VA 227	106	93	25.01	1	27	92	29	2.0
			White Entries					
Funk's 12421W	113	94	27.40	4	33	97	11	1.0
L.S.D. (.05)	21	9	1.82	NS	4	NS	9	.7
(.01)	28	12	2.43	NS	5	NS	13	.9
C. V. (%)	16	8	5	155	12	12	67	30

Part II

GRAIN SORGHUM

Most of the grain sorghum in North Carolina is grown in the Piedmont where it is used primarily for feed purposes. In the Piedmont area it is generally produced as a single crop for the season, while in the Coastal Plain area it is frequently grown as a second crop following small grains. Acreage has declined in the Coastal Plain due to the severe bird damage occurring in this area and to the Federal feed grain program, consequently, tests were only conducted in the Piedmont area.

The data presented in this report provide information on the performance of commercial varieties, hybrids, and experimental lines grown in various geographical areas of the state and under different cropping systems. Information of this nature serves as a guide to sorghum breeders in their development of varieties and to growers in choosing a variety to plant.

This report presents the results of the North Carolina Official Sorghum Variety Trials for the 1963 season and summarizes the results of tests conducted during the past three years.

EXPERIMENTAL PROCEDURE

In this program are included experimental lines, hybrids, and varieties developed by public and private agencies. Any individual or firm may make application for having entries included. Quantitative data from experiments in which the proposed entry is compared with recognized hybrids and varieties must show merit for the entry and must accompany the application. A fee is charged on an entry basis. Personnel of the testing program may include entries about which further information is desired.

Agencies Sponsoring Entries		Designation
Advance Seed Company	Phoenix, Arizona	Advance
Ark. Agricultural Experiment Sta.	Fayetteville, Ark.	AKS
DeKalb Agricultural Association	Lubbock, Texas	DeKalb
Frontier Hybrids	Scott City, Kansas	Frontier
Ga. Agricultural Experiment Sta.	Experiment, Georgia	Ga.
Lindsey Seed Company	Lubbock, Texas	Lindsey
Northrup, King and Company	Lubbock, Texas	NK
N.C. Agricultural Experiment Sta.	Raleigh, N. C.	RS
Paymaster Seed Farms	Plainview, Texas	Apache, Kiowa
Pioneer Corn Company, Inc.	Tipton, Indiana	Pioneer
Taylor-Evans Seed Company	Tulia, Texas	T-E

Test Locations

Three locations were used in 1963 in the Piedmont as shown in Figure 2. All tests were located on private farms and were considered to be very good grain sorghum tests. All tests were planted in a good seed bed, with ample moisture, and came up to a good stand.

Seasonal Conditions

The 1963 growing season was generally favorable for the production of grain sorghum in the lower Piedmont area. Rain fairly well distributed in the season caused good growth. Weather was very favorable for harvesting and very little lodging occurred.

Figure 2 —Locations of Grain Sorghum Trials

Co-operators 1963

Anson County

Carl Phiffer, Peachland, North Carolina
Anson County Agricultural Agent J. R. Potter, cooperating

Cabarrus County

Billy Hammill, Gold Hill, North Carolina
Cabarrus County Agricultural Agent J. R. Allen, cooperating

Stanly County

D. G. Harwood, New London, North Carolina
Stanly County Agricultural Agent V. A. Huneycutt, cooperating

The Anson County test had a favorable growing season with sufficient moisture to produce a very good test. A lack of sufficient water during July and early August reduced the yields of the entries in Cabarrus County Some damage resulted from excess water early in the growing season on one end of the Stanly County test; however, this was a good test with good yields.

Cultural Practices

Cultural practices, such as soil preparation, date of planting, fertilization and topdressing were in accord with good management and were the same for all entries at a location, Table 21. Planting and harvesting were directly supervised by personnel of the North Carolina Agricultural Experiment Station.

Experiments were harvested with a modified combine. The grain was caught as it came from the elevator of the combine and was weighed at the end of each plot on scales mounted on the combine.

Data[3/]

A randomized block design was used with four replications at each location. Plot size was two rows 27 feet long. The row width was 40 inches in each test.

Yield. The plots were harvested individually and the average grain yield was calculated in pounds per acre.

Moisture. A moisture percentage was taken and yields were adjusted to 14 percent moisture.

3/ Statistical analysis were made in the Statistical Laboratory under the supervision of John O. Rawlings.

Table 21. Cultural practices on grain sorghum performance trials. Piedmont - 1963.

Area and co-operator	Fertilizer lbs/A	Herbicide[1/] Pre emerge	Top Dressing lbs/A	Row Spacing inches	Date of planting	Date of harvest
Anson County Carl Phiffer	250 10-20-20	Simazine	100 liq. nit.	40"	May 9	Sept. 12
Cabarrus County Billy Hammill	250 10-20-20	Simazine	100 liq. nit.	40"	May 6	Sept. 12
Stanly County D. H. Harwood	250 10-20-20 500 2-12-12 Drilled	Simazine	100 liq. nit.	40"	May 7	Sept. 11

1/ All tests were topdressed with liquid nitrogen and 1 1/4 lbs/A of Lorox at layby for late weed control.

Plant Height. The average height of plants in each plot was taken and an average for each entry was calculated.

Head Exsertion. The distance in inches from the top leaf to the base of the head was measured and referred to as head exsertion. This distance gives an indication of the ease with which grain sorghum may be harvested without leaves and plant material hindering the operation.

Days to Flower. The average number of days from planting to flowering was determined.

RESULTS

The data presented in Tables 22, 23 and 24 are summaries for various years and locations and indicate how varieties have been performing in different environments. A three-year average performance for the Piedmont is shown in Table 22. Entries ranged in yield from 3551 for Frontier 67X to 3049 pounds per acre for RS 610.

The performance of entries during the last two years in the Piedmont is shown in Table 23. Yields ranged from a high of 4348 pounds per acre for Ga. 229E to 2946 for DeKalb C-44b.

A summary of the 1963 results for the Piedmont is shown in Table 24. Yields ranged from 5077 pounds per acre for Ga. 229E to 3266 for Frontier 410-E. Several entries yielded above the mean of the test which is indicative of their good performance. All data should be studied in evaluating varieties and hybrids. The data from these tests are probably representative of the performance of these hybrids since the tests were generally good and the season was favorable for the production of grain sorghum. However, data for more than one year should be utilized in determining the performance of hybrids.

Table 22. Performance of grain sorghum - Piedmont. Three-year average - 1961-1962-1963. Average of 8 locations

Entries	Yield lbs/A	Days to Flower
*Frontier 67X	3551	73
TE 77	3427	78
<u>Mean of Test</u>	<u>3299</u>	<u>74</u>
Frontier 400C	3294	73
RS 610	3049	73

* Experimental

Table 23. Performance of grain sorghum - Piedmont. Two-year average - 1962-1963. Average of 6 locations

Entries	Yield lbs/A	Days to Flower
*Ga. 229E	4348	76
AKS 614	4021	72
TE 66	3434	74
Frontier 400-C	3388	72
Ga. 609	3372	75
*Frontier 67X	3331	74
TE 88	3239	78
<u>Mean of Test</u>	<u>3202</u>	<u>75</u>
TE 77	3174	78
*Frontier 22X	3160	78
Lindsey 755	3094	78
RS 610	2971	74
Dekalb C-44b	2946	74

* Experimental

Table 24. Performance of grain sorghum for certain characteristics - Piedmont. Anson, Cabarrus and Stanly Counties - 1963.

Entries	Yield lbs/A	Moisture 1/ %	Days to Flower	Plant height in.	Head exsertion in.
*Ga. 229-E	5077	14.65	75	48	5
AKS 614	4559	14.66	74	43	4
Apache	4375	16.74	80	44	5
Pioneer 820	4337	15.24	79	42	4
*Advance 76-E	4333	15.25	79	41	3
*Dekalb Exp. 1510	4302	14.23	75	44	4
NK 222	4165	14.33	74	38	5
T-E 66	4151	13.79	76	35	4
Frontier 400-C	4142	14.69	74	46	7
Ga. 609	4118	15.31	74	47	4
Mean of Test	4106	14.95	76	43	5
T-E 77	4100	17.18	81	43	4
*Frontier 22X	4081	15.59	79	47	3
T-E 88	4035	16.96	80	45	5
Pioneer 846	4023	15.11	76	43	6
*NK X3049	4022	14.70	76	41	4
*Frontier 67-X	4013	15.16	76	39	3
Dekalb F-63	3992	14.81	79	43	3
RS 610	3979	14.58	75	45	7
Advance 51	3954	13.71	73	46	9
Lindsey 551	3949	14.55	75	39	5
Dekalb C-44b	3902	13.87	75	42	5
Kiowa	3862	14.57	76	46	6
Lindsey 755	3816	14.75	77	43	6
Frontier 410-E	3266	14.44	78	34	3
L.S.D. (.05)	504	.82	1	3	1
(.01)	665	1.08	1	4	2
C. V. (%)	15	6	2	8	37

* Experimental

1/ Moisture data from Anson and Cabarrus Counties.

Part III

CORN AND SORGHUM SILAGE

The beef and dairy cattle industry is expanding in North Carolina and the trend is toward greater utilization of silage in feed programs. It is desirable to know the performance and feed value of different corn and sorghum hybrids so as to ascertain their general use in the various areas of the state.

The data presented in this report provide information on the performance of commercial hybrids and experimentals grown in various Coastal, Piedmont and Mountain areas of the state. Information of this nature serves as a guide to breeders in their development of hybrids for silage and to growers in choosing a hybrid to plant for silage production.

This report presents the results of the North Carolina Official Corn and Sorghum Silage trials for the 1963 season.

EXPERIMENTAL PROCEDURE

In this program are included corn and sorghum hybrids and experimentals developed by public and private agencies. Any individual or firm may make application for having entries included. A fee is charged on an entry basis. Personnel of the testing program may include entries about which further information is desired.

Agencies Sponsoring Entries		Designation	
Advance Seed & Grain Company	Phoenix, Arizona	Advance	(Sorghum)
Asgrow Seed Company	San Antonio, Texas	Asgrow	(Sorghum)
Beams Farm	Lawndale, N. C.	B & B	(Corn)

Coker Pedigreed Seed Company	Hartsville, S. C.	Coker	(Corn)
DeKalb Agricultural Assoc., Inc.	DeKalb, Illinois	DeKalb	(Corn & Sorghum)
Frontier Hybrids, Inc.	Scott City, Kansas	Frontier, Hidan	(Sorghum)
Funk Bros. Seed Company	Bloomington, Illinois	Funk	(Corn)
Lindsey Seed Company	Lubbock, Texas	Lindsey	(Corn & Sorghum)
McNair Seed Company	Laurinburg, N. C.	McNair	(Corn)
N.C. Agricultural Experiment Sta.	Raleigh, N. C.	N.C., Sart	(Corn & Sorghum)
Northrup, King and Company	Lubbock, Texas	NK	(Sorghum)
Paymaster Seed Farms	Plainview, Texas	3 Little Indians, Aztec	(Sorghum)
Pfister Associated Growers, Inc.	Aurora, Illinois	P-A-G	(Sorghum)
Pioneer Corn Company, Inc.	Tipton, Indiana	Pioneer	(Corn & Sorghum)
S.C. Agricultural Expt. Sta.	Clemson, S. C.	S.C.	(Corn)
Taylor-Evans Seed Company	Tulia, Texas	T-E	(Sorghum)
T. W. Wood and Sons	Richmond, Virginia	Wood's, Pamunkey Ensilage	(Corn)
Wagwood Farms, Inc.	Gibsonville, N. C.	Wagwood	(Corn)

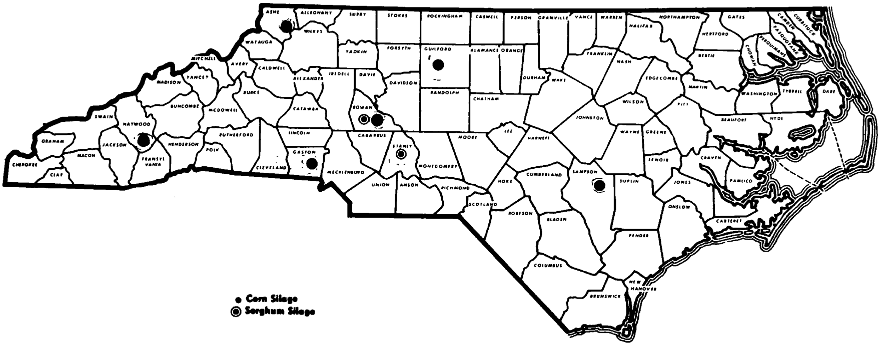
Test Locations

Six locations were used for corn silage--one in each of the Mountain areas, three in the Piedmont, and one in the Coastal Plain. Two locations were used for sorghum silage in the Piedmont as shown in Figure 3. One of the sorghum tests, two of the Piedmont tests and the Coastal Plain test of corn silage were on private farms, whereas the two Mountain tests and a Piedmont corn and sorghum silage test were on Research Stations.

Seasonal Conditions

The growing season was favorable for the production of silage at each location; however, dry weather about harvest time decreased the

Figure 3 **Location of Corn and Sorghum Silage Trials**



Corn Silage

Ashe County

Dana G. Tugman, Superintendent, Upper Mountain Research Station, Laurel Springs, North Carolina
Ashe County Agricultural Agent A. B. Addington, cooperating

Haywood County

J. R. Edwards, Superintendent, Mountain Research Station, Waynesville, N.C.
Haywood County Agricultural Agent V. L. Holloway, cooperating

Gaston County

Lawrence Harris, Bessemer City, North Carolina
Gaston County Agricultural Agent Max Erwin, cooperating

Guilford County

C. M. Doggett, Route 1, Summerfield, North Carolina
Guilford County Agricultural Agent, W. H. Kimrey, cooperating

Rowan County

Warren Bailey, Superintendent, Piedmont Research Station, Salisbury, N.C.
Rowan County Agricultural Agent P. H. Satterwhite, cooperating

Sampson County

Maxton Bass, Newton Grove, North Carolina
Sampson County Agricultural Agent W. W. Gurkin, cooperating

Sorghum Silage

Rowan County

Warren Bailey, Superintendent, Piedmont Research Station, Salisbury, N.C.
Rowan County Agricultural Agent P. H. Satterwhite, cooperating

Stanly County

R. W. Lowder & Son, New London, N. C.
Stanly County Agricultural Agent V. A. Huneycutt, cooperating

yield slightly in the Piedmont and Coastal Plain tests. These tests began to dry very fast and had to be harvested earlier than was anticipated if good weather conditions had prevailed. The cooperator in Stanly County harvested the test inadvertently, so it was discarded. The Mountain tests had good moisture conditions throughout the growing season and very high yields were recorded.

Cultural Practices

Cultural practices, such as seed bed preparation, date of planting, fertilization, cultivation and harvesting were in accord with good farming practices and were the same for all entries in a given test, Table 25. Planting harvesting and sampling were directly supervised by personnel of the North Carolina Agricultural Experiment Station. All tests were cut by hand and fed through an ensilage cutter mounted on a 3-point hitch and operated by the power take-off.

Criteria for Evaluating Silage Entries[4/]

A randomized block design with four replications was used for each test. The plots consisted of two rows 14 feet long. Spacing within the row was approximately 6 inches for corn and 2 inches for sorghum. Row width varied between locations and is shown in Table 25.

Yield of Silage. The silage was cut, chopped and weighed by plots in the field and the data converted to an acre basis.

Moisture Per Cent. Six stalks were selected at random from each plot and chopped for the moisture and chemical analysis sample. The sample was

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[4/] Statistical analyses were made in the Statistical Laboratory under the supervision of John O. Rawlings.

Table 25. Cultural practices on corn and sorghum silage performance trials.

Area and co-operator	Fertilizer lbs/A	Herbicide[1/] Pre emerge	Top Dressing lbs/A	Row Spacing Inches	Date of Planting	Date of Harvest
			Corn Silage			
Ashe County Dana G. Tugman	250 10-20-20	Simazine	100 liq. nit.	40"	May 13	Sept. 24
Haywood County J. R. Edwards	250 10-20-20	Simazine	100 liq. nit.	40"	May 14	Sept. 17
Gaston County Lawrence Harris	250 10-20-20	Simazine	100 liq. nit.	40"	April 15	Aug. 12
Guilford County C. M. Doggett	250 10-20-20	Simazine	100 liq. nit.	40"	April 19	Aug. 20
Rowan County Warren Bailey	250 10-20-20	Simazine	120 liq. nit.	38"	May 9	Aug. 18
	Drilled 500 0-20-0					
Sampson County Maxton Bass	250 10-20-20	Simazine	100 liq. nit.	40"	April 16	Aug. 7
			Sorghum Silage			
Rowan County Warren Bailey	250 10-20-20	Simazine	120 liq. nit.	38"	May 9	Aug. 19
	Drilled 500 0-20-0					Aug. 23

1/ The Rowan, Ashe and Haywood Counties were top dressed with liquid nitrogen and 14 oz./A of 2, 4-D at layby. The Gaston and Guilford County tests were top dressed with liquid nitrogen and 2, 4-D plus 1 1/4 lbs/A of Lorox at layby. The Sampson County test was sprayed with liquid nitrogen and 2, 4-D plus 1 lb/A of atrazine for late weed control.

dried in a forced air oven to determine moisture. The dried samples were subsampled and ground through a hammer mill and subsampled again and ground in a Wiley mill. The ground sample was analyzed for crude protein and crude fiber.[5/]

Dry Weight Tons/A. The green weight of silage was multiplied by the percent dry matter (corrected).

Total Digestible Nutrients Per Cent. The formula TDN % = 79.40 - (0.69 x CF) was used to calculate the TDN on a dry basis.

Estimated Net Energy Per Cent. The formula ENE % = 75.97 - (0.96 x CF). ENE on a dry basis was used.

Crude Protein % and Crude Fiber %. These were determined from the chemical sample and reported on a dry basis.

Digestible Protein. The formula DP = (0.93 x CP) - 3.32 was used to calculate digestible protein on a dry basis.

Plant Height. Height of plants was measured in inches.

Days to Mid Bloom. When each sorghum hybrid was in mid bloom the date was recorded and the number of days to mid bloom was calculated.

Ear Height. Height of ears in the corn tests was measured in inches.

Stand Count. Plants were counted and a stand count % was calculated for the corn silage.

RESULTS

Corn Silage.

The corn silage data are presented by areas in Tables 26 through 32. The data in Tables 26, 27 and 28 are summaries over a two-year period for

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5/ The chemical analyses were made under the direction of L. M. Nixon through the courtesy of the North Carolina Department of Agriculture, Division of Feed Testing.

the corn silage. These data show the performance of hybrids under several environments and would be considered most useful in evaluating the performance of a hybrid. Some of the hybrids that were highest in tons of dry matter produced per acre were lowest in percent total digestible nutrients and estimated net energy. The data should be considered from the amount of feed value produced per acre.

There was variation in the amount of dry matter produced by the different hybrids in the Northern Mountains area ranging from 9.2 to 7.7 tons per acre for Coker 911 and U.S. 282 respectively, Table 26. The feed value is the important factor in silage and the ENE (estimated net energy) is a reflection of this feed value. There was a range from 53.0 for DeKalb 640 and V.P.I. 648 to 48.8 for Coker 911 in the Northern Mountains, Area I, Table 26.

The performance of corn silage hybrids in the Southern Mountains, Table 27, shows a range from 9.2 tons of dry matter per acre for Pamunkey Ensilage to 7.4 tons for U.S. 282. The percent ENE ranged from 53.5 for U.S. 282 to 50.4 for McNair 425. All hybrids performed well.

In Table 28 the data on corn silage in the Piedmont are shown. Yields were considerably below those in the Mountain tests. Dry matter tons per acre ranged from 6.6 for N.C. 270 and Coker 911 to 6.0 for N.C. 27. Estimated net energy percent was about the same as for the Mountain tests ranging from 52.0 to 49.7 percent for McNair 444 and N.C. 27 respectively.

This is the first year a silage test has been conducted in the Coastal Plain. The corn silage performance in the Sampson County test, Table 32, shows a range in dry matter tons/A of 7.9 for Coker 67 to 6.6 for NC 1068-04.

Yields are slightly lower than the Piedmont area; however, the estimated net energy percent was higher than any other area ranging from 55.6 for both Wagwood 200 and Pioneer 3048 to 52.6 for Pioneer 3017.

Sorghum Silage.

Sorghum silage tests were conducted in the Piedmont for 1962 and 1963. Yields of some entries were comparable with the corn silage yields. Estimated net energy percent ranged from 54.7 for NK 300 to 50.7 for T-E Haygrazer, Table 33. Maturity as well as yield and chemical make up should be studied in deciding what to plant for silage so as to fit it into the feed program on the farm.

Table 26. Performance of corn silage - Northern Mountains - Area I. Ashe County - Two-year average - 1962-1963. Average of 2 locations

Entries	Green Wt. Tons/A	Moisture %	Dry Matter Tons/A	TDN %	ENE %	Crude Protein %	Digestible Protein %	Crude Fiber %	Stalk Height Inches	Stand Count %
Coker 911	41.2	77.8	9.2	59.9	48.8	9.0	5.0	28.3	123	96
Mean of Test	34.2	75.1	8.4	61.4	50.9	8.2	4.4	26.2	123	83
Coker 15	34.0	73.5	8.9	61.4	51.0	8.0	4.1	26.0	126	94
Dekalb 640	34.0	74.0	8.8	62.9	53.0	8.2	4.3	24.0	115	97
U.S. 282	32.2	75.9	7.7	62.1	51.9	8.6	4.6	25.1	124	88
V.P.I. 648	30.8	71.8	8.6	62.9	53.0	7.8	3.9	23.8	120	90

Table 27. Performance of corn silage - Southern Mountains - Area II. Haywood County - Two-year average 1962-1963. Average of 2 locations

Entries	Green Wt. Tons/A	Moisture %	Dry Matter Tons/A	TDN %	ENE %	Crude Protein %	Digestible Protein %	Crude Fiber %	Stalk Height Inches	Stand Count %
McNair 425	43.7	78.8	9.1	61.0	50.4	9.0	5.0	26.7	144	92
Pamunkey Ensilage	43.1	78.6	9.2	61.2	50.6	8.2	4.3	26.5	163	84
Coker 911	40.4	77.9	9.0	61.2	50.6	9.1	5.2	26.4	142	86
Dekalb 1051	40.4	78.7	8.6	61.4	50.8	9.1	5.2	26.2	142	88
Pioneer 309A	39.7	76.6	8.4	62.6	52.7	8.7	4.8	24.2	130	87
McNair 444	38.6	77.3	8.8	62.0	51.7	8.1	4.2	25.3	138	92
Mean of Test	37.6	77.6	8.4	61.8	51.6	8.6	4.7	25.4	138	86
U.S. 282	33.0	77.3	7.4	63.2	53.5	8.9	5.0	23.4	132	82

Table 28. Performance of corn silage - Piedmont - Area III. Two-year average 1962-1963. Ave. of 5 locations

Entries	Green Wt. Tons/A	Moisture %	Dry Matter Tons/A	TDN %	ENE %	Crude Protein %	Digestible Protein %	Crude Fiber %	Stalk Height Inches	Stand Count %
N.C. 270	21.2	68.6	6.6	61.2	50.7	7.4	3.6	26.3	122	83
Coker 911	20.6	67.7	6.6	61.6	51.2	8.1	4.2	25.8	112	84
McNair 425	20.2	67.3	6.5	61.6	51.2	7.8	3.8	25.8	117	86
Pioneer 8226	20.1	66.0	6.4	61.6	51.2	7.9	4.0	25.8	112	84
Mean of Test	19.4	66.8	6.4	61.4	51.0	7.5	3.7	26.0	116	84
Dekalb 1051	19.2	68.0	6.2	62.1	51.8	7.6	3.8	25.1	120	83
N. C. 27	19.0	67.9	6.0	60.6	49.7	7.0	3.2	27.3	118	88
Dixie 82	18.8	66.8	6.2	61.2	50.6	7.1	3.3	26.4	122	78
McNair 444	18.8	64.9	6.5	62.2	52.0	7.4	3.6	24.9	117	88

Table 29. Performance of corn silage - Northern Mountains - Area I. Ashe County - 1963

Entries	Green Wt. Tons/A	Moisture %	Dry Matter Tons/A	TDN %	ENE %	Crude Protein %	Digestible Protein %	Crude Fiber %	Ear Height Inches	Stalk Height Inches	Stand Count %
N.C. 27	44.1	80.3	8.7	60.0	49.0	9.0	5.0	28.1	58	117	96
Coker 911	43.2	78.5	9.3	59.9	48.8	9.6	5.6	28.3	64	113	96
Wood's Hybrid Yellow Sweepstakes Ensilage	42.7	79.1	8.9	60.3	49.4	8.9	5.0	27.6	64	128	94
Pioneer 310	40.4	78.3	8.8	62.3	52.2	8.7	4.8	24.8	63	125	98
*NC 1068-04	39.5	79.9	7.9	60.0	49.0	9.0	5.1	28.0	59	114	98
Mean of Test	38.1	77.1	8.7	61.5	51.1	8.6	4.6	26.0	58	116	96
Pioneer 321	37.9	76.4	8.9	62.8	52.9	8.6	4.7	24.1	46	100	95
Coker 15	37.2	76.3	8.8	61.8	51.5	8.3	4.4	25.5	58	119	96
Dekalb 640	37.2	75.7	9.0	62.9	53.0	8.4	4.5	24.0	56	109	98
Funk's G-707	36.9	77.2	8.4	61.2	50.6	8.7	4.8	26.4	59	114	96
U.S. 282	36.8	77.2	8.4	62.2	52.1	8.7	4.8	24.9	56	115	97
S.C. 236	36.2	77.4	8.2	58.0	46.3	8.9	4.9	30.9	62	120	90
B & B X391	34.5	75.5	8.4	63.0	53.2	7.6	3.8	23.8	51	107	95
Dekalb 805	34.1	74.0	8.9	63.4	53.7	7.5	3.6	23.2	62	125	98
V.P.I. 648	33.3	73.6	8.8	63.0	53.2	8.0	4.1	23.7	53	113	95
L.S.D. (.05)	2.9	1.6	NS	1.0	1.3	.6	.6	1.4	3.3	3.8	NS
(.01)	3.9	2.1	NS	1.3	1.8	.8	.8	1.9	4.4	5.1	NS
C. V. (%)	5	1	6	1	2	5	9	4	4	2	7

* Experimental

Table 30. Performance of corn silage - Southern Mountains - Area II. Haywood County - 1963

Entries	Green Wt. Tons/A	Moisture %	Dry Matter Tons/A	TDN %	ENE %	Crude Protein %	Digestible Protein %	Crude Fiber %	Ear Height Inches	Stalk Height Inches	Stand Count %
McNair 425	48.4	78.4	10.1	60.4	49.6	8.9	5.0	27.5	75	140	98
Pamunkey Ensilage	48.1	78.5	10.3	61.2	50.6	7.9	4.0	26.4	84	158	92
Dekalb 1051	45.4	78.7	9.7	61.8	51.5	8.8	4.9	25.5	60	138	100
*NC 1068-04	44.1	80.1	8.8	61.2	50.7	8.6	4.7	26.4	62	131	96
Wagwood 200	43.6	77.1	10.0	61.6	51.2	8.4	4.5	25.8	60	139	92
Coker 911	43.5	77.8	9.6	61.4	50.9	9.1	5.2	26.1	65	140	94
N.C. 270	42.9	79.4	8.9	60.6	49.8	9.5	5.5	27.2	68	143	90
Pioneer 310	42.8	77.6	9.6	62.7	52.7	8.3	4.4	24.2	55	136	98
S.C. 236	42.5	76.2	10.1	59.5	48.3	8.3	4.4	28.8	67	136	94
Mean of Test	42.1	77.8	9.3	61.6	51.2	8.5	4.6	25.8	65	136	95
Pioneer 309A	40.9	76.9	9.5	61.9	51.7	8.5	4.6	25.3	64	131	94
McNair 444	40.7	77.5	9.2	62.0	51.8	8.0	4.1	25.2	70	130	95
Funk's G-732	40.1	77.9	8.9	61.3	50.8	8.9	4.9	26.2	70	140	92
Dekalb 1006	39.9	76.6	9.4	62.6	52.5	7.5	3.7	24.4	65	130	94
McNair 304A	38.6	78.7	8.2	62.2	52.0	9.0	5.0	25.0	54	124	96
U.S. 282	37.5	77.2	8.5	62.7	52.8	8.5	4.6	24.2	70	128	96
B & B X392	34.5	76.1	8.2	62.1	51.9	8.4	4.5	25.1	53	136	94
L.S.D. (.05)	4.0	1.6	1.1	1.2	1.6	.5	.5	1.7	4.2	4.3	NS
(.01)	5.4	2.1	1.4	1.6	2.2	.7	.6	2.3	5.5	5.7	NS
C. V. (%)	7	1	8	1	2	4	7	5	5	2	5

* Experimental

Table 31. Performance of corn silage - Piedmont - Area III. Guilford, Rowan and Gaston Counties - 1963.

Entries	Green Wt. Tons/A	Moisture %	Dry Matter Tons/A	TDN %	ENE %	Crude Protein %	Digestible Protein %	Crude Fiber %	Ear Height Inches	Stalk Height Inches	Stand Count %
N.C. 270	26.1	68.2	8.1	62.0	51.7	7.6	3.8	25.2	59	126	96
S. C. 236	25.1	66.7	8.2	60.0	48.9	7.7	3.8	28.2	61	126	98
Pioneer 8226	24.3	67.8	7.6	60.6	49.8	7.8	3.9	27.2	62	121	97
Coker 911	24.2	68.4	7.5	61.5	51.1	8.4	4.5	25.9	60	122	96
McNair 425	24.2	67.6	7.7	61.8	51.4	7.9	4.0	25.6	61	122	97
N.C. 27	24.2	67.6	7.7	60.7	49.9	7.5	3.7	27.1	63	124	97
*NC 1068-04	24.0	69.3	7.4	61.3	50.8	7.8	3.9	26.2	56	116	97
Funk's 732	23.8	67.1	7.7	61.7	51.4	7.9	4.0	25.6	60	118	95
Pioneer 3048	23.7	66.4	7.8	61.9	51.6	8.1	4.2	25.4	58	122	96
Mean of Test	23.7	66.7	7.7	61.5	51.1	7.8	4.0	25.9	59	120	96
Dekalb 1051	23.6	66.5	7.7	62.2	52.0	7.8	4.0	25.0	62	125	94
Dixie 82	23.6	67.3	7.5	61.2	50.6	7.4	3.6	26.4	66	126	91
Wagwood 200	23.5	65.0	8.1	61.5	51.1	7.9	4.0	25.9	55	119	98
Wagwood 300	23.3	67.6	7.3	61.0	50.4	7.8	4.0	26.6	53	118	97
McNair 444	23.1	65.1	7.8	62.2	52.0	7.8	3.9	25.0	62	123	98
Pioneer 309B	22.2	64.2	7.6	62.2	52.1	7.9	4.0	24.9	52	110	95
McNair 304A	20.1	62.8	7.2	63.0	53.2	8.0	4.1	23.7	48	107	94
L.S.D. (.05)	1.7	1.9	NS	.9	1.3	.4	.4	1.3	3.7	4.7	NS
(.01)	2.3	2.6	NS	1.2	1.7	NS	NS	1.8	5.0	6.4	NS
C. V. (%)	8	3	11	2	3	6	12	5	6	5	5

* Experimental

Table 32. Performance of corn silage - Southern Coastal Plain - Area IV. Sampson County - 1963.

Entries	Green Wt. Tons/A	Moisture %	Dry Matter Tons/A	TDN %	ENE %	Crude Protein %	Digestible Protein %	Crude Fiber %	Ear Height Inches	Stalk Height Inches	Stand Count %
Dixie 18	21.4	64.1	7.7	63.1	53.3	7.9	4.0	23.6	61	128	100
Pioneer 3017	20.4	63.2	7.5	62.6	52.6	7.5	3.7	24.3	53	118	100
Coker 67	20.0	60.4	7.9	62.9	53.1	7.8	4.0	23.8	52	118	100
N.C. 270	19.7	61.8	7.5	63.9	54.4	7.6	3.7	22.4	50	121	100
Coker 911	19.5	62.3	7.4	63.8	54.2	8.0	4.2	22.6	48	112	100
<u>Mean of Test</u>	<u>19.2</u>	<u>61.4</u>	<u>7.4</u>	<u>63.6</u>	<u>53.9</u>	<u>7.7</u>	<u>3.9</u>	<u>23.0</u>	<u>50</u>	<u>118</u>	<u>100</u>
S. C. 236	18.9	60.3	7.5	62.7	52.7	7.6	3.7	24.2	51	117	100
Wagwood 200	18.7	60.6	7.4	64.8	55.6	7.8	3.9	21.2	44	117	100
Dekalb 1051	18.7	60.7	7.3	64.3	54.9	8.1	4.2	21.9	52	115	100
Wagwood 300	18.4	60.8	7.2	63.0	53.1	7.9	4.1	23.8	46	118	96
Pioneer 3048	18.3	58.7	7.6	64.8	55.6	8.0	4.1	21.2	49	116	100
*NC 1068-04	18.3	63.8	6.6	62.8	52.8	7.5	3.7	24.1	45	112	100
Dixie 82	18.0	59.5	7.3	64.2	54.8	7.1	3.2	22.1	53	123	98
L.S.D. (.05)	1.6	2.5	NS	1.4	2.0	.5	.5	2.0	2.9	4.1	
(.01)	2.1	3.3	NS	NS	NS	NS	NS	NS	3.9	5.4	
C. V. (%)	6	3	7	2	3	5	9	6	4	2	

* Experimental

Table 33. Performance of sorghum silage - Piedmont - Area III. Two-year average - 1962-1963. Ave. of 3 loc.

Entries	Green Wt. Tons/A	Moisture %	Dry Matter Tons/A	TDN %	ENE %	Crude Protein %	Digestible Protein %	Crude Fiber %	Stalk Height Inches	Days from Planting to Mid Bloom
T-E Yieldmaker	22.1	69.4	6.8	62.7	52.8	6.5	2.8	24.2	86.8	82
Sart	21.1	71.2	6.1	62.4	52.4	6.4	2.6	24.5	96.8	90
T-E Haygrazer	20.3	66.0	6.8	61.2	50.7	6.8	3.0	26.3	109.6	75
T-E Milkmaker	20.2	68.2	6.4	63.8	54.2	7.1	3.3	22.7	85.2	81
Lindsey 101-F	20.0	68.3	6.4	63.3	53.6	7.2	3.4	23.3	75.4	82
<u>Mean of Test</u>	<u>18.6</u>	<u>67.0</u>	<u>6.0</u>	<u>62.0</u>	<u>51.8</u>	<u>6.8</u>	<u>3.0</u>	<u>25.2</u>	<u>95.0</u>	<u>79</u>
Hidan 37	16.4	65.0	5.6	61.4	50.8	7.0	3.2	26.2	110.0	75
NK 300	16.0	65.6	5.4	64.1	54.7	8.4	4.6	22.2	61.8	78
3 Little Indians	14.8	65.5	5.0	62.6	52.7	7.2	3.4	24.2	105.8	75

Table 34. Performance of sorghum silage - Piedmont - Area III. Rowan County - 1963.

Entries	Green Wt. Tons/A	Moisture %	Dry Matter Tons/A	TDN %	ENE %	Crude Protein %	Digestible Protein %	Crude Fiber %	Plant Height Inches	Days from Planting to Mid Bloom
Pioneer 930	29.9	65.7	10.0	53.1	39.4	6.7	2.9	38.1	139.5	91
T-E Yieldmaker	29.4	68.5	9.2	63.0	53.2	6.9	3.1	23.7	98.0	80
Dekalb FS-22	28.7	70.5	8.4	61.3	50.8	5.9	2.2	26.2	107.5	81
Sart	28.3	70.9	8.2	61.8	51.5	6.3	2.6	25.4	110.8	85
Frontier S-214	27.5	71.3	7.9	61.5	51.0	7.2	3.4	26.0	98.8	87
T-E Haygrazer	27.4	67.4	8.9	60.0	49.0	7.1	3.3	28.1	117.0	74
Aztec	27.3	70.3	8.1	62.7	52.8	6.8	3.0	24.2	104.5	80
*Advance 1088-FE	26.6	68.5	8.4	61.4	50.9	6.8	3.0	26.1	115.5	82
Lindsey 101-F	26.5	68.0	8.5	63.5	53.9	7.6	3.7	23.0	81.2	80
T-E Grazemaster	26.3	66.5	8.8	56.7	44.4	6.7	2.9	32.9	119.5	79
*Advance 1071-FE	26.2	70.2	7.8	63.4	53.8	6.8	3.0	23.1	105.8	77
T-E Milkmaker	26.1	67.7	8.4	64.4	55.1	7.9	4.0	21.8	92.5	80
NK 320	26.0	69.7	7.9	62.5	52.4	6.9	3.1	24.5	95.0	78
P.A.G. SI-Chow 2	25.8	68.0	8.3	61.0	50.3	6.5	2.8	26.7	111.2	83
*Asgrow H-6160	25.6	67.8	8.2	61.0	50.4	7.0	3.2	26.7	109.5	76
P.A.G. SU-Chow 35	25.2	67.7	8.0	57.9	46.1	6.8	3.0	31.1	115.8	75
NK Sordan	25.1	69.1	7.8	59.2	47.9	7.0	3.2	29.2	110.5	75
<u>Mean of Test</u>	<u>25.0</u>	<u>68.1</u>	<u>7.9</u>	<u>61.0</u>	<u>50.4</u>	<u>7.0</u>	<u>3.2</u>	<u>26.6</u>	<u>105.0</u>	<u>79</u>
Tracy	23.6	72.3	6.5	62.1	51.9	5.6	1.9	25.1	109.5	90
Dekalb SX-11	23.1	67.7	7.5	59.4	48.2	7.1	3.3	28.9	109.8	74
Hidan 37	21.9	67.2	7.2	60.0	49.0	7.2	3.3	28.0	114.2	74
NK 300	21.3	67.7	6.8	64.1	54.7	9.1	5.2	22.2	66.8	77
3 Little Indians	20.3	66.2	6.8	62.5	52.5	7.7	3.8	24.5	115.5	74
Dekalb FS-1a	19.3	66.4	6.5	64.5	55.2	8.2	4.3	21.6	69.2	76
NK Trudan I	13.8	59.3	5.6	58.0	46.3	7.4	3.6	30.9	103.5	74
L.S.D. (.05)	2.7	2.5	1.0	2.1	2.9	.8	.8	3.1	6.3	2.0
(.01)	3.6	3.4	1.4	2.8	3.9	1.1	1.0	4.1	8.4	2.6
C. V. (%)	8	3	9	2	4	8	16	8	4	2

* Experimental