



Virginia Dark-Fired Tobacco Variety Information for 2001

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Both pelleted seed and raw seed of VA 309, VA 312, VA 355, VA 359, Shirey, and Brownleaf, JH will be commercially available for 2000. Raw seed of Lizard Tail Orinoco will also be commercially available. VA 355 and VA 359 are two new varieties that were released for the 1999 growing season. Growers should plant a limited acreage of any new variety until more information is available from a wider range of soil and climatic conditions.

VA 355 and VA 359 were developed by the Virginia Agricultural Experiment Station. VA 355 was developed from the cross (VA 309 x VA 312) x DF 300. VA 359 was developed from the cross Lizard Tail Turtle Foot x VA 309. VA 355 and VA 359 are similar to Brownleaf, JH, Lizard Tail Orinoco, and VA 309 for plant height, days to flower, number of leaves per plant, and leaf length and width. Average yields of VA 355 are about 100 lbs/A less than the three check varieties, whereas yields of VA 359 are similar to the three check varieties. VA 355 and VA 359 both have a moderate level of resistance to black shank. Grower experience has shown that VA 359 is preferable in quality to VA 355 in the absence of black shank.

Information is provided for widely grown varieties in Tables 1 to 4 of this publication. Average performance of seven varieties included in the 2000 Virginia Dark-fired Variety Tests is presented in Table 1. These tests were conducted in Campbell (W. Whitlow), Charlotte (C. Vaughn, III), Pittsylvania (R. Mills, Jr.) and Nottoway (Southern Piedmont Agricultural Research and Extension Center) counties under the joint supervision of Extension Agents in respective counties and Virginia Polytechnic Institute and State University research and Extension personnel. Data from 1996 to 2000 are presented in Table 2.

Certain agronomic and disease information is given in Tables 3 and 4. In addition to yield, quality potential, and ease of handling, the history of disease problems should be considered when selecting the variety best suited to your farm. Black shank and black root rot are diseases caused by soilborne fungi that have continued to cause yield reductions in many seasons. VA 355 is more resistant to black shank than VA 309 or VA 359, but use of a soil fungicide is often necessary with each of these varieties. If a soil fungicide is used, disease control is usually best when part of the fungicide is applied at or before transplanting and the remainder at layby. Resistant varieties alone cannot prevent losses due to disease. Crop rotation should be practiced in every field, no matter what variety is grown. Resistant varieties should be used with crop rotation, early root destruction, and the proper use of labeled pesticides to achieve consistent, cost-effective disease control. Additional information on disease management systems may be found in the 1998 Dark-fired Tobacco Production Guide (VCE-Publication No. 436-049).

While the traditional flavor and aroma characteristic of certain old-line varieties such as Lizard Tail Orinoco and Walkers Broadleaf is still desirable, disease problems can often limit the production of these varieties. Careful consideration should be given to the choice of variety to meet specific production objectives. Varieties differ in disease reaction, chemical composition, response to nutrient levels in the soil, and many other factors. Careful study of the information presented in this publication may be helpful in choosing a variety which will fit into specific production management systems and alleviate or reduce the severity of particular production problems.

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Table 1. Virginia Dark-Fired Tobacco Variety Test Results: Yield, Value, Price, and Grade Index, 2000.¹

| Variety | State Average | | So. Piedmont AREC | | Campbell Co. | | Charlotte Co. | | Pittsylvania Co. | |
|------------------------------|----------------|-----------------------------|-------------------|-----------------------------|----------------|-----------------------------|----------------|-----------------------------|------------------|-----------------------------|
| | 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 |
| Brownleaf, JH | 2161 | 185 | 2431 | 171 | 2163 | 221 | 1945 | 192 | 2104 | 156 |
| Liz Tail Tur Ft ² | 2274 | 181 | 2659 | 178 | 2128 | 201 | 1964 | 168 | 2344 | 178 |
| Shirey | 2172 | 181 | 2521 | 176 | 2512 | 220 | 1795 | 159 | 1860 | 170 |
| VA 309 | 2156 | 176 | 2814 | 178 | 2329 | 213 | 1557 | 160 | 1922 | 152 |
| VA 312 | 2150 | 173 | 2785 | 179 | 2321 | 207 | 1839 | 159 | 1655 | 146 |
| VA 355 | 2051 | 171 | 2240 | 177 | 2480 | 178 | 1661 | 185 | 1824 | 142 |
| VA 359 | 2247 | 179 | 2573 | 181 | 2424 | 194 | 1931 | 187 | 2060 | 154 |
| Location Average | 2173 | 178 | 2575 | 177 | 2337 | 205 | 1813 | 173 | 1967 | 157 |
| | Value \$/A | Grade Index ³ | Value \$/A | Grade Index ³ | Value \$/A | Grade Index ³ | Value \$/A | Grade Index ³ | Value \$/A | Grade Index ³ |
| Brownleaf, JH | 3997 | 62 | 4197 | 59 | 4763 | 74 | 3739 | 68 | 3290 | 46 |
| Liz Tail Tur Ft | 4107 | 60 | 4709 | 61 | 4251 | 68 | 3301 | 55 | 4166 | 56 |
| Shirey | 3992 | 60 | 4448 | 58 | 5510 | 74 | 2862 | 53 | 3147 | 55 |
| VA 309 | 3860 | 58 | 5051 | 57 | 4971 | 71 | 2496 | 55 | 2920 | 48 |
| VA 312 | 3783 | 59 | 4999 | 62 | 4779 | 68 | 2930 | 56 | 2423 | 50 |
| VA 355 | 3527 | 54 | 3989 | 58 | 4440 | 60 | 3074 | 58 | 2604 | 40 |
| VA 359 | 4027 | 62 | 4641 | 63 | 4696 | 67 | 3603 | 65 | 3168 | 52 |
| Location Average | 3899 | 59 | 4576 | 60 | 4773 | 69 | 3144 | 59 | 3103 | 50 |

¹ Tests were conducted in Nottoway (So. Piedmont Ag. Res. and Ext. Ctr.), Campbell (W. Whitlow), and Charlotte (C. Vaughn, III) and Pittsylvania (R. Mills, Jr.) counties in 2000.

² Liz Tail Tur Ft = Lizard Tail Turtle Foot.

³ Grade index is a numerical quality rating based on government grade. High ratings are best.

Table 2. Virginia Dark-Fired Tobacco Variety Test Results by Years, Southern Piedmont Agricultural Research and Extension Center, Blackstone, VA.

| Variety | Yield, lbs/A | | | | | Avg. | Value, \$/A | | | | | Price, \$/cwt | | | | |
|-------------------------------|--------------|------|------|------|------|------|-------------|------|------|------|------|---------------|------|------|------|------|
| | 1996 | 1997 | 1998 | 1999 | 2000 | | 1996 | 1997 | 1998 | 1999 | 2000 | 1996 | 1997 | 1998 | 1999 | 2000 |
| Brownleaf, JH | 2421 | 2301 | 2083 | 2611 | 2431 | 2369 | 4779 | 4862 | 4658 | 5603 | 4197 | 198 | 211 | 224 | 215 | 171 |
| Daniels Special | 2390 | 2275 | 1889 | 2457 | 2458 | 2294 | 4437 | 4816 | 4006 | 5012 | 3930 | 186 | 211 | 217 | 204 | 160 |
| Liz Tail Orinoco ¹ | 2480 | 2279 | 2238 | 2527 | 2534 | 2412 | 4972 | 4795 | 4790 | 5198 | 3969 | 201 | 211 | 214 | 206 | 156 |
| Liz Tail Tur Ft ¹ | 2384 | 2480 | 2269 | 2714 | 2659 | 2501 | 4719 | 5386 | 5115 | 6699 | 4709 | 198 | 217 | 225 | 248 | 178 |
| Sears Special | 2417 | 2446 | 2128 | 2742 | 2617 | 2470 | 4712 | 5134 | 4626 | 5620 | 3765 | 195 | 210 | 216 | 205 | 147 |
| Shirey | 2409 | 2454 | 2066 | 2310 | 2521 | 2352 | 5021 | 5616 | 4553 | 4703 | 4448 | 209 | 229 | 220 | 204 | 176 |
| VA 309 | 2465 | 2454 | 2323 | 2747 | 2814 | 2561 | 4807 | 5221 | 4698 | 6345 | 5051 | 195 | 213 | 202 | 232 | 178 |
| VA 310 | 2324 | 2346 | 2154 | 2599 | 2856 | 2456 | 4621 | 4922 | 4733 | 5031 | 5376 | 198 | 210 | 219 | 193 | 188 |
| VA 312 | 2445 | 2613 | 2275 | 2561 | 2147 | 2536 | 4956 | 5651 | 5141 | 6661 | 4999 | 203 | 217 | 225 | 261 | 179 |
| VA 331 | 2085 | 2147 | 2040 | 2363 | 2240 | 2156 | 3665 | 4207 | 3988 | 4594 | 2850 | 176 | 196 | 196 | 195 | 133 |
| VA 355 | 2249 | 2241 | 2130 | 2171 | 2573 | 2206 | 4640 | 4726 | 4596 | 4879 | 3989 | 206 | 211 | 215 | 225 | 177 |
| VA 359 | 2243 | 2444 | 2059 | 2368 | 2475 | 2337 | 4893 | 5315 | 4772 | 5607 | 4641 | 200 | 217 | 231 | 237 | 181 |
| Walkers Broadleaf | 2299 | 2438 | 2187 | 2533 | 2547 | 2386 | 4579 | 5129 | 4829 | 4865 | 4348 | 201 | 211 | 221 | 194 | 176 |
| Year Average | 2355 | 2378 | 2142 | 2516 | 2547 | 2387 | 4677 | 5060 | 4654 | 5447 | 4329 | 197 | 213 | 217 | 217 | 169 |

¹ Liz Tail Orinoco = Lizard Tail Orinoco; Liz Tail Tur Ft = Lizard Tail Turtle Foot.

Table 3. Agronomic and Disease Information for Dark-Fired Tobacco Varieties Tested at the Southern Piedmont Agricultural Research and Extension Center, Blackstone, VA, 2000.

| Variety | Days to Flower | Plant Height (in) | Leaf no. | Ground Suckers per Plot ¹ | Length (L) and Width (W) | | Top Leaf | | Disease Reaction ² | | | Group (%) ³ | | | Color (%) ⁴ | | | | | |
|-------------------------------|----------------|-------------------|----------|--------------------------------------|--------------------------|------|----------|------|-------------------------------|-----|-----|------------------------|----|----|------------------------|----|----|----|----|----|
| | | | | | Mid Leaf L | W | L | W | BS | TMV | BRR | X | C | B | N | F | D | M | G | OT |
| Brownleaf, JH | 56 | 29.9 | 13.7 | 1.3 | 30.1 | 14.9 | 28.4 | 13.0 | S | S | L | 11 | 58 | 31 | 0 | 58 | 0 | 32 | 10 | 0 |
| Daniels Special | 57 | 29.0 | 13.5 | 3.0 | 29.6 | 13.5 | 27.4 | 11.1 | S | S | L | 34 | 30 | 36 | 0 | 66 | 0 | 13 | 21 | 0 |
| Liz Tail Orinoco ⁵ | 57 | 30.4 | 14.9 | 8.0 | 28.2 | 13.5 | 24.7 | 10.6 | S | S | S | 34 | 35 | 31 | 0 | 54 | 0 | 36 | 10 | 0 |
| Liz Tail Tur Ft ⁵ | 56 | 28.4 | 14.3 | 3.3 | 32.8 | 14.5 | 29.6 | 11.9 | S | S | S | 19 | 49 | 32 | 0 | 70 | 0 | 20 | 10 | 0 |
| Sears Special | 56 | 27.2 | 13.0 | 18.3 | 29.8 | 14.8 | 28.2 | 13.6 | S | S | M | 23 | 59 | 18 | 0 | 34 | 0 | 56 | 10 | 0 |
| Shirey | 57 | 27.4 | 13.7 | 1.7 | 29.5 | 13.7 | 26.9 | 11.1 | S | S | L | 20 | 50 | 30 | 0 | 69 | 0 | 11 | 20 | 0 |
| VA 309 | 56 | 27.3 | 13.3 | 4.3 | 28.3 | 15.0 | 27.3 | 14.3 | M | S | M | 31 | 38 | 31 | 0 | 69 | 0 | 12 | 19 | 0 |
| VA 310 | 56 | 30.2 | 14.3 | 5.7 | 31.4 | 13.6 | 29.2 | 12.4 | M | S | L | 11 | 57 | 32 | 0 | 68 | 0 | 21 | 11 | 0 |
| VA 312 | 56 | 30.0 | 13.8 | 2.0 | 33.3 | 14.8 | 31.5 | 12.2 | S | R | H | 0 | 85 | 15 | 0 | 57 | 0 | 43 | 0 | 0 |
| VA 331 | 54 | 30.7 | 14.2 | 1.0 | 30.4 | 14.3 | 26.0 | 11.3 | M | S | L | 28 | 36 | 36 | 0 | 36 | 13 | 42 | 9 | 0 |
| VA 355 | 57 | 23.8 | 13.6 | 2.7 | 30.7 | 13.7 | 27.9 | 11.8 | M | S | — | 10 | 58 | 32 | 0 | 80 | 0 | 20 | 0 | 0 |
| VA 359 | 59 | 27.1 | 14.4 | 1.3 | 30.8 | 14.1 | 28.6 | 12.7 | M | S | — | 8 | 75 | 17 | 0 | 60 | 0 | 40 | 0 | 0 |
| Walkers Broadleaf | 57 | 29.7 | 14.5 | 4.7 | 30.7 | 13.3 | 28.4 | 11.7 | S | S | L | 21 | 46 | 33 | 0 | 66 | 0 | 13 | 21 | 0 |

¹ Ground suckers/18 plant plot.

² Disease reaction: BS = Black Shank; TMV = Tobacco Mosaic Virus; BRR = Black Root Rot. H= high resistance; M= moderate; L = low; R = resistant; S = susceptible.

³ X = lugs; C = thin leaf; B =heavy leaf.

⁴ F =medium brown; M = mixed or variegated; G = green.

⁵ Liz Tail Orinoco = Lizard Tail Orinoco; Liz Tail Tur Ft = Lizard Tail Turtle Foot.

Table 4. Percent plants infested with black shank at the end of the season after transplanting into a naturally infested field.¹

| Variety | State Average | Nottoway County | Dinwiddie County | Halifax County | Charlotte County |
|---------------|---------------|-----------------|------------------|----------------|------------------|
| Brownleaf, JH | 54.93 | 100.00 | 17.42 | 47.52 | 54.64 |
| VA 309 | 17.71 | 54.56 | 8.62 | 5.76 | 1.91 |
| VA 355 | 3.21 | 3.49 | 5.07 | 4.10 | 0.20 |
| VA 359 | 20.77 | 68.14 | 7.30 | 7.25 | 0.40 |

¹Tests were conducted in Nottoway (So. Piedmont Ag. Res. and Ext. Ctr.), Dinwiddie (E. Baskerville farm), Halifax (B. Carr farm), and Charlotte (D. Lacks farm) counties in 1999 and 2000.

Following are descriptions of some other varieties.

Brownleaf, JH is a variety that originated in Kentucky. It has relatively large leaves of medium body which are medium spaced on the stalk. It has low resistance to black root rot and no resistance to black shank.

Lizard Tail Orinoco is an old variety that has been grown in Virginia for many years. The leaves are closely spaced on the stalk and are of medium size and heavy body. This variety has no disease resistance.

VA 309 was developed from a series of crosses involving Vesta 55, VA 312, and Lizard Tail Orinoco. It is intermediate in plant type between Lizard Tail Orinoco and VA 312. The soft texture and dull green color of the leaf are similar to that of Lizard Tail Orinoco. The leaf surface at maturity is wrinkled with a marked depression of the veins and midribs. The cured leaf tends to be thinner than that of Lizard Tail Orinoco and usually has a higher percentage of mixed color grades. It has moderate resistance to black shank and black root rot.

VA 310 was developed from a series of crosses involving Vesta 55, KY 2, VA 312, and Hastings. Leaves are large like those of VA 312 and spaced closely on the stalk. The percentage of green grades in this variety tends to be high which suggests that it is slow to mature and should have special attention in curing. It has moderate resistance to black shank and low resistance to black root rot.

VA 312 was developed from a cross of Walkers Broadleaf, Lizard Tail Orinoco, and a breeding line. It is somewhat intermediate in plant type between Lizard Tail Orinoco and Walkers Broadleaf. Its leaves have a tendency to become brittle at maturity, and breakage during storms may be greater than with other varieties. The cured leaf is rich red in color with thin body. It has excellent resistance to black root rot and tobacco mosaic virus.

Walkers Broadleaf originated as a farmer selection in Cumberland County, Virginia. The leaves are large with medium body and they are medium spaced on the stalk. It has low resistance to black root rot and no resistance to black shank.



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