

**COTTON VARIETIES
FOR LOUISIANA
2000**

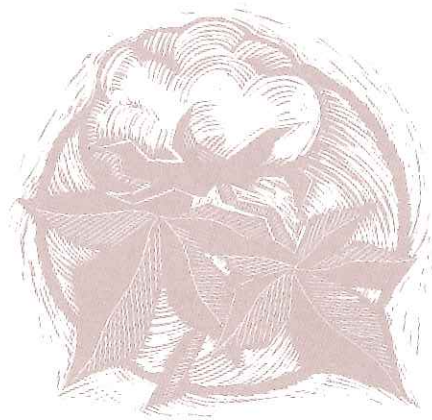


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INTRODUCTION

Each year, scientists with the Louisiana Agricultural Experiment Station evaluate cotton varieties at the Dean Lee Research Station at Alexandria, Red River Research Station at Bossier City, Northeast Research Station at St. Joseph and Macon Ridge Research Station at Winnsboro. Varieties are grown using only practices recommended for producing nontransgenic varieties. Data from this research are used to determine recommended varieties based on yield. Yields presented in the tables are the average yields for 1997-99 (Tables 1-6). Recommended varieties for each location (Tables 1-6), are indicated by bold type. A variety is recommended when its three-year average yield is 90% or more of the three-year average of the three top yielding varieties. Yield values of other varieties (those not boldfaced) are included for comparative purposes only and **are not recommended by the LSU Agricultural Center's Cooperative Extension Service.**

This information accurately reflects the performance of varieties evaluated at the experiment stations, but performance may vary on individual farms because of soil type, environment and other factors. Producers should select recommended varieties tested at the location most representative of their farms. While these varieties are separated based on yield, producers should also consider other factors presented in this publication (pest resistance, fiber quality, earliness, etc.) when making their selections.

FIBER PROPERTIES AND EARLINESS

Cotton variety performance and HVI fiber properties for recommended varieties are presented in Table 7. Relative earliness of varieties is estimated by harvesting each plot on two dates about one to two weeks apart and calculating the percentage of the total crop harvested at the first harvest date.

HVI Classing - The fiber properties shown in Table 7 were determined using the High Volume Instrumentation (HVI) classing system. This system determines fiber properties with machines rather than by hand. Producers should consider these fiber properties along with yield when selecting varieties for 2000.

The HVI system includes measurements for fiber strength, micronaire, length, uniformity and elongation. Fiber strength is expressed as grams per tex. Strength values between 23.5 through 25.4 will not receive a premium or discount. Values below 23.5 will be discounted, and values above 25.4 will carry a premium on the loan chart. The length (UHM) represents the average length of the longest one-half of the fibers measured. The uniformity index is determined by dividing the average staple length of all the fibers by the UHM. Micronaire is a measurement of the lint surface area. Measurements above 4.9 or below 3.5 will result in a discount.

VARIETIES FOR WILT SOILS

Many of the light-textured (sandy) soils in which cotton is grown in Louisiana are infested with plant pathogenic nematodes and *Fusarium*, the fungus responsible for fusarium wilt. Although either pest alone can injure the crop, the combination of these pests can be devastating. Nematodes injure cotton by wounding the roots and feeding on the exudates. *Fusarium* gains entry into the plant through the wound made by the nematode, develops inside the plant and may eventually stunt and/or kill the plant by secreting toxins and clogging the conductive tissue (the circulatory system).

Cotton varieties have been evaluated for tolerance or resistance to these pests at the Red River Research Station on soils infested with moderate levels of *Fusarium* and root-knot nematode.

TABLE 1.

Performance of cotton varieties on Norwood Silt Loam, at Alexandria, non-irrigated. Three-year average yield of lint per acre. Yield averages for early maturing varieties are represented by 1996-1997 and 1999 data. Medium maturing variety averages are represented by data from 1997-99.

EARLY MATURING GROUP¹

Variety	Yield
Stoneville BXN 47	1184
Stoneville 474	1145
Sure-Grow SG 125	1118
Sure-Grow SG 501	1076

MEDIUM MATURING GROUP

Variety	Yield
Sure-Grow SG 821	1181
Paymaster 1560 BG	1156
Phytogen PSC 636	1077
Fiber Max 832	1068
Deltapine NuCOTN 33B	1046
Sure-Grow SG 248	1017
Agripro HS 46	997
Fiber Max 989	921
Deltapine DP 5415 RR	908
Agripro HS 44	881

¹Data for the early maturing varieties are represented by the three-year average yield for 1996-1997 and 1999.

Note: Varieties not in bold type are not recommended for planting in 2000 and are included for comparative purposes only.

If the wilt-nematode complex is severe, rotating the field out of cotton may be best. In fields with low to moderate populations of these pests, tolerant or resistant varieties and/or nematicides may provide acceptable control. Two-year average wilt and nematode ratings for the varieties tested are in Table 8.

GENETICALLY ENGINEERED (TRANSGENIC) COTTONS

Cotton varieties are commercially available that have been genetically altered to resist certain herbicides and/or insects. These cottons contain genes that confer resistance to Buctril herbicide applied overtop (BXN varieties), or Roundup Ultra (glyphosate) herbicide (Roundup Ready varieties) and/or to specific insects (Bt varieties with the Bollgard™ gene technology). Some of these varieties are promising, but not enough data have been collected to recommend them. In addition, producers should not plant 100% of their acreage to a specific transgenic variety, but should use multiple varieties to spread risk. Consult your county agent for specific uses.

TABLE 2.

Performance of cotton varieties on Norwood Silt Loam, at Bossier City. Three-year average yield of lint per acre, 1997-99.

EARLY MATURING GROUP

Variety	Yield
Stoneville 474	1019
Sure-Grow SG 501	999
Sure-Grow SG 125	988
Stoneville BXN 47	981
Agripro AP 6101	965
Deltapine DP 20B	916
Paymaster 1220 RR	1016*
Paymaster 1220 BG/RR	952*

MEDIUM MATURING GROUP

Variety	Yield
Sure-Grow SG 821	989
Phytogen PSC 636	970
Sure-Grow SG 248	959
Agripro HS 46	954
Deltapine DP 5415 RR	912
Deltapine NuCOTN 33B	872
Fiber Max 989	862
Paymaster 1560 BG	858
Agripro HS 44	847
Fiber Max 832	788

Note: Varieties not in bold type are not recommended for planting in 2000 and are included for comparative purposes only.

* Susceptible to bronze wilt.

Roundup Ready Varieties - The use of Roundup Ready technology in cotton has resulted in excellent control of grasses and many broadleaf weeds such as pigweeds, cocklebur and sicklepod. Limited control may occur when applying Roundup Ultra to morningglory, hemp sesbania and prickly sida larger than the sizes listed on the label. Roundup Ultra may be applied over-the-top through the 4-leaf stage. When applying Roundup Ultra after the 4-leaf stage, take care to eliminate herbicide-to-plant contact, or plant development and yield could be adversely affected. Refer to the Louisiana Cooperative Extension Service publications 1366 and 1565 for specific rates and weeds controlled.

Bt (BG) Varieties - Research evaluations of BollgardJ transgenic Bt gene technology have determined that this technology provides satisfactory control of tobacco budworm populations. Although some Bt varieties will not be recommended because of insufficient data, these varieties can be useful in an insect management program.

TABLE 3.

Performance of cotton varieties on Commerce silt loam at St. Joseph. Three-year average yield of lint per acre, 1997-99.

EARLY MATURING GROUP

Variety	Yield
Stoneville 474	1320
Sure-Grow 501	1318
Deltapine DP 20 B	1314
Stoneville BXN 47	1313
Sure-Grow 125	1280
Paymaster 1220 BG/RR	1455*
Paymaster 1220 RR	1386*
Agripro AP 6101	1222

MEDIUM MATURING GROUP

Variety	Yield
Sure-Grow SG 821	1314
Deltapine NuCOTN 33B	1305
Paymaster PM 1560 BG	1266
Agripro HS 46	1242
Sure-Grow SG 248	1212
Deltapine DP 5415 RR	1211
Fiber Max 832	1205
Phytogen PSC 636	1143
Agripro HS 44	1135
Fiber Max 989	1083

Note: Varieties not in bold type are not recommended for planting in 2000 and are included for comparative purposes only.

Producers who choose to plant Bt cottons should be aware that several insect pests are capable of causing economic damage to these cottons. Continued scouting to evaluate damage from such pests as bollworm, beet armyworm, fall armyworm, boll weevil, tarnished plant bug, cotton aphids and thrips is strongly recommended. For more information on Bollgard™ technology, consult the Louisiana Cooperative Extension Service publication 1083, *Control Cotton Insects 2000*.

Boll Weevil Eradication - Bt cotton is recommended to reduce the threat of serious tobacco budworm outbreaks. Broad scale use of malathion in the Northeast Boll Weevil Eradication Zone, particularly early-season use, can greatly reduce beneficial insect populations. Reducing beneficial insect populations can help tobacco budworm populations develop to high levels throughout the season. The federal label requirement plan allows for two refugia options: 1) for each 100 acres of Bt cotton, plant 20 acres of a non-Bt variety (the non-Bt can be sprayed for insect control) or 2) for each 100 acres of Bt cotton, plant four acres of a non-Bt variety

TABLE 4.

Performance of irrigated cotton varieties on Gigger silt loam at Winnsboro. Three-year average yield of lint per acre, 1997-99.

EARLY MATURING GROUP

Variety	Yield
Stoneville ST 474	1711
Sure-Grow SG 501	1611
Deltapine DP 20 B	1606
Stoneville BXN 47	1590
Agripro AP 6101	1581
Paymaster 1220 RR	1578*
Paymaster 1220 BG/RR	1549*
Sure-Grow SG 125	1451

MEDIUM MATURING GROUP

Variety	Yield
Paymaster 1560 BG	1517
Sure-Grow SG 821	1507
Deltapine NuCOTN 33B	1479
Sure-Grow SG 248	1435
Agripro HS 44	1413
Deltapine DP 5415 RR	1400
Phytogen PSC 636	1397
Agripro HS 46	1379
Fiber Max 832	1351
Fiber Max 989	1331

Note: Varieties not in bold type are not recommended for planting in 2000 and are included for comparative purposes only.

* Susceptible to bronze wilt.

(not to be sprayed by insecticides that control caterpillar pests). Plant several different varieties to spread environmental risks. Fields near environmentally sensitive areas should be planted to a Bt cotton variety. Examples are fields located near schools, water sources or residential areas.

! Caution Statement ! - A serious problem referred to as "Bronze Wilt or Phloem Necrosis" has been observed with the Paymaster varieties 1215, 1220, 1244 and 1560. Foliage on affected plants turned red to bronze, wilted and partially defoliated. Terminals were noticeably warmer than unaffected plants. Squares and bolls were shed, and yield of affected plants was severely reduced. Although these symptoms were not observed in most cotton-producing areas, this is why some high-yielding varieties are not recommended.

PROMISING VARIETIES

Promising varieties are determined at each test location. A promising variety is a variety that, after two years of testing, has an average yield that is within 95% of the two-year average of the top three yielding varieties at

TABLE 5.

Performance of cotton varieties at Gigger silt loam Winnsboro, non-irrigated. Three-year average yield of lint per acre, 1997-99.

EARLY MATURING GROUP

Variety	Yield
Sure-Grow SG 501	708
Agripro AP 6101	684
Sure-Grow SG 125	662
Deltapine DP 20 B	660
Stoneville ST 474	658
Stoneville BXN 47	653
Paymaster PM 1220 BG/RR	651*
Paymaster PM 1220 RR	624*

MEDIUM MATURING GROUP

Variety	Yield
Paymaster PM 1560 BG	629
Sure-Grow SG 248	622
Phytogen PSC 636	611
Sure-Grow SG 821	590
Fiber Max 832	563
Deltapine DP 5415 RR	555
Agripro HS 46	539
Deltapine NuCOTN 33B	538
Fiber Max 989	523
Agripro HS 44	515

Note: Varieties not in bold type are not recommended for planting in 2000 and are included for comparative purposes only.

* Susceptible to bronze wilt.

TABLE 6.

Performance of cotton varieties at St. Joseph on Sharkey clay. Three-year average yield of lint per acre, 1997-99.

EARLY MATURING GROUP

Variety	Yield
Sure-Grow 501	1256
Deltapine DP 20 B	1233
Sure-Grow SG 125	1204
Stoneville ST 474	1191
Agripro AP 6101	1149
Paymaster PM 1220 BG/RR	1291

MEDIUM MATURING GROUP

Variety	Yield
Sure-Grow SG 248	1153
Phytogen PSC 569	1118
Deltapine NuCOTN 33B	1105
Sure-Grow SG 821	1086
Paymaster PM 1560 BG	1070
Phytogen PSC 636	1062
Deltapine DP 5415 RR	1035
Agripro HS 46	1011
Agripro HS 44	955

Note: Varieties not in bold type are not recommended for planting in 2000 and are included for comparative purposes only.

the test location. These varieties are not recommended and should not be planted on most of your acreage. They are listed in table 9.

SEEDING RATE AND STAND

Two to three plants per row foot (one plant every 4 to 6 inches) in rows spaced 30 to 40 inches apart is ideal. Research has shown that higher plant populations reduce yield. Lower plant populations tend to reduce harvesting efficiency of spindle pickers and may reduce yield. Although slightly thicker stands can probably be tolerated in cotton planted in a skip-row pattern without a reduction in yield, thicker stands will not necessarily improve the yield of skip-row cotton.

Seeding depth will vary with soil type and moisture, so it is critical to consider soil type and available moisture when planting. As a general rule, plant seed 0.75 to 2 inches deep. In most cases, seed planted in heavy (clay) soils should be planted shallower than seed planted in sandy soils. In addition to soil type, soil moisture will

affect the depth of planting. Typically, seed is planted deeper in dry soils than in soils with adequate moisture for germination.

Most cotton seed used for planting will have a percentage germination of 80 or more in laboratory tests conducted under nearly ideal conditions. Seed planted in the field are seldom, if ever, planted when environmental conditions are ideal for maximum emergence. So, under "normal" growing conditions, it is reasonable to expect at least half of the seed planted to produce healthy plants. A seeding rate of four to six seed per row foot is usually adequate to ensure an acceptable stand planted in 30- to 40-inch rows. Since cotton seed vary in size and in the number of seed per pound, planting rate should be based on number of seed planted per foot rather than number of pounds planted per acre. For maximum accuracy, calibrate planters with seed of the variety to be planted.

The number of acid delinted seed per pound varies from about 4,500 to 5,000 for the varieties planted in

TABLE 7.

Performance and HVI fiber properties of recommended and promising cotton varieties, two-year average, 1998-99¹

Performance and HVI fiber properties of medium maturing cotton varieties, two year average, 1998-99.

Variety	Lint %	*Earliness (% 1st harv)	Boll WT/gms	Micronaire	Length (UHM)	Uniformity index (UI)	Strength (gms/tx)	Elongation
Fiber Max 832	38.3	90.3	5.3	4.4	1.20	84.9	31.1	5.7
Fiber Max 989	39.0	89.9	4.6	4.7	1.13	84.0	31.2	5.8
Agripro HS 46	38.2	88.4	4.4	4.6	1.12	83.4	30.5	6.0
Agripro HS 44	38.1	86.2	4.3	5.0	1.11	83.1	28.8	5.8
Deltapine NuCOTN 33B	38.4	88.7	4.2	4.8	1.11	83.1	27.3	6.8
Deltapine DP 458 B/RR	39.5	87.8	4.2	5.0	1.10	83.0	28.0	6.7
Deltapine DP 5415 RR	39.4	88.2	4.2	4.9	1.10	83.4	28.6	6.8
Paymaster PM 1560 BG	39.9	89.8	4.5	4.9	1.10	83.9	29.4	6.8
PhytoGen PSC 569	39.7	90.9	4.5	5.0	1.08	83.4	32.3	6.7
PhytoGen PSC 636	37.9	91.5	4.7	4.6	1.12	83.3	27.6	6.2
Sure-Grow SG 821	39.9	88.5	4.5	4.9	1.11	83.9	29.8	8.1
Sure-Grow SG 248	40.0	89.3	4.2	4.8	1.14	83.6	28.8	6.0

*Percent earliness from Winnsboro Irrig. and Non-Irrig only.

Performance and HVI fiber properties of early maturing cotton varieties, two year average, 1998-99.

Variety	Lint %	*Earliness (% 1st harv)	Boll WT/gms	Micronaire	Length (UHM)	Uniformity index (UI)	Strength (gms/tx)	Elongation
Fiber Max 819	39.5	87.6	4.0	4.5	1.16	84.1	30.9	5.7
Agripro AP 7115	40.2	87.2	4.6	4.7	1.09	82.8	27.8	6.8
Agripro AP 6101	37.8	90.5	4.2	4.9	1.12	83.2	30.5	6.6
Deltapine DP 20 B	39.3	87.1	4.6	4.7	1.10	82.9	26.7	7.4
Deltapine DP 428 B	37.6	88.1	4.5	4.8	1.11	83.0	25.5	6.8
Deltapine DP 425 RR	37.1	87.4	4.5	4.9	1.08	82.7	26.7	7.0
Deltapine DP 436 RR	35.9	90.1	4.6	4.8	1.11	83.1	26.4	7.4
Paymaster PM 1560 BG	39.7	89.0	4.5	5.0	1.08	83.7	29.3	7.0
Paymaster PM 1218 BG/RR	40.2	90.7	5.0	5.0	1.07	83.1	26.8	7.0
Paymaster PM 1220 BG/RR	39.7	85.9	5.0	4.9	1.09	83.3	28.6	7.1
Paymaster PM 1220 RR	39.9	88.3	5.0	5.0	1.11	83.8	31.2	7.6
PhytoGen PSC 355	40.3	93.5	4.3	5.0	1.09	83.7	31.7	7.9
Stoneville ST 474	41.2	91.5	4.2	5.0	1.08	83.2	28.5	6.7
Stoneville BXN 47	40.9	91.5	4.2	5.0	1.08	83.2	28.7	6.7
Sure-Grow SG 125	39.9	89.1	4.6	4.8	1.11	83.6	27.9	7.4
Sure-Grow SG 501	40.3	88.7	4.5	4.8	1.10	84.0	32.5	7.4
Sure-Grow SG 105	39.6	91.3	4.5	4.9	1.10	84.0	28.7	7.0
Sure-Grow SG 747	41.4	91.8	4.5	5.0	1.10	83.5	28.0	7.7
Deltapine DP 33B**	37.9	90.9	4.3	4.8	1.09	82.8	27.5	6.8

* Percent first harvest from Winnsboro Irrig. only.

¹ HVI properties were determined from hand-picked laboratory ginned samples, which result in higher lint percentage than commercially ginned cotton.

² Earliness comparisons should be made only within maturity groups. Comparisons of varieties from different maturity groups are not valid because the early maturity group and medium to late group were harvested on different dates. Earliness was determined only at the Winnsboro location.

TABLE 8.

Two-year averages for Fusarium wilt and root-knot nematode ratings for some cotton varieties at the Red River Research Station, Bossier City, La., 1998-1999.

Variety	Wilt Rating ^a	Gall Rating ^b
AgriPro AP6102	1.0	3.3
Deltapine 20B	1.2	2.6
Deltapine 33B	1.5	3.0
Deltapine 425RR	1.2	2.5
Deltapine 458B/RR	1.2	3.4
Deltapine 5415RR	1.9	3.4
FiberMax 832	2.6	2.9
FiberMax 989	1.3	3.0
Paymaster 1560BG	1.3	3.5
Phytogen PSC569	2.1	3.0
Phytogen PSC636	1.8	2.6
Stoneville 474	2.6	3.3
Stoneville BXN47	2.5	3.1
Stoneville LA887	0.5	1.3
Sure-Grow 125	1.3	2.9
Sure-Grow 747	1.1	2.8
Sure-Grow 821	1.3	3.1

^aWilt rating on a scale of 0-5; 0=no stem discoloration, 5=complete stem discoloration; rounding errors present.

^bRoot-gall rating on a scale of 0-5; 0=no root galling, 5=severe root galling; rounding errors present.

Louisiana. At the seeding rate recommended above, about 10 to 16 pounds of seed per acre will be needed.

WHEN TO PLANT

When the historical effects of planting date and soil temperature on stand establishment and yield are considered, cotton producers should plant between mid-April and mid-May. Cotton planted before mid-April will often have good yield potential if a stand can be obtained. Conditions favoring rapid seed germination and emergence are not likely to occur during early April, however.

Planting in early to mid-April is usually more desirable when planting in clay soil than when planting in silty or sandy soil. Research has shown that yield potential decreases moderately when cotton is planted after mid-May and severely when cotton is planted after June 1.

TABLE 9.

Promising cotton varieties for 2000*

Variety	Alexandria	Winnsboro		St. Joseph		Bossier City
		Non-Irr	Irrigated	Commerce	Clay	
Early Maturing Group						
Phytogen PSC 355	—	611	—	1346	1485	1075
Sure-Grow SG 747	—	613	—	1347	1405	960
Sure-Grow 105	—	—	1706	—	1363	—
Medium Maturing Group						
Deltapine DP 458 B/RR	—	—	1487	1312	1164	823
Phytogen PSC 569	—	—	1574	1307	—	803

* A promising variety is a variety that after two years of testing will have a two-year average yield within 95% of the average of the top three yielding varieties.

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