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FLUE-CURED TOBACCO VARIETY INFORMATION FOR 1978

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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.

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.

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.

Two new varieties, Coker 48 and NC 89, will be available for planting in 1978. Both varieties have good field type, but Coker 48 has higher disease ratings than NC 89 (Table 3). Neither variety is resistant to root knot nematodes or tobacco mosaic virus. In 1977, NC 89 produced more pounds of cured leaf with a higher average price per pound than Coker 48 under Virginia conditions (Table 1). 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, 1977

Variety	Halifax County			Lunenburg County			Southern Piedmont Center			State Average		
	Yield Lbs./A	Value \$/A	Price \$/Cwt. ^{1/}	Yield Lbs./A	Value \$/A	Price \$/Cwt.	Yield Lbs./A	Value \$/A	Price \$/Cwt.	Yield Lbs./A	Value \$/A	Price \$/Cwt.
Va 115	2422	2305	95	2388	2746	115	3007	3702	123	2606	2918	111
Coker 86	2380	1381	58	2729	2997	110	2846	3244	114	2652	2541	94
Coker 187-Hicks	1851	2141	116	2254	2573	114	2880	3490	121	2328	2735	117
Coker 48 ^{2/}	1946	1370	70	1984	2241	113	3081	3611	117	2337	2407	100
Coker 319	1963	2402	122	1915	2533	132	2732	3456	126	2203	2797	127
Coker 347	2354	2371	101	2239	2467	110	3033	3501	115	2542	2780	109
Coker 411	2235	2096	93	2281	2611	114	2927	3347	114	2481	2685	107
McNair 133	1738	1988	114	2171	2814	130	2716	3333	123	2208	2712	122
McNair 944	2268	2234	98	2394	3209	134	3284	4035	123	2649	3159	118
NC 13	2222	2354	106	2503	3012	120	3343	3489	104	2689	2951	110
NC 79	2300	2438	106	2567	3337	130	3130	3768	120	2666	3181	119
NC 88	2243	2521	112	2302	2506	109	3019	2946	98	2521	2664	106
NC 89 ^{2/}	2534	2816	111	2339	3120	133	2942	3300	112	2605	3079	119
NC 98	2155	2598	121	2542	2851	112	2995	3451	115	2551	2967	116
NC 2326	2159	2289	106	2292	2721	119	3105	3861	124	2519	2957	116
SC 72	2239	2460	110	1960	2330	119	2916	3275	112	2372	2688	114
Speight G-23	2480	2635	106	2036	2448	120	2915	3264	112	2477	2782	113
Speight G-28	2257	2628	116	2208	2712	123	2890	3085	107	2452	2808	115
Speight G-140	2192	2542	116	2262	2882	127	2996	3692	123	2483	3039	122

^{1/} Computed on the basis of the season's average prices for the Old Belt through October 13, 1977.

^{2/} New variety available for planting in 1978.

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

Variety	No. of Tests	Yield Lbs./A						Value \$/A						Price \$/Cwt.				
		1973	1974	1975	1976	1977	Avg.	1973	1974	1975	1976	1977	Avg.	1973	1974	1975	1976	1977
Va 115	15	2567	2660	2766	2335	2606	2587	2262	2900	2850	2452	2918	2676	99	109	103	105	111
Coker 86	9			2529	2390	2652	2524			2407	2332	2541	2427			93	97	94
Coker 187-Hicks	15	2554	2601	2552	2308	2328	2409	1990	2805	2724	2428	2735	2536	88	108	107	105	117
Coker 48	3					2337	2337					2407	2407					100
Coker 319	15	2465	2712	2636	2403	2203	2484	2175	3009	2852	2666	2797	2700	88	111	108	111	127
Coker 347	15	2618	3078	2799	2435	2542	2694	2305	3400	2956	2431	2780	2774	88	110	106	100	109
Coker 411	15	2315	2760	2726	2482	2481	2553	2047	2967	2831	2534	2685	2613	88	108	104	102	107
McNair 133	6				2158	2208	2183				2321	2712	2517			107	107	122
McNair 944	15	2642	3135	2892	2738	2649	2811	2323	3454	2967	2875	3159	2956	88	110	103	105	118
NC 13	9			2681	2839	2689	2736			2467	2954	2951	2791			92	104	100
NC 79	6			2618	2535	2666	2606			2718	2495	3181	2798			103	90	119
NC 88	15	2648	2640	2480	2301	2521	2518	2335	2903	2576	2353	2664	2566	88	110	104	102	106
NC 89	3					2605	2605					3079	3079					119
NC 98	9			2720	2411	2551	2561			2894	2557	2967	2806			106	106	116
NC 2326	15	2395	2706	2459	2488	2519	2513	2112	2962	2534	2654	2957	2644	88	109	103	107	116
SC 72	15	2492	2817	2642	2367	2372	2538	2191	3066	2778	2434	2688	2631	88	108	105	103	114
Speight G-23	9			2765	2362	2477	2535			2852	2392	2782	2675			103	101	113
Speight G-28	15	2466	2589	2772	2405	2452	2537	2162	2745	2854	2523	2808	2618	88	106	103	104	115
Speight G-140	15	2635	3092	2775	2685	2483	2734	2324	3350	2952	2839	3039	2901	88	108	106	106	122

Table 3. Chemical Composition, Agronomic Measures and Disease Reaction for Varieties Tested in Virginia, 1977 ^{1/}

Variety	Reducing Sugars (%)	Nicotine (%)	Tot. N. (%)	Days to Flower	Plant Ht. (CM.)	Leaf No.	Disease Reaction ^{2/}					
							BS	TMV	RK	GW	FW	B. Sp.
Va 115 ^{3/}	7.24	4.72	2.69	59	76	16	M	S	S	L	S	Mt
Coker 86	9.08	4.51	2.48	66	90	19	H	R	R	H	M	Mt
Coker 187-Hicks	8.61	4.59	2.31	64	100	19	H	S	S	M	M	Se
Coker 48	9.32	4.76	2.52	63	84	18	H	S	S	H	H	Mt
Coker 319	7.50	4.86	2.63	60	73	18	L	S	S	L	M	Mt
Coker 347	8.13	5.10	2.94	64	86	20	M	S	R	H	H	Mt
Coker 411	8.77	5.21	2.39	61	76	18	H	S	S	M	L	Se
McNair 133	8.77	4.57	2.47	63	90	18	M	S	S	L	S	Se
McNair 944	10.95	4.85	2.46	63	80	18	H	S	S	L	L	Se
NC 13	7.05	5.78	2.87	64	83	21	M	S	S	L	L	Se
NC 79	8.27	4.34	2.68	59	94	17	M	S	R	L	L	Mt
NC 88	6.50	4.99	2.77	66	95	21	M	S	R	M	H	T
NC 89	6.69	5.05	2.67	61	76	17	M	S	S	L	S	T
NC 98	6.47	4.47	2.52	64	85	17	M	S	R	L	M	Mt
NC 2326	7.18	4.63	2.57	58	87	16	M	S	S	S	M	Mt
SC 72	8.16	5.03	2.60	63	83	18	M	R	R	M	H	Mt
Speight G-23	6.08	5.23	2.81	62	73	18	M	S	R	H	H	T
Speight G-28	7.12	3.99	2.79	71	83	20	H	S	R	H	L	T
Speight G-140	8.02	4.93	2.47	68	92	19	M	S	S	M	M	Mt

^{1/} Chemical and agronomic measures were made at the Southern Piedmont Center and disease classification represents 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 Distribution (Weight by Primings in %) as a Measure of Varietal Maturation Patterns ^{1/}

Variety	Halifax ^{2/}				Lunenburg					Southern Piedmont Center					Maturity Class
	H1	H2	H3	H4	H1	H2	H3	H4	H5	H1	H2	H3	H4	H5	
Va 115	11	14	36	39	14	16	15	32	23	13	15	24	29	19	Med.
Coker 86	11	16	29	44	12	11	13	23	41	10	16	19	37	18	Late
Coker 187-Hicks	10	18	32	40	12	11	19	33	25	11	16	32	29	13	Early
Coker 48	10	16	30	44	13	14	17	30	26	13	15	27	27	26	Med.
Coker 319	11	15	38	36	13	16	18	30	23	14	22	27	27	11	Med.
Coker 347	8	14	30	48	16	15	15	25	29	10	14	19	37	19	Late
Coker 411	8	15	28	49	16	16	18	32	18	10	16	22	37	14	Med.
McNair 133	12	19	33	36	13	13	20	37	17	11	16	29	29	14	Early
McNair 944	10	18	34	38	16	15	28	27	14	10	13	25	34	18	Med.
NC 13	15	19	30	36	19	16	20	25	20	13	16	19	36	16	Med.
NC 79	9	18	35	38	13	11	20	27	29	11	14	22	32	21	Med.
NC 88	12	18	26	44	17	12	20	29	22	12	14	19	35	20	Med.
NC 89	8	17	35	40	19	16	23	24	18	12	15	20	33	20	Med.
NC 98	12	17	26	45	16	12	20	30	22	11	15	27	29	13	Med.
NC 2326	8	17	26	49	16	12	19	30	23	10	14	20	34	22	Med.
SC 72	10	19	20	51	22	15	19	30	14	11	15	20	35	18	Med.
Speight G-23	8	17	30	45	20	13	20	30	17	10	13	26	29	22	Med.
Speight G-28	9	18	31	42	21	13	18	31	17	11	17	24	29	18	Med.
Speight G-140	10	21	26	43	17	14	18	26	25	12	15	20	36	17	Late

^{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.

^{2/} Extremely dry conditions followed by some late rainfall influenced harvest distribution.

Table 5. Distribution of Primings, Lugs, Leaf and Nondescript Percentages for Varieties Tested at Three Locations in 1977 ^{1/}

Varieties	Halifax Group (%) ^{2/}				Lunenburg Group (%)				Southern Piedmont Center Group (%)				State Average Group (%)			
	P	X	B	N	P	X	B	N	P	X	B	N	P	X	B	N
Va 115	11	14	36	36	0	20	47	33	6	13	66	13	6	16	51	27
Coker 86	0	0	0	100	0	16	70	14	3	19	45	33	1	12	38	49
Coker 187-Hicks	0	18	72	10	0	0	77	23	3	14	54	29	1	10	68	21
Coker 48	9	16	0	74	0	0	74	26	6	13	51	30	5	10	42	43
Coker 319	11	15	74	0	0	16	71	13	6	17	64	12	6	16	70	8
Coker 347	0	14	32	55	0	15	69	16	3	10	65	22	6	13	55	31
Coker 411	0	15	28	55	0	16	68	16	3	11	56	30	1	14	51	34
McNair 133	0	19	70	12	14	13	73	0	2	9	68	16	5	14	71	9
McNair 944	10	18	0	72	16	15	69	0	4	8	77	11	10	14	49	27
NC 13	0	19	36	45	19	16	65	0	3	13	33	44	8	16	45	30
NC 79	0	18	38	44	13	11	76	0	8	9	64	18	7	13	59	21
NC 88	0	18	44	38	12	0	71	17	1	7	28	65	4	8	48	40
NC 89	8	17	40	36	19	16	65	0	5	10	57	28	11	14	54	21
NC 98	12	16	71	0	0	0	71	29	5	12	57	24	6	9	66	18
NC 2326	0	17	49	34	0	0	72	28	5	12	76	8	2	10	66	23
SC 72	10	19	51	20	0	15	63	22	2	8	50	40	4	14	55	27
Speight G-23	0	17	45	38	20	13	67	0	3	12	54	28	8	14	55	22
Speight G-28	0	17	74	9	21	13	66	0	2	8	50	33	8	13	64	14
Speight G-140	0	21	69	10	17	14	69	0	5	9	66	20	7	15	68	10

^{1/} Extremely dry conditions followed by some late rainfall influenced the components of grades, especially in Halifax County.

^{2/} Group grade designations; P - Primings, X - Lugs, B - Leaf, and N - Nondescript.

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. Data presented in Table 4 indicate that varieties do not all respond to different location and management systems in the same way, but 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 not a major problem to Virginia growers in 1977, though air pollution levels were as high as in previous seasons. The hot, dry conditions probably resulted in longer periods when leaf stomates were closed and thus less injury.

The harsh season and continuing demand for tobacco of good quality contributed to greater price differences for the 1977 crop than in any previous season. Varietal selection to fit each production situation is more important than ever and the production of tobacco of good quality remains a major factor in realizing good economic returns.

Excessive nitrogen fertilization of flue-cured tobacco resulted in a number of difficult harvesting and curing situations for Virginia producers and varietal selection is a factor in optimum fertilization. Plants which have healthy root systems utilize applied nutrients more efficiently than those with damage or disease problems. Consequently, disease resistance (particularly root knot nematode resistance) may result in improved root efficiency when pathogens are present and reduce the amount of nitrogen required to produce the crop.