

# FLUE-CURED TOBACCO

## VARIETY INFORMATION FOR 1976

Many excellent varieties of flue-cured tobacco are available to Virginia tobacco producers and careful consideration should be given in the selection of varieties to meet specific production objectives. Since varieties differ in disease reaction, rate of maturation, chemical composition, response to nutrient levels in the soil, and many other factors, careful study of the information presented in this report may be helpful in choosing the best variety or varieties to meet specific production goals.

The Virginia Official Variety Tests include only released varieties which are commercially available to producers. Information is provided for those which are widely grown or recently released. Testing in various locations in the production area makes it possible to evaluate varietal performance under the widely ranging soil and climatic conditions existing in Virginia. Such a testing program provides an opportunity for producers to observe the flue-cured tobacco varieties under field conditions in their particular region.

Tests were conducted in Halifax (Linwood Palmer Farm), Lunenburg (Hardy Barnes Farm) and Nottoway (Southern Piedmont Center) Counties under the joint supervision of Extension Agents in the respective counties and V.P.I. & S.U. Research and Extension personnel. Data are provided for yield, value, price, chemical composition, disease reaction, plant maturation pattern (weight per harvest), and other factors for released varieties.

Five new varieties -- Coker 86, NC 12, NC 79, NC 98 and Speight G-23 will be available for planting in 1976. These varieties have met the chemical and physical standards established by the Regional Flue-Cured Variety Evaluation Committee. Brief descriptions of these new varieties are given on page 4 of this report. It is advisable to try new varieties on a limited acreage so that a proper personal evaluation can be made.

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Table 1. Virginia Official Flue-Cured Variety Test, Results by Locations, 1975.

Variety	Southern Piedmont Center			Halifax			Lunenburg			State Average		
	Yield lbs/A	Value \$/A	Price \$/Cwt	Yield lbs/A	Value \$/A	Price \$/Cwt	Yield lbs/A	Value \$/A	Price \$/Cwt	Yield lbs/A	Value \$/A	Price <sup>1/</sup> \$/Cwt
Va 080 <sup>2/</sup>	3036	2885	95	-	-	-	2154	2112	98	2595	2499	96
Va 115	3600	3831	106	2399	2441	102	2298	2279	99	2766	2850	103
Coker 86 <sup>3/</sup>	3471	3298	95	2135	2012	94	1982	1911	96	2529	2407	95
Coker 187-Hicks	3425	2691	108	2399	2604	109	1832	1876	102	2552	2724	107
Coker 254	3298	3537	107	2306	2453	106	1710	1772	104	2438	2587	106
Coker 319	3524	3848	109	2443	2666	109	1941	2042	105	2636	2852	108
Coker 347	3866	4010	104	2708	2944	109	1824	1915	105	2799	2956	106
Coker 411	3541	3774	107	2405	2375	99	2232	2345	105	2726	2831	104
McNair 135	3557	3553	100	2297	2386	104	2257	2257	100	2704	2732	101
McNair 944	3656	3672	100	2692	2851	106	2328	2378	102	2892	2967	103
McNair 1040	3510	3775	108	1628	1709	105	1960	2041	104	2366	2508	106
NC 12 <sup>3/</sup>	3163	3056	97	2527	2416	96	2354	1929	82	2681	2467	92
NC 79 <sup>3/</sup>	3305	3484	105	2243	2364	105	2306	2306	100	2618	2718	103
NC 88 <sup>3/</sup>	3056	3130	102	2072	2198	106	2312	2401	104	2480	2576	104
NC 98 <sup>3/</sup>	3385	3679	109	2450	2570	105	2326	2434	105	2720	2894	106
NC 2326	3281	3494	107	1943	1975	102	2153	2132	99	2459	2534	103
SC 72	3345	3516	105	2370	2494	105	2210	2324	105	2642	2778	105
Speight G-23 <sup>3/</sup>	3571	3690	103	2307	2363	102	2417	2504	104	2765	2852	103
Speight G-28	3673	3839	105	2440	2389	98	2204	2335	106	2772	2854	103
Speight G-140	3739	4057	109	2503	2622	105	2083	2176	105	2775	2952	106

<sup>1/</sup> Computed on the basis of season's average for Old Belt through October 23, 1975.

<sup>2/</sup> Values for Va.080 were obtained at 2 locations.

<sup>3/</sup> New varieties available for planting in 1976.

Table 2. Virginia Official Flue-Cured Variety Test Results by Years.

Variety	No. of Tests	Yield, lbs/A					Value, \$/A					Price, \$/Cwt						
		1971	1972	1973	1974	1975	Avg.	1971	1972	1973	1974	1975	Avg.	1971	1972	1973	1974	1975
Va 080	7			2308	2470	2595	2458			2024	2662	2499	2395			88	108	96
Va 115	17	2503	2280	2567	2660	2766	2555	1896	1893	2262	2900	2850	2360	76	83	88	109	103
Coker 86	3					2529	2529					2407	2407					95
Coker 187-Hicks	17	2548	2236	2254	2601	2552	2438	1757	1861	1990	2805	2724	2227	76	83	88	108	107
Coker 254	17	2470	2294	2273	2470	2438	2389	1896	1896	2003	2721	2587	2221	77	83	88	110	106
Coker 319	17	2322	2385	2465	2712	2636	2504	1782	1994	2175	3009	2852	2362	77	84	88	111	108
Coker 347	17	2612	2274	2618	3078	2799	2676	1944	1892	2305	3400	2956	2509	76	83	88	110	106
Coker 411	17	2489	2328	2315	2760	2726	2524	1884	1939	2047	2967	2831	2334	76	83	88	108	104
McNair 135	14	2581	2501	2562	2846	2704	2639	1957	2075	2258	3081	2732	2421	76	83	88	108	101
McNair 944	8			2642	3135	2892	2890			2323	3454	2967	2915			88	110	103
McNair 1040	5			2914	2366	2640				3199	2508	2854				110	106	
NC 12	3					2681	2681					2467	2467					92
NC 79						2618	2618					2718	2718					103
NC 88	11		2406	2648	2640	2480	2544		1981	2335	2903	2576	2449		82	88	110	104
NC 98	3					2720	2720					2894	2894					106
NC 2326	17	2348	2157	2395	2706	2459	2413	1794	1802	2112	2962	2534	2241	76	83	88	109	103
SC 72	11		2245	2492	2817	2642	2549		1858	2191	3066	2778	2473		83	88	109	105
Speight G-23	3					2765	2765					2852	2852					103
Speight G-28	17	2340	2358	2466	2589	2772	2505	1796	1943	2162	2745	2854	2300	77	83	88	106	103
Speight G-140	11		2474	2635	3092	2775	2744		2125	2324	3350	2952	2688		82	88	108	106

Table 3. Chemical Composition, Agronomic Measures and Disease Reaction for Varieties Tested in Virginia, 1975 <sup>1/</sup>

Variety	Reducing Sugars (%)	Nicotine (%)	Tot. N (%)	Days to Flower	Plant Ht. (in.)	Leaf No.	Ground <sup>2/</sup> Suckers per plant	Disease Reaction <sup>3/</sup>					
								BS	TMV	RK	GW	FW	B.Sp.
Va 080 <sup>4/</sup>	11.19	3.86	2.48	62	43	21	1.5	M	R	R	L	H	T
Va 115 <sup>4/</sup>	11.38	3.65	2.53	58	41	21	0.1	M	S	S	L	S	Mt
Coker 86	13.22	3.13	2.33	66	46	23	0.0	H	R	R	H	M	Mt
Coker 187-Hicks	12.70	3.15	2.27	71	48	21	2.7	H	S	S	M	M	Se
Coker 254	11.67	2.94	2.35	68	44	22	1.7	M	S	R	H	M	Se
Coker 319	12.11	3.25	2.47	68	43	21	0.2	L	S	S	L	L	Se
Coker 347	11.21	3.68	2.57	64	44	24	0.6	M	S	R	M	H	Mt
Coker 411	13.05	3.32	2.38	60	44	21	0.1	H	S	S	L	S	Se
McNair 135	13.00	3.84	2.32	71	46	22	0.0	M	S	S	L	S	Se
McNair 944	12.79	3.68	2.42	71	44	22	0.2	H	S	S	L	S	Se
McNair 1040	13.16	3.11	2.22	71	46	23	3.6	M	S	S	L	L	T
NC 12	13.18	3.18	2.41	58	43	20	0.3	M	S	S	M	L	Se
NC 79	12.52	3.35	2.40	60	45	20	1.7	M	S	R	L	M	Mt
NC 88	12.78	3.51	2.29	68	44	21	1.5	M	S	R	M	H	T
NC 98	12.06	3.37	2.35	60	45	20	1.5	M	S	R	M	L	Mt
NC 2326	13.94	3.67	2.38	60	43	19	0.0	M	S	S	S	L	Mt
SC 72	13.54	3.55	2.45	66	44	21	0.6	M	R	R	H	H	Se
Speight G-23	12.33	3.52	2.28	62	43	20	0.6	M	S	R	H	H	T
Speight G-28	10.64	2.90	2.29	64	40	22	0.0	H	S	R	H	H	T
Speight G-140	12.47	3.61	2.44	68	46	22	0.1	H	S	S	M	L	Se

<sup>1/</sup> Chemical data represent a 3-location average (Halifax and Lunenburg counties and the Southern Piedmont Center); agronomic measures were made at the Southern Piedmont Center only and disease reaction classifications represent field and greenhouse tests conducted in several states.

<sup>2/</sup> 1974 data.

<sup>3/</sup> Disease Reaction -- H - high resistance; M - moderate; L - low; S - susceptible; T - tolerant; Mt - moderately tolerant; Se - sensitive; R - resistant; BS - Black Shank; GW - Granville Wilt; FW - Fusarium Wilt; B.Sp. - brown spot; RK - Root Knot; TMV - tobacco mosaic virus.

<sup>4/</sup> Resistant to black root rot.

Table 4. Harvest Rate (Weight by Primings) as a Measure of Varietal Maturation Patterns <sup>1/</sup>

Variety	Cumulative Harvest Weight as Percentage of Total Weight at Each Location														Maturity Class
	Halifax				Lunenburg				Southern Piedmont Center						
	H1	H2	H3	H4	H1	H2	H3	H4	H1	H2	H3	H4	H5		
Va 080	-	-	-	-	14	33	46	69	10	22	41	61	100	Med	
Va 115	15	38	100	100	17	37	56	81	9	22	41	64	90	Med	
Coker 86	15	36	56	100	18	37	56	81	11	22	36	56	85	Late	
Coker 187-Hicks	18	42	100	100	14	33	50	77	12	27	44	68	98	Early	
Coker 254	21	35	62	100	13	32	50	75	17	29	41	58	91	Med	
Coker 319	20	37	63	80	17	37	57	85	13	27	46	69	100	Med	
Coker 347	19	36	69	100	20	41	63	88	11	22	38	54	85	Late	
Coker 411	17	38	73	100	23	42	61	88	12	24	43	64	100	Early	
McNair 135	14	30	52	78	18	34	50	74	12	22	36	51	100	Med	
McNair 944	19	39	75	100	22	39	57	80	12	23	42	62	100	Med	
McNair 1040	30	50	100	100	17	32	49	71	12	24	40	62	100	Early	
NC 12	15	38	62	100	21	42	68	100	11	22	40	69	100	Med	
NC 79	19	35	67	100	17	33	46	71	12	27	45	65	94	Med	
NC 88	26	43	100	100	17	34	52	74	16	30	48	67	100	Early	
NC 98	14	28	67	100	16	34	46	68	12	27	54	75	100	Med	
NC 2326	21	43	100	100	18	37	57	80	12	23	41	60	93	Med	
SC 72	21	40	100	100	17	34	52	77	12	25	43	70	93	Med	
Speight G-23	13	30	57	100	17	35	46	69	12	27	47	65	100	Med	
Speight G-28	19	38	57	100	20	37	53	77	13	22	38	57	93	Med	
Speight G-140	17	49	61	100	13	30	47	70	11	23	41	70	100	Med	

<sup>1/</sup> Harvest date for each priming was determined by the appearance of the tobacco at each location. The tobacco produced and the rate of removal were influenced by the separate management systems and local soil and weather conditions.

Table 5. Comparative Information -- New Varieties Grown in Virginia in 1975.

Variety	Yield lbs/A	Value \$/A	Price \$/Cwt	Nicotine (%)	Days to Flower	Maturity Class	Disease Reaction <sup>1/</sup>					
							BS	TMV	RK	GW	FW	B.Sp.
<u>Available in 1975</u>												
Coker 86	2529	2407	95	3.13	66	Late	H	R	R	H	M	Mt
NC 12	2681	2467	92	3.18	58	Med.	M	S	S	M	L	Se
NC 79	2618	2718	103	3.35	60	Med.	M	S	R	L	M	Mt
NC 98	2720	2894	106	3.37	60	Med.	M	S	R	M	L	Mt
Speight G-23	2765	2852	103	3.52	62	Med.	M	S	R	H	H	T
<u>Check Varieties</u>												
Coker 319	2636	2852	108	3.25	68	Med.	L	S	S	L	L	Se
Coker 347	2799	2956	106	3.68	64	Late	M	S	R	M	H	Mt
Speight G-28	2772	2854	103	2.90	64	Med.	H	S	R	H	H	T

<sup>1/</sup>Disease reaction - H - high resistance; M - moderate; L - Low; S - susceptible; T - tolerant; Mt - moderately tolerant; Se - sensitive; R - resistant; BS - Black Shank; GW - Granville Wilt; FW - Fusarium Wilt; B.Sp.-brown spot; RK - Root Knot; TMV - tobacco mosaic virus.

#### GENERAL VARIETAL CONSIDERATIONS

Many producers are adjusting to management systems which distribute the harvest season over a longer period of time. Varietal selection should be a factor in this type of decision and varieties do differ in maturation patterns. Data presented in Table 4 indicate that varieties do not all respond to different location and management systems in the same way, but the general maturity patterns can be recognized.

Tobacco mosaic virus remains a serious problem for Virginia producers even though five mosaic resistant flue-cured varieties have become available since 1971. Under our conditions, mosaic resistant varieties have been more difficult to manage than many of the other varieties and some of these varieties are lower yielding.

#### Description of New Varieties

Coker 86 was developed by the Coker Pedigreed Seed Company from crosses involving Coker 319, Coker 258 and two mosaic resistant lines. Coker 86 is late-maturing, intermediate in yield potential, tall with a high leaf number, has a high level of resistance to black shank, Granville Wilt, root knot nematodes and mosaic, and is moderately resistant to fusarium wilt. This variety was difficult to cure under the production regimes sampled during the 1975 season in Virginia.

NC 12 was developed by the North Carolina Agricultural Experiment Station from a cross of Hicks with Coker 139. This variety is intermediate in maturation, high in yield potential, of intermediate height and leaf number, contains moderate resistance to black shank and Granville Wilt and a low level of resistance to fusarium wilt. NC 12 did not mature well under Virginia conditions in 1975.

NC 79 was developed by the North Carolina Agriculture Experiment Station from a cross between two disease resistant breeding lines. It is a medium maturing variety with a medium-high yield potential, it is tall with an intermediate leaf number and is moderately resistant to black shank and fusarium wilt, is resistant to root knot nematodes and has a low level of Granville Wilt resistance.

NC 98 was developed by the North Carolina Agricultural Experiment Station from a cross of a breeding line with NC 95. This variety is medium in maturation pattern, it has a high yield potential, is tall with an intermediate leaf number. NC 98 is moderately resistant to black shank and Granville Wilt, resistant to root knot nematodes, and has a low level of resistance to fusarium wilt.

Speight G-23 was developed by the Speight Seed Company from a cross of NC 2326 with NC 95. This variety is medium in maturation pattern, high in yield potential, medium in height and leaf number, and highly resistant to four major tobacco diseases (black shank, root knot, Granville and fusarium wilts).