GEORGIA COASTAL PLAIN EXPERIMENT STATION

GEORGE H. KING, Director
TIFTON, GEORGIA

INTRODUCING PANDORA COTTON
FOR THE
GEORGIA COASTAL PLAIN

UNIVERSITY SYSTEM OF GEORGIA
HARMON W. CALDWELL, Chancellor
PANDORA SEED INCREASE PLAN

COASTAL PLAIN EXP. STA.
4 ACRES
BREEDING BLOCKS

COASTAL PLAIN EXP. STA.
50 ACRES
SEED INCREASE

20 TONS

FOUNDATION SEED

10 TONS

PANDORA COTTONSEED
ASSOCIATION

SOUTHEAST GEORGIA
600–800 ACRES
KEY GROWERS

200 TONS

REGISTERED SEED

150 TONS

SALES — OTHER COMMUNITIES
AND
INDIVIDUAL GROWERS

10 TONS

PANDORA COTTONSEED
ASSOCIATION

SOUTHWEST GEORGIA
600–800 ACRES
KEY GROWERS

200 TONS

REGISTERED SEED

150 TONS

Note: Direct all inquiries concerning registered and certified seed to:
GEORGIA CROP IMPROVEMENT ASSOCIATION
ATHENS, GEORGIA
INTRODUCING PANDORA COTTON FOR THE GEORGIA COASTAL PLAIN

By

JOHN H. TURNER, JR.
Cotton Breeder

PANDORA is a product of twelve years of breeding work with upland cotton at the Georgia Coastal Plain Experiment Station. The original objective of this breeding program was to develop a productive, wilt-resistant cotton adapted to Coastal Plain conditions. Although the objective has not been changed, the breeders have broadened the program from time to time in order to keep in step with the newest developments in the production and marketing of cotton.

In the production of cotton, it has been found that most of the soils in the Coastal Plain are not only infested with wilt (*fusarium vasenfectum*) but also are infected with other harmful organisms. In addition, the soils are usually deficient in organic matter and in essential elements such as nitrogen and potash. Plant types that are highly desirable in other parts of the Cotton Belt will not always maintain healthy growth in the Coastal Plain and healthy growth is necessary for high yields.

In the development of PANDORA, the breeders have given consideration to fiber properties other than length. Fiber strength, fineness, and nep counts are important to cotton buyers in that these qualities insure a smoother yarn and more efficient mill operation.

*Pandora growing next to a popular variety, illustrating the compact plant type which distinguishes this new variety.*
PANDORA shows excellent promise. It has been developed to meet the special production requirements peculiar to the Coastal Plain of Georgia. It has the fiber properties desired by the cotton spinners.

ORIGIN AND DESCRIPTION

PANDORA was developed from a cross between an extra-early maturing strain and a strong, coarse-fibered strain (Station C x Station 21). Both parents are products of the breeding program at this Station. They were crossed originally in 1940.

In the second and third generations, plants possessing both earliness of one parent and fiber properties of the other were selected. Succeeding generations grown from these selections have retained the desirable features of both parents and the new variety was named PANDORA, meaning all-gifted.

Observers say that PANDORA “squats down” at squaring time. The variety has close-jointed fruiting branches which make a compact plant type. This feature serves to distinguish PANDORA from other varieties.

PANDORA plants seldom exceed three feet in height. Under average conditions, the plant will develop five to seven fruiting branches on the first twelve inches of the main stalk. The fruit appears quickly and holds down growth of the vegetative branches. PANDORA sets a higher proportion of its flowers than the other varieties grown in the Coastal Plain. When properly handled, PANDORA retains a healthy foliage longer than other varieties. This characteristic gives PANDORA an added advantage on South Georgia soils where cotton “rust” (potash hunger) is common.

Twelve inches of the main stalk from a Pandora plant.
WILT-RESISTANCE

Wilt-resistance is one of the outstanding features of PANDORA cotton as demonstrated by the following table.

In 1948, PANDORA planted on wilt-infested land yielded only 12 percent less than PANDORA planted on non-wilt land. Other varieties with less wilt-resistance yielded 25 to 55 percent less on wilt-infested land.

TABLE NO. 1

<table>
<thead>
<tr>
<th>Variety</th>
<th>Percent Wilt-Affected Plants</th>
<th>Yield-Seed Cotton Per Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tallassee, Ala.</td>
<td>Tifton</td>
</tr>
<tr>
<td>Pandora</td>
<td>0</td>
<td>6.0</td>
</tr>
<tr>
<td>Stonewilt 7</td>
<td>4</td>
<td>24.8</td>
</tr>
<tr>
<td>Coker 100</td>
<td>7</td>
<td>24.7</td>
</tr>
<tr>
<td>Empire</td>
<td>26</td>
<td>42.5</td>
</tr>
<tr>
<td>Stoneville 2B</td>
<td>67</td>
<td>90.4</td>
</tr>
<tr>
<td>Deltapine 15</td>
<td>81</td>
<td>82.7</td>
</tr>
</tbody>
</table>

* The Alabama Experiment Station conducted the test at Tallassee, Alabama on land heavily infested with both wilt and nematode diseases. Yield figures were not secured for the 1948 test.
HIGH YIELDS

PANDORA is among the best available varieties in yields of seed cotton per acre. It has given consistently higher yields than other varieties in the upland cotton variety test at this Station.

Table No. 2 gives data on yield, lint percent, boll size, and staple length for PANDORA and five popular varieties widely grown in Georgia.

MATURITY

PANDORA matures the bulk of its fruit in a short period of time. Bolls open in rapid succession resulting in high yields on the first picking.

PANDORA is adapted to use of defoliant dust. Defoliation is a necessity if machine harvesting is practiced.

In a trial conducted at the Georgia Coastal Plain Experiment Station in 1947, a field of PANDORA was defoliated with 30 pounds of defoliant dust per acre. The dust was applied a week after the first open bolls. The defoliated field was compared with an undefoliated field of the same cotton. The following results were obtained.

1. Hand pickers were able to harvest 30% more cotton in a day from defoliated fields.
2. Boll-rot was reduced to a minimum in defoliated fields.
3. Strict low middling grade secured from undefoliated fields. Middling secured from defoliated fields.

<table>
<thead>
<tr>
<th>Variety</th>
<th>1945 Pounds</th>
<th>1946 Lint</th>
<th>1947 Average</th>
<th>1948 Lint</th>
<th>1948 Percent</th>
<th>Staple Length</th>
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</thead>
<tbody>
<tr>
<td>Pandora</td>
<td>1296</td>
<td>1198</td>
<td>1114</td>
<td>1242</td>
<td>1237</td>
<td>1074</td>
</tr>
<tr>
<td>Stoneville 7</td>
<td>1435</td>
<td>1360</td>
<td>1242</td>
<td>1237</td>
<td>1123</td>
<td>11021</td>
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<tr>
<td>Collier 100 Wlt</td>
<td>1363</td>
<td>1063</td>
<td>1018</td>
<td>1021</td>
<td>917</td>
<td>1068</td>
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<tr>
<td>Stoneville 2B</td>
<td>1237</td>
<td>1106</td>
<td>1018</td>
<td>994</td>
<td>917</td>
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<tr>
<td>Empire</td>
<td>1275</td>
<td>1275</td>
<td>1018</td>
<td>1021</td>
<td>917</td>
<td>1065</td>
</tr>
<tr>
<td>Deltapine</td>
<td>1258</td>
<td>1258</td>
<td>1018</td>
<td>1021</td>
<td>917</td>
<td>1065</td>
</tr>
</tbody>
</table>
4. Seed germinated was 70% on undefoliated fields as compared to 92% on defoliated fields. These results were repeated on a larger planting in 1948.

**FIBER QUALITY**

Spinning tests have been conducted over a three-year period with PANDORA in comparison with other popular varieties grown in Georgia. These tests show that PANDORA has a coarser fiber, a lower nep count, and less waste than the other varieties. Test samples of PANDORA also have been given a higher grade by cotton classers.

PANDORA was developed to give the cotton producers in the Coastal Plain a quality fiber in demand by cotton mills. In addition to meeting the special requirements for production in the Coastal Plain, PANDORA gives a smoother yarn and more efficient mill operation.

**PLANS FOR IMPROVEMENT**

New developments call for changes in plant characters. No variety is ever considered perfect. The breeding project at the Georgia Coastal Plain Experiment Station will continue working toward a superior strain with characteristics similar to PANDORA. When a superior strain is recognized and plant characters are stabilized, the new strain will be channeled into fields of increase in the same manner as the present PANDORA.

**MAINTENANCE**

The following steps are taken to insure a constant supply of uniform PANDORA seed:

1. Plant selections are planted in progeny rows each year. The progeny field is isolated from other varieties.
2. Inferior progeny rows are eliminated at maturity.
3. Outstanding plants are selected and harvested for progeny rows the following year.
4. The remaining progenies are harvested, the seed being used the following year to plant 50 acres at the Georgia Coastal Plain Experiment Station.
5. The seed obtained from the 50 acres at the Georgia Coastal Plain Experiment Station are FOUNDATION seed. These will be distributed to selected communities for further increase.
6. Plantings by selected communities will be made in accordance with the regulations for producing REGISTERED seed as required by the Georgia Crop Improvement Association.

**NOTE:** DIRECT ALL INQUIRIES CONCERNING REGISTERED AND CERTIFIED SEED TO:

**GEORGIA CROP IMPROVEMENT ASSOCIATION,**

**ATHENS, GEORGIA**