

PEANUT VARIETY EVALUATION IN VIRGINIA 1955-1959

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Peanut variety evaluation has been an integral phase of peanut research in Virginia for a number of years. An individual plant selection program for peanut improvement was initiated in 1950 and a variety evaluation experiment to include outstanding lines from the selection program as well as varieties and experimental lines from other producing states was initiated in 1955. This variety evaluation experiment was conducted at several locations on different soil types. Included in this report are experimental lines which may never be recommended for commercial production but may be of value in a peanut breeding program.

The principal factors evaluated were yield and market grades of farmers' stock peanuts. Varieties were not evaluated for resistance to peanut diseases or insects.

Varieties and lines which failed to perform as well as the check varieties, Virginia Bunch 46-2 and Holland Jumbo, were eliminated from the test and data from these lines are not included in this report. One new variety, N. C. 4X was added to the test in 1958 and the result of 2 years testing is given.

Experimental Procedure

Evaluation experiments were conducted at the following locations and on the following soil types:

Holland, Tidewater Research Station; Woodstown and Dragston
Petersburg, Virginia State College Research Station; Norfolk (Heavy Phase)
Southampton County, Emerson Edwards farm; Norfolk
Southampton County, L. T. Francis farm; Norfolk
Greensville County, Robert Wheeler farm; Ruston
Surry County, Hayden James farm; Woodstown
Isle of Wight County, Marvin Pulley farm; Norfolk

Single row plots 60' long with seed planted 6" apart were uniform from year to year; however, row width varied from farm to farm to conform with the farmers' practice in this regard. Plots were replicated 6 times in randomized complete blocks.

Fertilization practices used on the farm test areas were those practiced by the cooperating farmer. On the experiment station at Holland, fertilizer was applied to the crop preceding peanuts in the rotation. Landplaster was applied at all locations. Test areas located on soils where southern corn rootworm, Diabrotica duodecumpunctata, was a problem received 2 lbs. per acre of aldrin for control. The recommended rate of sulphur dust was applied to control peanut leafspot, Cercospora sp. On test areas where the potato leafhopper, Empoasca fabae, was a problem, a 5% D.D.T. sulphur dust was substituted for the first sulphur dust application.

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Plots were dug and picked with commercial diggers and pickers at all locations except Petersburg where the test was dug and picked by hand. Plots were hand stacked in the field and allowed to cure at least 4 weeks before picking.

Plot yields were recorded at picking time and peanuts were sampled for market grade evaluations. A 1/2 lb. sub-sample was used to make the following farmers' stock market grade determinations on a percentage basis except as noted:

Fancy pods- those pods riding a 34/64" x 3" screen
Mature kernels- those kernels riding a 15/64" x 1" screen
Extra large kernels- those kernels riding a 21.5/64" x 1" screen
Number of extra large kernels per oz.

A value per acre based on the percent of extra large kernels, percent of mature kernels, and yield was computed for each variety. The Commodity Stabilization Services' 1959 peanut price support program was utilized to compute these values. The percent damage was low in all samples and no difference was noted between varieties; therefore this factor was not considered in determining values. Loose shelled kernels and foreign material were removed from the sample before grading.

Origin of Strains and Varieties

Virginia 56R - A Virginia runner variety developed from an individual plant selected in Isle of Wight County in 1950. This variety was released to producers in 1956.

Va. B22-15 - A Virginia runner experimental selection from an individual plant selected in Nansemond County in 1950.

Va. A17-12 - A Virginia runner experimental selection from an individual plant selected in Isle of Wight County in 1950.

Va. A23-7 - A Virginia runner experimental selection from an individual plant selected in Isle of Wight County in 1950.

Holland Jumbo - A Virginia Jumbo runner variety from a single hill selection made in 1940 and released to producers in 1945.

Va. Bunch 46-2 - A Virginia Bunch variety selection from large Virginia Bunch selected in 1946 and released to producers in 1951.

Ga. 119-20 - A Virginia bunch variety developed by the Georgia Agricultural Experiment Station and recommended to Virginia producers for planting in 1960. This variety was developed from a cross of Southeastern Runner X Dixie Giant crossed to a Jumbo strain of Virginia Runner.

N. C. 2 - A Virginia bunch variety developed by the North Carolina Agricultural Experiment Station.

N. C. 4X - A Virginia bunch variety developed by the North Carolina Agricultural Experiment Station.

Results and Discussion

Table 1 summarizes 5 years results at 6 locations and table 2 is a summary

of 5 locations for 2 years. Tables 3, 5, 7, 9, and 12 summarize data for each location for the total number of years at each location and tables 4, 6, 8, 10, and 11 is a 2 year summary for each location. Varietal performance varied from location to location with certain varieties yielding high at several locations and others performing best only on one or two soil types.

Virginia B22-15 was the most widely adapted variety in the tests and was highest in yield and value per acre at all locations except on the heavy phase Norfolk soil at the Petersburg location. The percentage of mature kernels varied from 65.8% to 71.6% and extra large kernels from 20.3% to 33.2%. The highest percentage of mature kernels and extra large kernels were obtained on the Woodstown and Dragston soils at Holland and the lowest on Norfolk (heavy phase) at Petersburg. When the high yield of the variety is taken into consideration, the lower premium paid for the reduced extra large percentage is partially offset and the value per acre is greater than Virginia 56R at all locations except Petersburg.

Virginia 56R ranked 2nd in value per acre and 3rd in yield per acre in a summary of tests conducted at 6 locations for 5 years (Table 1). This variety had the highest percentage of mature meat of the Virginia runner varieties tested. Extra large kernels varied from 30.2% on the Ruston soil in Greensville County to 37.8% on the Woodstown and Dragston soils at Holland.

The yield, grade, and value per acre of Virginia A17-12 and Virginia A23-7 were similar to Virginia 56R. Virginia A23-7 had a little higher percentage of extra large kernels than Virginia A17-12, but yields were somewhat lower.

The Holland Jumbo variety produced a high percentage of fancy pods (72.1% to 92.2%) but the percentage of mature meat was low. This variety also produced a high percentage of extra large kernels; however, the value per acre was lowest or next to lowest in all tests.

Virginia Bunch 46-2 is adapted only to the heavier peanut soils. On the Woodstown and Dragston soils at Holland this variety ranked high in yield and value but on the Norfolk and Ruston soils it was low. Intermediate yield and value was noted on the heavy phase Norfolk soil at Petersburg and on the Woodstown soil in Surry County. The percentage of extra large kernels was very high; however the percentage of mature meat was low.

Ga. 119-20 ranked high in yield and value per acre on Norfolk and Ruston and was lower on heavy phase Norfolk, Dragston, and Woodstown soil types. This variety produced a high percentage of extra large kernels and fancy pods; however the percentage of mature kernels was low.

The yield of N. C. 2 was average on the Woodstown soil at Holland and on the Norfolk soil in Southampton County; however yield and value in other areas were low. The percentage of mature meat was high but the percentage of extra large kernels was below average in all locations.

A 2-year summary is given in Tables 2, 4, 6, 8, 10, and 11 in order that the N. C. 4X variety be evaluated. In general the N. C. 4X variety yielded less than the N. C. 2 variety. N. C. 4X also graded lower in percentage of extra large and mature kernels than N. C. 2; however N. C. 4X had a higher percentage of fancy pods.

Table 1. Summary of Peanut Yield and Grade at 6 locations, 1955-1959.*

Variety	% Mature kernels	% Extra large kernels	Number of extra large kernels/oz.	Yield lbs./A.	Value** per acre
Va. 56R	70.9	33.6	30.5	2948	\$301.58
Va. B22-15	69.2	27.3	31.0	3130	307.05
Va. A17-12	70.0	28.9	31.0	3013	301.00
Va. A23-7	70.2	33.4	29.3	2948	296.86
Holland Jumbo	68.3	34.3	28.9	2727	267.52
Va. Bunch 46-2	68.5	36.6	26.6	2859	282.18
Ga. 119-20	68.2	32.5	29.5	2889	282.26
N. C. 2	70.4	27.7	31.4	2766	275.77

* Average 22 tests.

** Based on % extra large, % mature kernels, and yield.
1959 support price.

Table 2. Summary of Peanut Yield and Grade at 5 locations, 1958-1959.*

Variety	% Mature kernels	% Extra large kernels	Number of extra large kernels/oz.	% Fancy pods	Yield lbs./A.	Value** per acre
Va. 56R	71.9	31.4	31.1	75.4	2884	\$297.63
Va. B22-15	70.7	27.1	31.3	70.7	3115	314.30
Va. A17-12	70.9	27.1	31.8	70.2	2996	302.30
Va. A23-7	71.7	32.0	30.2	78.3	2858	295.52
Holland Jumbo	69.1	34.0	28.8	86.4	2660	264.67
Va. Bunch 46-2	70.1	37.6	26.9	82.6	2909	295.85
Ga. 119-20	69.2	32.8	29.6	80.9	2828	280.82
N. C. 2	72.6	27.4	32.1	41.6	2751	285.55
N. C. 4X	71.0	24.2	32.2	58.3	2658	266.60

* Average 10 tests.

** Based on % extra large, % mature kernels, and yield.
1959 support price.

Table 3. Summary of Peanut Yield and Grade at Holland, 1955-1959.

Variety	% Mature kernels	% Extra large kernels	Number of extra large kernels/oz.	Yield lbs./A.	Value* per acre
Va. 56R	71.7	37.8	29.4	3364	\$351.87
Va. B22-15	70.3	33.2	30.1	3757	378.33
Va. A17-12	71.1	33.9	29.9	3609	369.20
Va. A23-7	71.6	40.0	28.3	3474	364.77
Holland Jumbo	69.3	38.4	27.9	3099	310.83
Va. Bunch 46-2	69.6	43.1	24.8	3549	364.48
Ga. 119-20	68.5	36.2	28.3	3272	322.29
N. C. 2	71.3	31.7	30.1	3335	339.84

* Based on % extra large, % mature kernels, and yield.
1959 Support price.

Table 4. Summary of Peanut Yield and Grade at Holland, 1958-1959.

Variety	% Mature kernels	% extra large kernels	Number of extra large kernels/oz.	% Fancy Pods	Yield lbs./A.	Value* per acre
Va. 56R	72.1	35.8	29.8	81.8	3424	\$356.78
Va. B22-15	71.6	34.2	29.8	77.2	3723	386.45
Va. A17-12	71.1	33.4	30.2	78.0	3806	388.59
Va. A23-7	72.5	39.2	29.2	84.2	3448	361.35
Holland Jumbo	69.0	38.4	27.6	89.4	3002	301.10
Va. Bunch 46-2	70.4	44.8	25.5	88.2	3992	411.58
Ga. 119-20	68.2	39.2	28.2	89.6	3269	323.96
N. C. 2	73.1	29.6	30.8	44.9	3492	364.56
N. C. 4X	71.1	31.4	30.8	64.1	3422	348.02

* Based on % extra large, % mature kernels, and yield.
1959 support price.

Table 5. Summary of Peanut Yield and Grade at Petersburg, 1955-1959.

Variety	% Mature kernels	% Extra large kernels	Number of extra large kernels/oz.	Yield lbs./A.	Value* per acre
Va. 56R	68.0	28.7	30.7	2653	\$257.61
Va. B22-15	65.8	20.3	31.6	2514	232.54
Va. A17-12	67.0	22.7	31.1	2659	251.28
Va. A23-7	66.7	26.3	29.5	2582	245.55
Holland Jumbo	65.4	30.6	28.9	2274	212.16
Va. Bunch 46-2	65.6	30.8	27.5	2420	229.17
Ga. 119-20	64.9	27.8	29.8	2413	223.68
N. C. 2	66.8	22.7	31.8	2232	210.92

* Based on % extra large, % mature kernels, and yield.
1959 Support price.

Table 6. Summary of Peanut Yield and Grade at Petersburg, 1958-1959.

Variety	% Mature kernels	% Extra large kernels	Number of extra large kernels/oz.	% Fancy pods	Yield lb./A.	Value* per acre
Va. 56R	70.8	26.8	31.6	75.6	2360	\$238.12
Va. B22-15	68.5	20.0	32.4	67.9	2404	229.10
Va. A17-12	69.6	20.0	32.6	67.4	2508	246.03
Va. A23-17	69.6	25.2	30.8	79.2	2315	229.42
Holland Jumbo	68.2	32.0	29.5	92.2	2114	206.54
Va. Bunch 46-2	68.0	31.1	27.2	86.1	2306	224.84
Ga. 119-20	68.5	28.2	30.1	89.2	2256	218.61
N. C. 2	71.4	20.5	32.9	38.7	2176	216.51
N. C. 4X	69.1	16.8	33.6	55.4	1920	184.51

* Based on % extra large, % mature kernels, and yield.
1959 Support price.

Table 7. Summary of Peanut Yield and Grade in Southampton County, 1955-1959.

Variety	% Mature kernels	% Extra large kernels	Number of extra large kernels/oz.	Yield lbs./A.	Value* per acre
Va. 56R	70.7	31.9	31.6	2956	\$301.22
Va. B22-15	69.0	26.3	31.5	3190	312.30
Va. A17-12	69.0	28.4	32.1	3107	305.42
Va. A23-7	69.9	32.9	29.9	2981	300.19
Holland Jumbo	67.9	31.0	30.3	2807	273.68
Va. Bunch 46-2	67.3	32.0	27.7	2945	283.60
Ga. 119-20	67.9	30.7	30.5	3090	301.28
N. C. 2	70.1	27.7	31.4	2964	295.51

* Based on % extra large, % mature kernels, and yield.
1959 Support price.

Table 8. Summary of Peanut Yield and Grade in Southampton County, 1958-1959.

Variety	% Mature kernels	% Extra large kernels	Number of extra large kernels/oz.	% Fancy pods	Yield lbs./A.	Value* per acre
Va. 56R	72.9	31.2	32.4	61.2	3096	\$323.84
Va. B22-15	71.6	26.8	31.8	54.8	3404	348.57
Va. A17-12	71.1	27.0	33.0	57.8	3138	316.62
Va. A23-7	73.0	31.6	30.8	61.8	3130	328.02
Holland Jumbo	69.8	32.0	29.6	72.1	2845	285.92
Va. Bunch 46-2	71.2	37.2	27.8	66.3	3098	318.78
Ga. 119-20	70.1	31.2	30.8	58.7	3165	317.45
N. C. 2	73.2	32.6	32.2	37.9	3214	337.47
N. C. 4X	71.8	26.5	32.7	48.4	2984	304.96

* Based on % extra large, % mature kernels, and yield.
1959 Support price.

Table 9. Summary of Peanut Yield and Grade in Surry County, 1956-1959.

Variety	% Mature kernels	% Extra large kernels	Number of extra large kernels/oz.	Yield lbs./A.	Value* per acre
Va. 56R	73.0	35.7	29.8	3305	\$349.01
Va. B22-15	71.6	30.2	30.6	3567	367.40
Va. A17-12	72.8	30.4	31.2	3284	342.85
Va. A23-7	72.5	34.0	29.3	3339	346.59
Holland Jumbo	70.3	38.6	27.8	3221	328.22
Va. Bunch 46-2	70.9	38.3	26.4	3216	331.57
Ga. 119-20	70.5	36.0	28.8	3272	331.45
N. C. 2	73.1	28.4	32.2	3117	324.17

* Based on % extra large, % mature kernels, and yield.
1959 Support price.

Table 10. Summary of Peanut Yield and Grade in Surry County, 1958-1959.

Variety	% Mature kernels	% Extra large kernels	Number of extra large kernels/oz.	% Fancy pods	Yield lbs./A.	Value* per acre
Va. 56R	73.0	33.2	30.0	75.6	3222	\$338.31
Va. B22-15	71.5	29.0	30.8	70.2	3502	354.75
Va. A17-12	72.6	28.0	31.7	68.4	3318	345.02
Va. A23-7	72.5	33.2	29.8	81.8	3218	333.38
Holland Jumbo	69.8	37.0	27.6	89.5	3256	330.48
Va. Bunch 46-2	71.7	39.8	26.8	85.4	3354	352.17
Ga. 119-20	69.6	35.6	28.5	81.3	3078	311.80
N. C. 2	74.2	29.6	32.5	31.5	2819	298.25
N. C. 4X	72.0	23.2	31.6	53.8	2819	286.41

* Based on % extra large, % mature kernels, and yield.
1959 Support price.

Table 11. Summary of Peanut Yield and Grade in Greenville County, 1958-1959.

Variety	% Mature kernels	% Extra large kernels	Number of extra large kernels/oz.	% Fancy pods	Yield lbs./A.	Value* per acre
Va. 56R	70.6	30.2	31.4	82.6	2319	\$235.38
Va. B22-15	70.1	25.4	31.5	83.6	2545	252.21
Va. A17-12	70.1	27.0	31.2	79.3	2210	219.90
Va. A23-7	70.7	30.9	30.4	84.5	2180	221.71
Holland Jumbo	68.5	30.8	29.8	88.6	2083	203.09
Va. Bunch 46-2	69.1	35.2	26.9	86.8	1792	178.66
Ga. 119-20	69.5	29.8	30.5	85.9	2370	237.24
N. C. 2	71.0	24.7	32.2	55.0	2055	206.53
N. C. 4X	71.1	23.1	32.2	69.9	2145	214.81

* Based on % extra large, % mature kernels, and yield.
1959 Support price.

Table 12. Summary of Peanut Yield and Grade in Isle of Wight County, 1955.

Variety	% Mature kernels	% Extra large kernels	Number of extra large kernels/oz.	Yield lbs./A.	Value* per acre
Va. 56R	75.0	43.0	30.0	2148	\$235.85
Va. B22-15	71.0	31.0	31.0	2202	223.94
Va. A17-12	74.0	35.0	30.0	1849	197.47
Va. A23-7	73.0	41.0	29.0	1958	208.72
Holland Jumbo	71.0	39.0	29.0	2039	210.63
Va. Bunch 46-2	73.0	52.0	25.0	1876	204.11
Ga. 119-20	73.0	38.0	29.0	1849	195.99
N. C. 2	74.0	36.0	30.0	1631	174.52

* Based on % extra large, % mature kernels, and yield.
1959 Support price.

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