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FLUE-CURED TOBACCO VARIETY INFORMATION FOR 1979

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



Excellent evaluations of variety potential were obtained in 1978, with yield and quality measures above average at all locations. 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, and other factors for released varieties.

One new variety, Speight G-52, will be available for planting in 1979. This variety has very good black shank resistance and a slightly higher yield potential than Speight G-28 under Virginia conditions (Tables 1-4). Speight G-52 is taller than Speight G-28, but shorter than Coker 319.

Other recently released varieties include NC 89 and Coker 48, released in 1978 and NC 79, released in 1977. Each of these varieties demonstrated high yield potentials with Coker 48 and NC 89 approaching that of McNair 944. NC 79 also demonstrated a good yield potential and a higher average price per cwt. than all other varieties except Coker 319 and Coker 187-Hicks (Tables 1 and 4). We are all interested in the performance of new varieties, but trial on a limited basis is considered good management, especially if you have had good results with a variety that seems to fit your production and curing conditions.

Many producers are utilizing varieties to change harvest distribution or extend the harvest season and, thus, utilize harvesting and curing units more efficiently. The maturation classes, presented in Table 4 may be useful for this purpose. With regard to extending the harvest period, a two-year study conducted at the Southern Piedmont Center indicated that planting date was a more important factor than variety for modifying harvest distribution. Six varieties were planted three times (May 7, 17, 27) and evaluated in 1976 and 1977. Varieties performed consistently (highest yielding variety was the same for each date of planting) and the harvest season was extended, but each 10-day delay in planting resulted in a yield decrease of about 200 pounds per acre and a price decrease of about \$3.00 per hundredweight.

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

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Table 1. Virginia Flue-Cured Tobacco Official Variety Test Results; Yield, Value, Price, 1978

Variety	Halifax County			Lunenburg County			Southern Piedmont Center			State Average		
	Yield Lbs/A	Value \$/A	Price ^{1/} \$/Cwt	Yield Lbs/A	Value \$/A	Price \$/Cwt	Yield Lbs/A	Value \$/A	Price \$/Cwt	Yield Lbs/A	Value \$/A	Price \$/Cwt
Va 115	2730	3795	139	3049	4146	136	3007	3669	122	2929	3870	132
Coker 48	2991	4247	142	3256	4526	139	3119	3805	122	3122	4193	134
Coker 187-Hicks	2596	3868	149	2799	3891	139	3028	4027	133	2808	3929	140
Coker 319	3322	4884	147	2813	4023	143	3000	4080	136	3045	4329	142
Coker 347	3030	4424	146	2742	3675	134	2759	3504	127	2844	3868	136
Coker 411	2933	4018	137	3041	4166	137	3110	3888	125	3028	4024	133
McNair 133	2912	4222	145	2820	3920	139	2704	3515	130	2812	3886	138
McNair 944	3278	4688	143	3225	4580	142	3250	4225	130	3251	4498	138
NC 13	3182	4455	140	3301	4654	141	3121	3745	120	3201	4285	134
NC 79	3035	4370	144	3159	4612	146	2996	3835	128	3063	4272	139
NC 88	2841	4006	141	3186	4525	142	3194	3705	116	3074	4079	133
NC 89	3083	4409	143	3354	4629	138	3111	3764	121	3183	4267	134
NC 98	2883	4180	145	2680	3725	139	2783	3256	117	2782	3720	134
NC 2326	2743	3977	145	2490	3536	142	2872	3475	121	2702	3663	136
SC 72	3008	4301	143	2782	3672	132	2848	3588	126	2879	3854	134
Speight G-23	2747	3846	140	2728	2919	107	2944	3592	122	2806	3452	123
Speight G-28 ^{2/}	2812	4077	145	2771	3908	141	2717	3396	125	2767	3794	137
Speight G-52 ^{2/}	2781	4008	144	2785	3537	127	3022	3657	121	2863	3734	130
Speight G-140	2936	4169	142	2969	3919	132	3411	4366	128	3105	4151	134

^{1/} Computed on the basis of the season's average prices for the Old Belt through October 13, 1978.

^{2/} New variety available for planting in 1979.

Table 2. Virginia Flue-Cured Tobacco Official Variety Test Results; Yield, Value, and Price by Years^{1/}

Variety	No. of Tests	Yield Lbs/A						Value \$/A						Price \$/Cwt				
		1974	1975	1976	1977	1978	Avg.	1974	1975	1976	1977	1978	Avg.	1974	1975	1976	1977	1978
Va 115	15	2660	2766	2335	2606	2929	2659	2900	2850	2452	2918	3870	2998	109	103	105	111	132
Coker 48	6				2337	3122	2730				2407	4193	3300				103	134
Coker 187-Hicks	15	2601	2552	2308	2328	2808	2519	2805	2724	2428	2735	3929	2924	108	107	105	117	140
Coker 319	15	2712	2636	2403	2203	3045	2600	3009	2852	2666	2797	4329	3131	111	108	111	127	142
Coker 347	15	3078	2799	2435	2542	2844	2740	3400	2956	2431	2780	3868	3087	110	106	100	109	136
Coker 411	15	2760	2726	2482	2481	3028	2695	2967	2831	2534	2685	4024	3008	108	104	102	107	133
McNair 133	9			2158	2208	2812	2393			2321	2712	3886	2973			107	122	138
McNair 944	15	3135	2892	2738	2649	3251	2933	3454	2967	2875	3159	4498	3391	110	103	105	118	138
NC 13	12		2681	2839	2689	3201	2853		2467	2954	2951	4285	3164		92	104	110	134
NC 79	9		2618	2535	2666	3063	2721		2718	2495	3181	4272	3167		103	90	119	139
NC 88	15	2640	2480	2301	2521	3074	2603	2903	2576	2353	2664	4079	2915	110	104	102	106	133
NC 89	6				2605	3183	2894				3079	4267	3673				109	134
NC 98	12		2720	2411	2551	2782	2616		2894	2557	2967	3720	3035		106	106	116	134
NC 2326	15	2706	2459	2488	2519	2702	2575	2962	2534	2654	2957	3663	2954	109	103	107	116	136
SC 72	15	2817	2642	2367	2372	2879	2615	3066	2778	2434	2688	3854	2964	108	105	103	114	134
Speight G-23	12		2765	2362	2477	2806	2603		2852	2392	2782	3452	2870		103	101	113	123
Speight G-28 ^{2/}	15	2589	2772	2405	2452	2767	2597	2745	2854	2523	2808	3794	2945	106	103	104	115	137
Speight G-52 ^{2/}	3					2863	2863					3734	3734					131
Speight G-140	15	3092	2775	2685	2483	3105	2828	3350	2952	2839	3039	4151	3266	108	106	106	122	134

^{1/} Averages are not directly comparable unless the number of tests is equivalent.

^{2/} Available for planting in 1979.

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

Variety	Reducing Sugars (%)	Nico-tine (%)	Tot. N. (%)	Days to Flower	Plant Ht. (cm.)	Leaf No.	Disease Reaction ^{2/}					
							BS	TMV	RK	GW	FW	B. Sp.
Va 115 ^{3/}	14.03	3.56	2.50	56	90	18	M	S	S	L	S	Mt
Coker 48	16.22	3.65	2.33	61	113	19	H	S	S	H	H	Mt
Coker 187-Hicks	14.29	3.25	2.40	61	118	20	H	S	S	M	M	Se
Coker 319	14.71	2.96	2.38	58	101	19	L	S	S	L	M	Mt
Coker 347	10.64	4.21	2.48	62	92	19	M	S	R	H	H	Mt
Coker 411	12.17	4.32	2.39	58	85	17	H	S	S	M	L	Se
McNair 133	10.39	3.94	2.45	59	104	20	M	S	S	L	S	Se
McNair 944	13.31	3.94	2.31	59	94	18	H	S	S	L	L	Se
NC 13	11.21	4.54	2.54	62	94	19	M	S	S	L	L	Se
NC 79	11.82	3.56	2.39	55	96	17	M	S	R	L	L	Mt
NC 88	12.23	3.76	2.30	62	96	17	M	S	R	M	H	T
NC 89	13.86	3.74	2.34	57	95	16	M	S	R	L	S	T
NC 98	11.41	3.52	2.33	59	98	17	M	S	R	L	M	Mt
NC 2326	12.33	3.97	2.39	54	96	16	M	S	S	S	M	Mt
SC 72	15.53	3.59	2.28	60	101	19	M	R	R	M	H	Mt
Speight G-23	13.15	3.61	2.28	58	88	15	M	S	R	H	H	T
Speight G-28	12.10	3.29	2.32	63	85	18	H	S	R	H	L	T
Speight G-52	14.12	3.96	2.30	61	93	19	H	S	S	M	M	Mt
Speight G-140	16.20	3.53	2.14	62	110	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 = highly resistant; M = moderate; L = low; S = susceptible; T = tolerant; Mt = moderately tolerant; SE = sensitive; R = resistant; BS = Blackshank; 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. Virginia Flue-Cured Tobacco Official Variety Test Results; New Varieties and Special Performance Groupings, 1978 State Averages.

Variety	1978 State Average			Maturity Class	New Varieties ^{1/}						Reducing Sugars (%)	Nico-tine (%)	Days to Flower	Plant Ht. (cm.)	Leaf No.
	Yield Lbs/A	Value \$/A	Price \$/Cwt		Disease Reaction ^{2/}										
					BS	TMV	RK	GW	FW	B.Sp.					
Speight G-52	2863	3734	130	Medium	H	S	S	M	M	Mt	14	3.96	61	93	19
Coker 48	3122	4193	134	Medium	H	S	S	H	H	Mt	16	3.65	61	113	19
NC 89	3183	4267	134	Medium	M	S	S	L	S	T	14	3.74	57	95	16
NC 79	3063	4272	139	Late	M	S	R	L	L	Mt	12	3.56	55	96	17
Highest Yielding Varieties															
McNair 944	3251	4498	138	Medium	H	S	S	L	L	Se	13	3.94	59	94	18
NC 13	3201	4285	134	Medium	M	S	S	L	L	Se	11	4.54	62	94	19
NC 89	3183	4267	134	Medium	M	S	R	L	S	T	14	3.74	57	95	16
Coker 48	3122	4193	134	Medium	H	S	S	H	H	Mt	16	3.65	61	113	19
Speight G-140	3105	4151	134	Late	M	S	S	M	M	Mt	16	3.53	62	110	19
Highest Quality (based on \$/Cwt)															
Coker 319	3045	4329	142	Early	L	S	S	L	M	Mt	15	2.96	58	101	19
Coker 187-Hicks	2808	3929	140	Early	H	S	S	M	M	Se	14	3.25	61	118	20
NC 79	3063	4272	139	Late	M	S	R	L	L	Mt	12	3.56	55	96	17
McNair 944	3251	4498	138	Medium	H	S	S	L	L	Se	13	3.94	59	94	18
McNair 133	2812	3886	138	Early	M	S	S	L	S	Se	10	3.94	59	104	20
High Black Shank Resistance															
McNair 944	3251	4498	138	Medium	H	S	S	L	L	Se	13	3.94	59	94	18
Coker 48	3122	4193	134	Medium	H	S	S	H	H	Mt	16	3.65	61	113	19
Speight G-52	2863	3734	130	Medium	H	S	S	M	M	Mt	14	3.96	61	93	19
Speight G-28	2767	3794	137	Medium	H	S	R	H	L	T	12	3.29	63	85	18
Coker 187-Hicks	2808	3929	140	Early	H	S	S	M	M	Se	14	3.25	61	118	20
Coker 411	3028	4024	133	Medium	H	S	S	M	L	Se	12	4.32	58	85	17

^{1/} New varieties available for planting for the first time in 1979 = Speight G-52, 1978 = Coker 48 & NC 89, and 1977 = NC 79.

^{2/} Disease Reaction -- H = highly resistant; 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.

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 are lower yielding. Another approach is available to tobacco producers. Research conducted with susceptible varieties has shown that TMV can be controlled, to a great extent, by following some simple preventative measures. These include washing hands in a phosphate detergent and spraying the transplants with milk. Whole milk or powdered milk (1 pound to 1 gal. water) can be sprayed over the transplants until it drips from the leaves. The milk must be allowed to dry on the leaf surface and, therefore, may be applied the night before transplanting. Five gallons will treat 100 sq. yds. of bed. An increase of 200 to 300 pounds per acre may be realized by following these practices to reduce TMV losses.

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.

Weather fleck (physiological leaf spot caused by air pollution) was not a major problem to Virginia growers in 1978, though air pollution levels were as high as in previous seasons. More late-season injury was noted than in previous years, probably because excellent growing conditions prevailed throughout much of the latter part of the season. Varieties differ for tolerance to weather fleck. NC 88 is the most sensitive variety, followed by McNair 133 and Speight G-28. Most of the varieties evaluated in 1978 are not easily affected by air pollutants and can be planted without concern for losses due to weather fleck.

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.