Cotton Varieties

FOR LOUISIANA - 1999

Louisiana State University
Agricultural Center
Louisiana Cooperative Extension Service

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 1996-98 (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**.

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 also should 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.

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 - 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 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.

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

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, you must take measures to eliminate herbicide-to-plant contact or plant development or yield could be adversely affected. Refer to the Louisiana Cooperative Extension Service publications 1366 and 1365 for specific rates and weeds controlled.

Bt (BG) Varieties - Research evaluations of Bollgard™ 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.

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."

! Caution Statement ! - A serious problem referred to as 'Bronze Wilt or Phloem Necrosis' has been observed with the Paymaster (previously Hartz) varieties 1215, 1220, 1244, 1560 and Stoneville 373. 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. These symptoms were not observed in most cotton-producing areas, however.

Promising Varieties

Promising varieties are determined at each test location. A promising variety is a variety that, after two years of testing, average yield is within 95% of the two-year average of the top three yielding varieties at the test location. These varieties are not recommended and should not be planted on a majority of your acreage. These varieties are listed in Table 9.

Seeding Rate and Stand

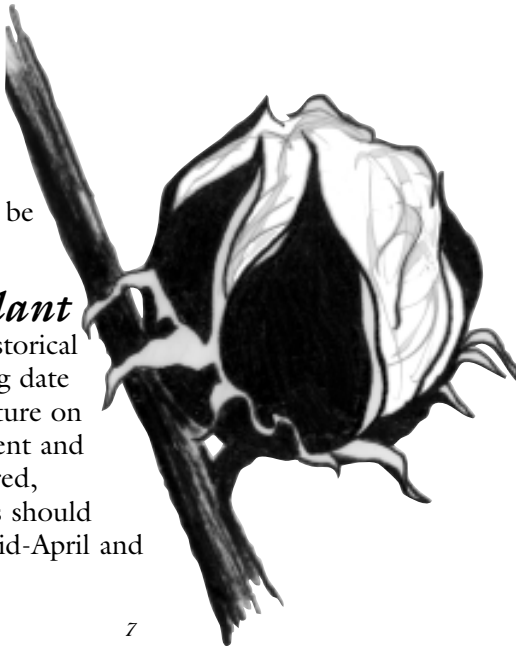
Two to three plants per row foot (one plant every 4 to 6 inches) in rows spaced 30 to 40 inches apart is ideal. Research has shown that higher plant populations reduce yield. Lower plant populations tend to reduce harvesting efficiency of spindle pickers and may reduce yield. Although slightly thicker 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. It is critical to consider soil type and

available moisture when planting. As a general rule, seed should be planted 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 percent 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. Under 'normal' growing conditions, it is reasonable to expect at least half of the seed planted to produce healthy plants. Therefore 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 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, but conditions favoring rapid seed germination and emergence are not likely to occur in early April.

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 1995-1997 data and medium maturing variety averages are represented by data from 1996-98.

EARLY MATURING GROUP[1]

Variety	Yield
Sure-Grow 125	**1025**
Stoneville 474	**1024**
Deltapine 5409	**1012**
Paymaster 1277	**958**
Deltapine 51	**950**
Sure-Grow 501	**941**

MEDIUM MATURING GROUP

Variety	Yield
Deltapine NuCOTN 33B	**981**
Paymaster 1560 BG	**961**
Agripro HS 46	**943**
Stoneville LA887	**881**
Terra 366	874
Agripro HS 44	842
Terra 292	827

[1]Data for the early maturing varieties are represented by the three-year average yield for 1995-1997.

Note: Varieties not in bold type are not recommended for planting in 1999 and are included for comparative purposes only.

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 2

Performance of non-irrigated cotton varieties on Norwood Silt Loam at Bossier City. Three-year average yield of lint per acre, 1996-98.

EARLY MATURING GROUP

Variety	Yield
Stoneville 474	**1150**
Paymaster 1220 RR	1143[1]
Stoneville BXN 47	**1137**
Sure-Grow 501	**1112**
Sure-Grow 125	**1092**

MEDIUM MATURING GROUP

Variety	Yield
Stoneville LA 887	**1098**
Deltapine NuCOTN 33B	**1087**
Agripro HS 46	**1027**
Paymaster 1560 BG	945
Terra 366	944
Terra 292	941
Agripro HS 44	932

Note: Varieties not in bold type are not recommended for planting in 1999 and are included for comparative purposes only.

[1] Susceptible to bronze wilt.

Table 3

Performance of non-irrigated cotton varieties on Commerce silt loam at St. Joseph. Three-year average yield of lint per acre, 1996-98.

EARLY MATURING GROUP

Variety	Yield
Stoneville 474	**1343**
Sure-Grow 501	**1315**
Paymaster 1220 RR	1307[1]
Sure-Grow 125	**1304**
Stoneville BXN 47	**1294**

MEDIUM MATURING GROUP

Variety	Yield
Deltapine NuCOTN 33B	**1335**
Agripro HS 46	**1287**
Paymaster 1560 BG	**1212**
Agripro HS 44	**1198**
Stoneville LA887	**1172**
Terra 366	1091
Terra 292	1070

[1] Susceptible to bronze wilt.

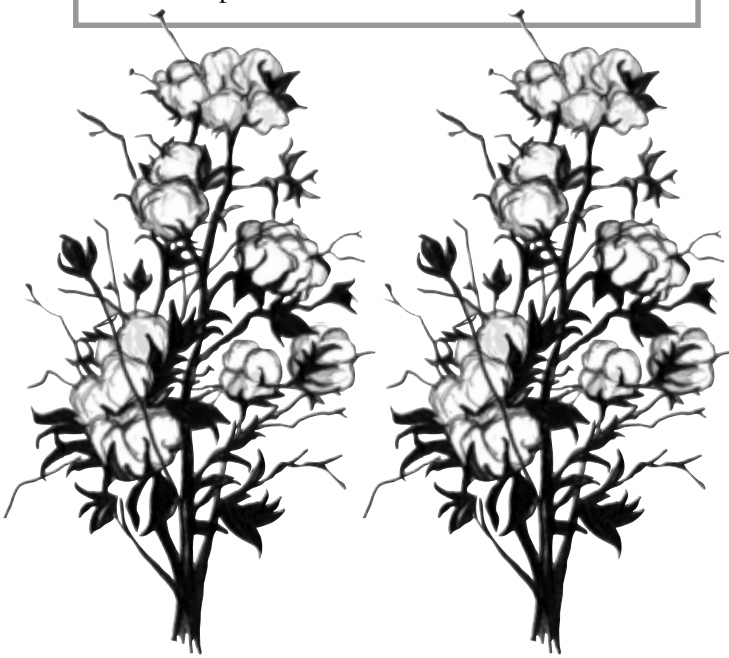


Table 4

Performance of irrigated cotton varieties on Gigger silt loam at Winnsboro. Three-year average yield of lint per acre, 1996-98.

EARLY MATURING GROUP

Variety	Yield
Stoneville 474	**1465**
Stoneville BXN 47	**1418**
Paymaster 1220 RR	1335[1]
Sure-Grow 501	**1300**
Sure-Grow 125	1250

MEDIUM MATURING GROUP

Variety	Yield
Paymaster 1560 BG	**1276**
Stoneville LA 887	**1238**
Deltapine NuCOTN 33B	**1193**
Agripro HS 44	1082
Agripro HS 46	1071
Terra 366	1019
Terra 292	987

[1] Susceptible to bronze wilt.

Table 5

Performance of cotton varieties at Gigger silt loam at Winnsboro, non-irrigated. Three-year average yield of lint per acre, 1996-98.

EARLY MATURING GROUP

Variety	Yield
Stoneville 474	**865**
Paymaster 1220 RR	834[1]
Stoneville BXN 47	**812**
Sure-Grow 501	**805**
Sure-Grow 125	**803**

MEDIUM MATURING GROUP

Variety	Yield
Stoneville LA 887	**805**
Paymaster 1560 BG	**736**
Deltapine NuCOTN 33B	**733**
Agripro HS 46	**720**
Terra 292	**707**
Terra 366	**688**
Agripro HS 44	678

Note: Varieties not in bold type are not recommended for planting in 1999 and are included for comparative purposes only.

[1] Susceptible to bronze wilt.

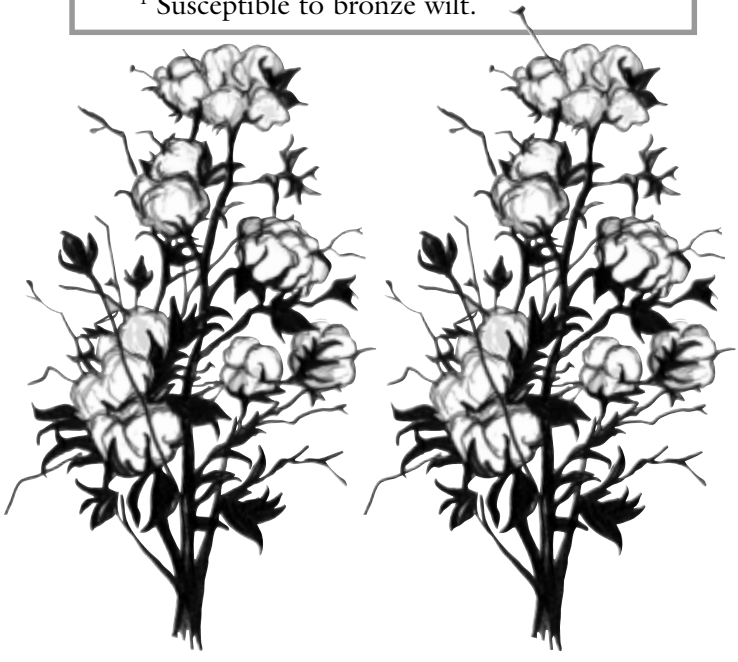


Table 6

Performance of non-irrigated cotton varieties at St. Joseph on Sharkey clay. Three-year average yield of lint per acre, 1995, 1997 & 1998.

EARLY MATURING GROUP

Variety	Yield
Sure-Grow 125	**1150**
Sure-Grow 501	**1113**
Stoneville 474	**1112**

MEDIUM MATURING GROUP

Variety	Yield
Stoneville LA 887	**1056**
Agripro HS 46	**1041**
Agripro HS 44	**962**

Note: Varieties not in bold type are not recommended for planting in 1999 and are included for comparative purposes only.

Table 7

Performance and HVI fiber properties of recommended 98[1]

Variety	Lint %	Earliness[1] (% 1st harv.)	Average Boll Wt/gms
Early Maturing Group			
Agripro AP 6101	38.4	89.5	4.2
Deltapine 20B	40.2	87.4	4.6
Deltapine 32B	39.0	86.9	4.5
Paymaster 1220 RR	40.9	85.9	5.2
Phytogen PSC 556	40.2	89.9	5.0
Stoneville BG 4740	41.7	87.6	4.1
Stoneville BXN 47	41.6	89.9	4.2
Stoneville 474	42.0	90.2	4.2
Sure-Grow 125	40.5	88.5	4.7
Sure-Grow 501	40.6	88.1	4.4
* Percent earliness from Winnsboro Irrig. and Non-Irrig. only.			
Medium Maturing Group			
Agripro HS 44	38.3	87.7	4.3
Agripro HS 46	39.0	89.9	4.4
Deltapine NuCOTN 33B	38.6	88.6	4.2
FiberMax 832	38.8	90.0	5.2
Paymaster 1560 BG	41.1	88.6	4.5
Phytogen PSC 636	38.6	90.4	4.7
Sure-Grow 180	38.3	89.4	4.7
Sure-Grow 248	40.3	89.7	4.2
Sure-Grow 821	40.6	89.4	4.6
Terra 292	36.2	88.5	4.6
Terra 366	37.3	89.7	4.5
Stoneville LA 887	40.3	89.7	5.2

[1] HVI properties were determined from hand-picked laboratory commercially ginned cotton.

[2] Earliness comparisons should be made only within maturity groups are not valid because the early maturity group and Earliness was determined only at the Winnsboro location.

and promising cotton varieties, two-year average, 1997-

Fiber Properties				
Micronaire	Length (UHM)	Uniformity Index (UI)	Strength (gms/tx)	Elongation
4.9	1.14	83.3	29.7	7.0
4.8	1.11	83.1	25.1	7.6
4.9	1.10	82.6	25.9	7.2
5.2	1.12	84.2	30.6	8.0
4.4	1.15	82.9	28.9	6.9
5.0	1.10	83.2	28.3	6.9
5.0	1.11	83.2	27.6	6.8
5.1	1.10	83.1	27.2	7.0
4.9	1.13	83.6	26.7	7.6
4.9	1.12	84.2	30.8	7.5
5.0	1.12	82.7	28.0	6.1
4.6	1.13	83.0	29.1	6.1
4.8	1.11	82.6	26.2	7.0
4.6	1.21	84.4	30.4	6.0
5.1	1.11	83.6	27.6	6.9
4.8	1.14	82.9	27.6	6.4
4.9	1.14	83.7	27.6	6.6
4.8	1.16	82.8	27.4	6.2
5.0	1.12	83.6	28.0	8.1
4.8	1.13	82.9	25.4	7.2
4.9	1.12	82.9	25.0	6.8
4.8	1.14	83.5	29.6	7.1

ginned samples which results in higher lint percentage than

groups. Comparisons of varieties from different maturity
medium to late group were harvested on different dates.

Table 8

Fusarium wilt and root-knot nematode ratings for Bossier City.

Variety
Agripro AP 4103
Deltapine 20B
Deltapine 32B
Deltapine NuCOTN 33B
Deltapine 50B
Deltapine 5415 RR
FiberMax 832
FiberMax 963
FiberMax 989
Paymaster 1220 BG/RR
Paymaster 1220 RR
Paymaster 1266
Paymaster 1560 BG
Phytogen PSC 556
Phytogen PSC 569
Phytogen PSC 636
Stoneville 373
Stoneville 474
Stoneville LA 887
Stoneville BXN 47
Stoneville BG 4740
Sure-Grow 125
Sure-Grow 180
Sure-Grow 821

[1] Fusarium wilt index on a scale of 0 - 5; 0 = no stem 5 = complete stem discoloration.

[2] Root-knot nematode index on a scale of 0 - 5; 0 = no root galls, 5 = severe root galling.

cotton varieties at the Red River Research Station,

Two-year average ratings, 1997-98	
Fusarium wilt[1]	Root-knot nematode[2]
1.7	2.8
1.3	2.7
1.5	2.8
1.7	2.9
1.1	2.4
1.7	3.3
2.4	3.2
2.7	3.3
2.3	3.2
1.8	2.8
2.6	2.6
1.5	2.9
1.6	3.3
1.5	3.2
2.1	3.5
2.5	3.0
1.3	2.9
3.1	3.2
0.6	1.2
3.2	3.5
4.0	3.0
1.9	3.2
1.6	3.0
1.3	3.4

discoloration,

Table 9

Promising cotton varieties for 1999.[1]

Variety	Alexandria	Winnsboro Non-Irr
Early Maturing Group		
Agripro AP 6101	ND[2]	760
Deltapine 20B	ND	763
Deltapine 32B	ND	NP
Paymaster 1220 BG/RR[4]	ND	NP
Phytogen PSC 556	ND	753
Stoneville BG 4740	ND	731
Stoneville 373[4]	NP	NP
Two Year Average[5]		766
Medium Maturing Group		
FiberMax 832	NP	NP
Sure-Grow 821	1009	653
Paymaster 1560 BG	NP	NP
Phytogen PSC 636	NP	NP
Phytogen PSC 569	NP	NP
Sure-Grow 248	NP	665
Sure-Grow 180	NP	701
Deltapine NuCOTN 33B	REC[6]	REC[5]
Two-year Average	950	675

[1] A promising variety is a variety that after two years of the average of the top three yielding varieties.
[2] No Data Available.
[3] Not Promising at the location indicated.
[4] Not Promising because of susceptibility to 'Bronze
[5] The two-year (1997-98) average of the top three yielding
[6] Recommended at these locations.

Winnsboro Irrigated	St. Joseph Commerce	Clay	Bossier City
1490	NP[3]	NP	1029
1565	NP	1138	NP
1535	NP	1142	NP
NP	NP	NP	NP
1499	NP	NP	NP
1530	NP	NP	NP
NP	NP	NP	NP
1566	1366	1187	1062
NP	1236	NP	NP
1366	1298	NP	1053
NP	NP	1086	NP
NP	NP	NP	1016
NP	NP	1095	NP
NP	NP	1155	1001
NP	1216	1130	NP
REC[5]	REC[5]	1104	REC[5]
1372	1253	1129	1046

testing will have a two-year average yield within 95% of

Wilt.'
varieties at the location tested.

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