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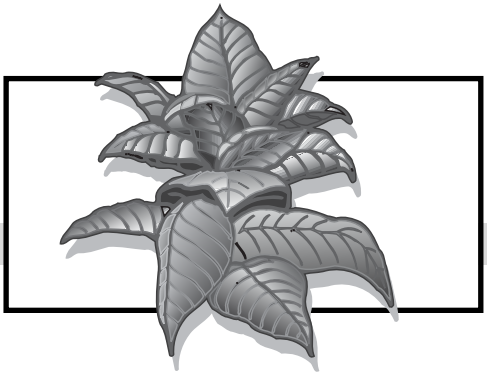

Flue-Cured Tobacco Variety Information for 2003

*C. A. Wilkinson, T. D. Reed, C. S. Johnson, and J. L. Jones**

Seed of four new varieties will be available to tobacco producers in 2003. GL 973 and NC 810 met the chemical and physical standards established by the Regional Variety Evaluation Committee in 2000. GL 737 and NC 291 met the chemical and physical standards established by the Regional Variety Evaluation Committee in 1999 and 1997, respectively. Growers should consider planting a limited acreage of any new variety until more information and experience is available from a wider range of soil and climatic conditions.

GL 973 (tested as X 973) and **GL 737** (tested as X 737) were developed by Gold Leaf Seed Company. GL 973 is a male sterile hybrid and only pelleted seed will be available. Information on parents used to develop a hybrid is not released. GL 737 was developed from a cross of NC 1071 x Coker 319. Data from 2002 indicate that GL 973 and GL 737 are late maturing with average yields of good quality leaf. Both have a high level of resistance to black shank. GL 973 and GL 737 have a low and moderate resistance to Granville wilt, respectively. GL 737 is resistant to the common races of the root knot nematode. Both varieties are susceptible to tobacco mosaic virus (TMV).

NC 291 (tested as NC TG 91) and **NC 810** (tested as OX 8100) were developed by North Carolina State University. NC 291 is a male sterile hybrid. Seed of NC 291 will be available exclusively from Cross Creek Farms. NC 291 is a high yielding, late maturing hybrid with good leaf quality. It has a high level of resistance to black shank and low resistance to Granville wilt. It is resistant to the common races of the root knot nematode, potato virus Y, and tobacco etch virus. It is susceptible to TMV.

NC 810 was developed from a cross of OX 2101 x NC 729. A limited amount of seed of NC 810 will be available from Cross Creek Farms and Raynor Certified Seed. NC 810 is a late maturing variety with good yield and quality. It has a high level of resistance to black shank and Granville wilt. NC 810 is resistant to the common races of the root knot nematode and is susceptible to TMV.

Information is provided for widely grown and recently released varieties in Tables 1 to 5 of this publication. Results of eleven varieties included in the 2002 Virginia Official Variety Tests (OVT) are shown in Table 1. These tests were conducted in Charlotte (Jamie Newcomb), Halifax (Wayne Palmer), Pittsylvania (Kevin Motley), and Nottoway (Southern Piedmont Agricultural Research and Extension Center) counties under the joint supervision of Extension Agents in the respective counties and Virginia Polytechnic Institute and State University research and Extension personnel. Testing in various locations throughout the production area makes it possible to evaluate varietal performance under the widely ranging soil and weather conditions existing in Virginia. Such a testing program also *Continued pg. 5*

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Table 1. Virginia Flue-Cured Official Variety Test Results: Yield and Price, 2002.[1]

	State Average		So. Piedmont AREC		Charlotte County		Halifax County		Pittsylvania County	
Variety	Yield lbs/A	Price $/cwt	Yield lbs/A	Price $/cwt	Yield lbs/A	Price $/cwt	Yield lbs/A	Price $/cwt	Yield lbs/A	Price $/cwt
K 326	3641	182	3903	180	3856	185	3534	174	3269	188
NC 71	3595	181	3394	178	4142	187	3453	170	3392	188
NC 72	3489	182	3483	179	3659	185	3340	176	3475	188
NC 291	**3512**	**181**	**3798**	**174**	**3636**	**188**	**3142**	**174**	**3472**	**188**
NC 297	3452	181	3333	171	3753	184	3280	178	3442	189
NC 606	3075	185	3134	182	3033	183	2933	184	3201	190
NC 810	**3120**	**183**	**3286**	**176**	**3248**	**185**	**2936**	**180**	**3010**	**190**
RG H51	3379	182	3642	175	3248	184	3069	179	3556	188
Sp. G-168	3203	182	3336	174	3200	185	3016	177	3260	190
Sp. G-179	3268	176	3057	170	3824	186	2968	160	3222	186
Sp. H20	3184	176	3452	171	3408	184	2852	162	3023	186
Loc. Avg.	**3356**	**181**	**3438**	**175**	**3546**	**185**	**3138**	**174**	**3302**	**188**

New varieties for 2003 are in bold.

[1]Tests were conducted in Nottoway (So. Piedmont Ag. Res. and Ext. Ctr.), Charlotte (Jamie Newcomb), Halifax (Wayne Palmer), and Pittsylvania (Kevin Motley) counties in 2002.

Table 2. Percentage of certain color grade factors of varieties tested at four locations 2002.[1]

Variety	L	F	K	V	KF	KV	KM	G
K 326	3	29	47	4	3	2	12	0
NC 71	4	25	49	6	2	5	9	0
NC 72	6	32	43	6	0	2	11	0
NC 291	**5**	**35**	**43**	**3**	**7**	**3**	**3**	**1**
NC 297	4	37	34	10	8	0	7	0
NC 606	7	47	38	5	1	0	2	0
NC 810	**4**	**46**	**36**	**3**	**6**	**0**	**5**	**0**
RG H51	4	45	35	3	1	0	12	1
Sp. G-168	4	40	31	5	0	0	15	5
Sp. G-179	5	27	38	4	3	10	12	1
Sp. H20	2	30	42	4	9	5	6	2

New varieties for 2003 are in bold.

[1] L= lemon; F = orange; K = variegated; V = greenish; KF = variegated orange; KV = variegated greenish; KM = variegated mixed; G = green.

Table 3. Virginia Flue-Cured Tobacco Official Variety Test Results by Years, Southern Piedmont Agricultural Research and Extension Center, Blackstone, VA.

	Yield, lbs/A						Price, $/cwt				
Variety	1998	1999	2000	2001	2002	Avg.[1]	1998	1999	2000	2001	2002
Black Shank AND Granville Wilt (High Resistance)											
Sp. G-179[2]	3380	2989	3509	----	3057	3234	180	169	180	---	170
Sp. G-168[2]	3453	3276	3521	----	3336	3397	182	175	181	---	174
Sp. H20[2]	----	----	3606	3597	3452	3552	---	---	184	185	171
NC 606	----	3159	3695	3522	3134	3450	---	174	184	188	182
NC 810	**----**	**----**	**----**	**3665**	**3286**	**3476**	**---**	**---**	**---**	**184**	**176**
OX 207	3300	2891	3257	3251	3233	3186	182	173	185	187	170
Sp. NF3	2921	2763	3455	----	3108	3062	180	172	183	---	179
K 346	3250	3141	3203	3365	3415	3275	179	164	183	186	173
Black Shank (High Resistance)											
GL 973[2]	**----**	**----**	**----**	**3520**	**3220**	**3370**	**---**	**---**	**---**	**185**	**172**
GL 737[2]	**----**	**----**	**2821**	**----**	**3167**	**2994**	**---**	**---**	**180**	**---**	**173**
C 371 Gold[2]	3765	3063	3332	3326	3373	3372	182	178	183	185	173
NC 291[2]	**----**	**----**	**----**	**----**	**3798**	**3798**	**---**	**---**	**---**	**---**	**174**
NC 297[2]	----	3584	3762	4146	3333	3706	---	174	180	188	171
NC 72[2]	3702	3505	3462	4204	3483	3671	182	174	182	187	179
NC 71[2]	3896	3784	3985	4178	3394	3847	181	175	182	187	178
RG H51[2]	----	3430	3818	3901	3642	3698	---	176	184	187	175
Sp. G-172[2]	3303	3573	3341	3705	----	3481	181	174	183	184	---
OX 940	3078	2928	3522	3048	3319	3179	180	170	182	184	162
K 394	3439	3352	3465	3851	3616	3545	181	175	180	185	179
Granville Wilt (High Resistance)											
K 149	3124	3019	3264	3276	3416	3220	180	172	182	186	165
GL 939	3141	3392	3372	3564	3611	3416	181	172	181	187	178
RG H4	3357	3331	3487	3454	3209	3368	181	170	181	186	180
Other Varieties											
K 326	3754	3436	3260	3950	3903	3661	182	174	183	184	180
K 358	3280	3200	3313	3356	3297	3289	181	172	182	186	174
K 730	3453	3491	3231	3493	3317	3397	182	172	181	187	177
NC 55	3274	3289	3603	3467	3559	3438	181	174	185	187	174
OX 414 NF	3682	3538	3607	3958	3642	3685	182	170	184	188	175
PVH 03	----	3205	----	3439	3518	3387	---	174	---	187	176
PVH 09	----	3159	----	3366	3635	3387	---	165	---	186	175
RG 17	3359	3410	3620	----	3734	3531	181	173	183	---	180
RG 81	3486	3372	3681	3559	3583	3536	182	173	179	187	179
RS 1410	----	----	----	----	3392	3392	---	---	---	---	170
VA 116	3433	3183	3685	3543	3499	3469	183	174	183	186	164
Year Average	**3401**	**3276**	**3477**	**3604**	**3428**		**181**	**173**	**182**	**186**	**174**

New varieties for 2003 are in bold.

[1] Averages are not directly comparable unless the number of years is equivalent.

[2] These varieties have very high resistance to the most common strain (race 0) of the black shank fungus. Their resistance to race 1 may be considerably lower.

Table 4. Agronomic and Disease Information for Varieties Tested at the Southern Piedmont Agricultural Research and Extension Center, Blackstone, VA, 2002.

Variety	Plant Height (in.)	Leaf No.	Days to Flower	Ground sucker /plot [1]	Disease Reactions[2] BS	TMV	RK	GW
Black Shank AND Granville Wilt (High Resistance)								
Sp. G-179	32.3	19.4	87	0	VH	S	R	H
Sp. G-168	32.9	18.7	78	0	VH	S	R	H
Sp. H20	35.0	19.3	75	2.0	VH	R	R	H
NC 606	33.1	19.1	84	0.7	H	S	R	H
NC 810	**32.8**	**19.7**	**87**	**0**	**H**	**S**	**R**	**H**
OX 207	31.8	19.5	82	0.3	H	S	R	H
Sp. NF 3	34.8	19.3	89	0	H	S	R	H
K 346	33.6	19.4	79	0	H	S	R	H
Black Shank (High Resistance)								
GL 973	**33.9**	**19.0**	**80**	**4.3**	**VH**	**S**	**S**	**L**
GL 737	**33.8**	**19.1**	**76**	**1.0**	**VH**	**S**	**R**	**M**
Coker 371 Gold	31.3	19.5	77	0	VH	S	S	M
NC 291	**33.8**	**19.3**	**79**	**1.7**	**VH**	**S**	**R**	**L**
NC 297	32.2	18.9	82	0.7	VH	R	R	M
NC 72	32.7	19.3	83	0.3	VH	S	R	L
NC 71	31.1	17.9	82	1.0	VH	S	R	M
RG H51	32.5	18.5	78	0.7	VH	S	R	L
Sp. G-172	----	----	---	---	VH	S	R	M
OX 940	30.7	19.4	78	0.3	H	S	S	M
K 394	33.3	19.4	83	0	H	S	S	L
Granville Wilt (High Resistance)								
K 149	33.4	19.5	78	0	M	S	R	H
GL 939	31.9	19.5	75	0.3	M	S	S	H
RG H4	32.1	18.9	79	0.3	M	R	R	H
Other Varieties								
K 326	34.0	19.3	80	0	L	S	R	L
K 358	33.5	18.9	80	0	L	S	R	M
K 730	34.0	19.4	79	0	L	S	R	M
NC 55	31.3	18.4	84	0.3	L	S	R	L
OX 414 NF[3]	34.8	19.1	89	0	M	S	R	L
PV H03	33.8	18.9	82	0	L	R	R	L
PV H09	35.1	19.7	78	1.3	L	R	R	M
RG 81	32.6	19.4	80	0	L	S	R	L
RS 1410	33.7	18.9	76	0.7	M	S	R	M
VA 116	33.7	19.1	75	0	M	S	S	L

New varieties for 2003 are in bold.

[1] Number of ground suckers per 22 plant plot.

[2] Disease reaction - H = highly resistant; M = moderate; L = low; S = susceptible; R = resistant; BS = black shank; (VH ratings are for race 0 of Phytophthora; resistance to race 1 may be considerably lower); TMV = tobacco mosaic virus; RK = Root Knot; GW = Granville Wilt.

[3] NF = nonflowering. Plants should be topped at 20 to 22 harvestable leaves.

Table 5. Harvest rate (cumulative percentage by harvest) as a measure of maturation patterns.[1]

	So. Piedmont AREC				Charlotte County				Halifax County				Pittsylvania County		
Variety	H1	H2	H3	H4	H1	H2	H3	H4	H1	H2	H3	H4	H1	H2	H3
K 326	12	34	62	100	10	34	67	100	10	22	70	100	13	35	100
NC 71	12	31	54	100	13	34	70	100	10	22	70	100	13	32	100
NC 72	11	30	61	100	12	44	78	100	10	22	68	100	13	33	100
NC 291	**11**	**30**	**58**	**100**	**12**	**36**	**70**	**100**	**11**	**22**	**72**	**100**	**14**	**34**	**100**
NC 297	15	35	59	100	15	41	75	100	12	24	69	100	14	35	100
NC 606	14	35	62	100	15	43	69	100	10	24	67	100	14	34	100
NC 810	**12**	**30**	**59**	**100**	**14**	**45**	**79**	**100**	**10**	**24**	**70**	**100**	**14**	**32**	**100**
RG H51	15	33	60	100	14	42	75	100	10	22	68	100	15	37	100
Sp. G-168	14	35	62	100	12	44	80	100	10	24	70	100	15	37	100
Sp. G-179	14	35	63	100	14	41	73	100	11	24	72	100	14	36	100
Sp. H20	15	34	65	100	12	40	78	100	10	24	64	100	23	46	100

New varieties for 2003 are in bold.

[1]Harvest data 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 individual management and local soil and water conditions.

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provides an opportunity for producers to observe flue-cured tobacco varieties under field conditions in their particular region. Contact the Extension agent in your county to arrange a visit to the on-farm variety test nearest you and to learn of tours of tobacco on-farm tests.

Data in Table 1 are for only one year and the results may not be indicative of what might be obtained in other years. Color grade information is presented in Table 2. Where available, yield and quality averages that include 1998 to 2002 data are also presented in Table 3.

Information on agronomic performance and disease resistance levels is given in Table 4. The use of disease resistant varieties is a very effective means of reducing losses due to certain diseases and nematodes. However, varietal resistance cannot be used alone. Any variety may suffer damage when nematodes and disease causing organisms are present and when weather conditions favor their development. An effective pest management program will also include crop rotation (particularly with fescue and small grains) and other cultural control practices. Combining varietal resistance with crop rotation, early stalk and root destruction, and proper use of pesticides is the only way to achieve consistent, cost-effective disease and nematode control.

Producers need to follow strict sanitation practices in the greenhouse to prevent damaging epidemics of tobacco mosaic virus (TMV). Growers should be especially careful to sanitize their clipping mowers before each clipping. Roots and stalks from the 2002 crop should have been thoroughly destroyed during the fall of 2002 to minimize carryover of the virus from last year's crop. Mosaic resistant varieties such as NC 297, RG H4, and Sp. H20 can significantly reduce losses to TMV, as well as potential inoculum levels for future crops. However, TMV-resistant varieties differ in their yield and quality characteristics and in their resistance to other important tobacco diseases, like black shank and Granville wilt. Do not plant TMV-resistant and susceptible varieties in the same field. Fields planted with a TMV-resistant variety should be worked before fields containing susceptible varieties to minimize potential spread of the virus. A combined approach using early root and stalk destruction, crop rotation, and a resistant variety should successfully minimize TMV.

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