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FLUE-CURED TOBACCO VARIETY INFORMATION FOR 1977

T. R. Terrill, J. L. Jones, M. J. Rogers and J. J. Reilly*



One new variety, NC 13, will be available for planting in 1977. This variety has met the chemical and physical standards established by the Regional Flue-Cured Variety Evaluation Committee. NC 13 was developed by the North Carolina Agricultural Experiment Station from a cross of Hicks with Coker 139. This variety has a high yield potential, moderate resistance to black shank, the same average height as Coker 347, large leaves, with intermediate maturation. NC 13 was difficult to cure under Virginia conditions in 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. It is advisable to try new varieties on a limited acreage so that a proper personal evaluation can be made.

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.

* Associate Professor, Extension Specialist, Tobacco, and Assistant Professors, respectively.

EXTENSION DIVISION · VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

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Table 1. Virginia Official Flue-Cured Variety Test, Results by Locations, 1976.

Variety	Southern Piedmont Center			Halifax			Lunenburg			State Average			1/
	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 \$/Cwt	
Va 080	2542	2693	106	1779	1741	98	1789	1601	89	2037	2012	98	
Va 115	2825	3088	109	1905	1999	105	2275	2269	100	2335	2452	105	
Coker 86	2897	2937	101	1927	1826	95	2345	2233	95	2390	2332	97	
Coker 187-Hicks	2641	2793	106	1955	2089	107	2329	2402	103	2308	2428	105	
Coker 254 ^{2/}	2603	2820	108	-	-	-	-	-	-	2603	2820	108	
Coker 319	2793	3181	114	1994	2216	111	2421	2602	107	2403	2666	111	
Coker 347	2801	2957	106	2143	2235	104	2361	2100	89	2435	2431	100	
Coker 411	2822	2961	105	2003	2166	108	2621	2476	94	2482	2534	102	
McNair 133	2458	2761	112	1795	1961	109	2221	2240	101	2158	2321	107	
McNair 944	2989	3202	107	2676	2915	109	2549	2509	98	2738	2875	105	
McNair 1040	2667	2983	112	2033	2281	112	2377	2421	102	2359	2562	109	
NC 13 ^{3/}	3316	3641	110	2614	2826	108	2586	2395	93	2839	2954	104	
NC 79	2859	3222	113	2243	2351	105	2502	1912	76	2535	2495	90	
NC 88	2737	2914	107	2278	2366	104	1888	1778	94	2301	2353	102	
NC 98	2530	2785	110	2400	2619	109	2303	2266	98	2411	2557	106	
NC 2326	2434	2756	113	2629	2787	106	2402	2420	101	2488	2654	107	
SC 72	2601	2859	110	2097	2184	104	2402	2259	94	2367	2434	103	
Speight G-23	2659	2912	110	2300	2383	104	2128	1880	88	2362	2392	101	
Speight G-28	2865	3051	106	2076	2191	105	2274	2326	102	2405	2523	104	
Speight G-140	3028	3348	111	2568	2737	107	2459	2433	99	2685	2839	106	

^{1/} Computed on the basis of season's average for Old Belt through October 7, 1976.

^{2/} Values for Coker 254 were obtained at Southern Piedmont Center only.

^{3/} New variety available for planting in 1977.

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

Variety	No. of Tests	Yield lbs/A					Value, \$/A					Price, \$/Cwt						
		1972	1973	1974	1975	1976	Avg.	1972	1973	1974	1975	1976	Avg.	1972	1973	1974	1975	1976
Va 080	10		2308	2470	2595	2037	2353		2024	2662	2499	2012	2299		88	108	96	98
Va 115	17	2280	2567	2660	2766	2335	2522	1893	2262	2900	2850	2452	2471	83	88	109	103	105
Coker 86	6			2529	2390	2460				2407	2332	2370					95	97
Coker 187-Hicks	17	2236	2254	2601	2552	2308	2390	1861	1990	2805	2724	2428	2362	83	88	108	107	105
Coker 254	15	2294	2273	2470	2438	2603	2416	1896	2003	2721	2587	2820	2405	83	88	110	106	108
Coker 319	17	2385	2465	2712	2636	2403	2520	1994	2175	3009	2852	2666	2539	84	88	111	108	111
Coker 347	17	2274	2618	3078	2799	2435	2641	1892	2305	3400	2956	2431	2597	83	88	110	106	100
Coker 411	17	2328	2315	2760	2726	2482	2522	1939	2047	2967	2831	2534	2464	83	88	108	104	102
McNair 133	3					2158	2158					2321	2321				107	107
McNair 944	11		2642	3135	2892	2738	2852		2323	3454	2967	2875	2905	88	110	103	105	
McNair 1040	8			2914	2366	2359	2546			3199	2508	2562	2756		110	106	109	
NC 13	3				2681	2839	2760				2467	2954	2711				92	104
NC 79	6				2618	2535	2577				2718	2495	2607				103	90
NC 88	14	2406	2648	2640	2480	2301	2495	1981	2335	2903	2576	2353	2430	82	88	110	104	102
NC 98	6				2720	2411	2566				2894	2557	2726				106	106
NC 2326	17	2157	2395	2706	2459	2488	2441	1802	2112	2962	2534	2654	2413	83	88	109	103	107
SC 72	14	2245	2492	2817	2642	2367	2513	1858	2191	3066	2778	2434	2465	83	88	109	105	103
Speight G-23	6				2765	2362	2564				2852	2392	2622				103	101
Speight G-28	17	2358	2466	2589	2772	2405	2518	1943	2162	2745	2854	2523	2445	83	88	106	103	104
Speight G-140	14	2474	2635	3092	2775	2685	2732	2125	2324	3350	2952	2839	2718	82	88	108	106	106

Table 3. Chemical Composition, Agronomic Measures and Disease Reaction for Varieties Tested in Virginia, 1976^{1/}

Variety	Reducing Sugars (%)	Nico-tine (%)	Tot. N (%)	Days to Flower	Plant Ht. (in.)	Leaf No.	Disease Reaction ^{2/}					
							BS	TMV	RK	GW	FW	B.Sp.
Va 080 ^{3/}	7.33	4.43	3.15	62	40	21	M	R	R	L	H	T
Va 115 ^{3/}	9.97	3.94	2.86	58	39	21	M	S	S	L	S	Mt
Coker 86	9.13	4.09	2.87	66	45	24	H	R	R	H	M	Mt
Coker 187-Hicks	9.68	3.73	2.75	71	49	22	H	S	S	M	M	Se
Coker 254	8.57	4.08	2.86	68	46	22	M	S	R	H	M	Se
Coker 319	8.76	4.11	3.08	68	43	22	L	S	S	L	L	Se
Coker 347	8.46	4.77	2.90	64	46	24	M	S	R	M	H	Mt
Coker 411	9.27	4.53	2.79	60	44	22	H	S	S	L	S	Se
McNair 133	9.27	3.96	2.76	60	46	22	M	S	S	L	S	Se
McNair 944	12.04	4.32	2.53	71	40	21	H	S	S	L	S	Se
McNair 1040	10.09	3.71	2.68	71	45	23	M	S	S	L	L	T
NC 13	8.71	4.76	2.83	63	46	23	M	S	S	L	L	Se
NC 79	9.93	3.88	2.65	60	46	21	M	S	R	L	M	Mt
NC 88	8.70	4.04	2.72	68	48	22	M	S	R	M	H	T
NC 98	9.23	3.79	2.61	60	43	20	M	S	R	M	L	Mt
NC 2326	8.78	4.93	2.66	60	43	20	M	S	S	S	L	Mt
SC 72	9.39	4.02	2.86	66	44	22	M	R	R	H	H	Se
Speight G-23	9.52	4.41	2.76	62	40	20	M	S	R	H	H	T
Speight G-28	9.97	3.95	2.84	64	40	22	H	S	R	H	H	T
Speight G-140	8.99	3.72	2.72	68	47	23	H	S	S	M	L	Se

^{1/}Chemical data represent a 3-location average (Halifax, Lunenburg and the Southern Piedmont Center); agronomic measures were made at the Southern Piedmont Center only and disease reaction classification represent field and greenhouse tests conducted in several states.

^{2/}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.

^{3/}Resistant to black root rot.

Table 4. Harvest Rate (Weight by Primings) as a Measure of Varietal Maturation Patterns ^{1/}

Variety	Halifax					Lunenburg					Southern Piedmont Center						Maturity Class
	H1	H2	H3	H4	H5	H1	H2	H3	H4	H5	H1	H2	H3	H4	H5	H6	
Va 080	12	31	49	67	100	19	38	57	75	100	12	26	41	54	70	100	Med
Va 115	12	33	49	75	100	19	42	60	78	100	10	19	39	57	75	100	Med
Coker 86	11	29	43	61	100	14	29	43	71	100	11	23	38	54	73	100	Late
Coker 187-Hicks	13	32	51	74	100	14	31	54	72	100	13	29	48	63	80	100	Early
Coker 254	-	-	-	-	-	-	-	-	-	-	12	26	42	57	74	100	Med
Coker 319	13	32	47	71	100	15	32	50	73	100	11	28	47	64	80	100	Med
Coker 347	10	27	43	60	100	17	33	51	65	100	13	28	43	60	78	100	Late
Coker 411	11	32	50	74	100	17	34	53	73	100	12	26	42	58	74	100	Early
McNair 133	13	33	53	74	100	17	32	50	69	100	12	28	48	67	86	100	Early
McNair 944	9	25	40	61	100	16	30	48	71	100	12	26	43	58	74	100	Med
McNair 1040	13	30	55	80	100	14	26	42	67	100	11	28	47	65	79	100	Early
NC 13	11	27	49	74	100	19	35	50	69	100	13	30	47	67	82	100	Med
NC 79	10	26	50	78	100	12	25	38	66	100	11	24	44	61	77	100	Med
NC 88	9	24	45	63	100	14	31	49	69	100	11	25	47	60	74	100	Early
NC 98	9	23	45	63	100	13	27	44	64	100	12	27	45	65	76	100	Med
NC 2326	8	22	46	70	100	14	28	41	67	100	10	27	46	67	81	100	Med
SC 72	8	23	48	67	100	16	31	43	60	100	13	26	44	59	75	100	Med
Speight G-23	6	19	39	59	100	15	31	43	75	100	13	29	46	63	78	100	Med
Speight G-28	9	22	41	60	100	14	31	48	71	100	12	28	44	64	80	100	Med
Speight G-140	10	24	43	60	100	15	30	44	62	100	12	28	45	62	73	100	Med

^{1/} 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. Group, Quality, and Color Grade Classification of Varieties Tested at Southern Piedmont Center, 1976.

Variety	Group (%) ^{1/}					Quality (%) ^{2/}				Color (%) ^{3/}					
	P	X	C	B	N	3	4	5	6	L	F	G	KF	KM	Other
Va 080	11	19	2	68	0	6	40	31	23	0	26	10	29	0	35
Va 115	9	2	15	74	0	17	37	39	7	11	16	4	29	0	39
Coker 86	4	1	6	78	11	2	35	47	5	0	8	8	28	0	57
Coker 187-Hicks	10	14	13	60	3	5	39	32	21	4	17	4	38	0	37
Coker 254	10	4	10	73	2	15	34	35	14	27	13	0	32	0	28
Coker 319	12	6	13	69	0	33	49	18	0	28	24	0	18	5	24
Coker 347	10	0	13	64	12	22	33	24	8	11	11	10	24	5	39
Coker 411	4	2	8	78	8	6	42	31	13	3	11	9	31	4	43
McNair 133	12	3	13	72	0	17	48	30	5	25	22	0	25	0	29
McNair 944	8	2	13	73	4	16	47	33	0	12	15	0	34	0	39
McNair 1040	11	3	22	64	0	21	49	30	0	30	17	0	30	0	23
NC 13	11	2	16	71	0	18	48	34	0	5	20	2	40	0	33
NC 79	11	1	20	68	0	41	23	34	0	9	39	0	45	1	6
NC 88	14	4	11	67	3	11	41	45	4	19	20	0	27	0	34
NC 98	9	3	17	67	3	23	39	36	0	3	30	0	20	1	47
NC 2326	9	3	14	73	2	47	28	18	3	5	32	3	30	11	19
SC 72	9	5	11	71	4	18	37	41	0	10	23	4	20	6	44
Speight G-23	13	3	15	70	0	28	33	39	0	10	21	4	22	0	43
Speight G-28	4	9	15	65	8	23	32	37	0	23	24	1	24	0	28
Speight G-140	8	0	20	68	3	18	41	32	7	28	13	0	23	0	36

^{1/}P-Primings; X-Lugs; C-Cutters; B-Leaf; N-Non-descript

^{2/}3-Good; 4-Fair; 5-Low; 6-Poor

^{3/}L-Lemon; F-Orange; G-Green; KF-Variegated orange; KM-Variegated mixed

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.

Weather fleck (physiological leaf spot caused by air pollution) was a confusing problem to growers last year. In some areas it first appeared in the plant bed and was mistaken for a number of diseases, especially anthracnose. During stormy weather, lightning creates the pollutant 'ozone'. Flecking will appear in tobacco within one day after a storm. Sulfur dioxide is another air pollutant produced during the manufacture of sulfuric acid and by factories that use sulfuric acid in the manufacture of paper products. These air pollutants have also been shown to drift into Virginia from as far away as New York and Boston. No varieties are immune to weather fleck but some show more tolerance than others. Research at the Southern Piedmont Center has shown that the following varieties are especially sensitive to air pollutants: NC 88, NC 79, Speight G-28, Coker 254, Coker 319, Va 080 and McNair 135. Varieties Coker 347, Coker 411, NC 2326, Speight G-140 and SC 72 are very tolerant to weather fleck.