

**2003 EVALUATION OF REGIONAL COTTON BREEDERS  
STRAINS GROWN IN ROOT-KNOT INFESTED SOILS**

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**Abstract**

The root-knot nematode is the most widely distributed nematode that affects cotton. Currently, there are no nematode resistant varieties available to cotton producers in the southern cotton belt. In 2003, twenty entries from the regional breeder strain test were evaluated for root-knot resistance at the Red River Research Station in Bossier City, Louisiana. None of the entries were as resistant to root-knot nematodes as the check varieties Acala Nemx and Stoneville LA 887.

**Introduction**

The root-knot nematode (*Meloidogyne incognita* [Kofoid & White] Chitwood) is one of the most prevalent nematodes in the United States and causes substantial yield losses in cotton each year. Most commercial cultivars that are planted are susceptible to damage from root-knot nematodes. This study was conducted to evaluate strains from the 2003 regional breeder strain test for root-knot nematode resistance.

**Materials and Methods**

The field study was conducted at the LSU Agricultural Center, Red River Research Station in Bossier City, Louisiana. The soil type is a Caplis very fine sandy loam heavily infested with root-knot nematodes. To ensure a high population of root-knot nematodes in the soil, cotton is rotated annually with kenaf. The experimental design was a randomized complete block with four replications. The experimental plots were one row, 45 feet long, spaced 3.33 feet apart. Plots were planted on May 22, 2003 and evaluations were made on October 23, 2003. Root gall ratings were taken on fifteen randomly selected plants. The evaluations were made by using root gall ratings on a scale of 0-5 where 0=no root galling and 5=severe root galling.

**Results**

The resistant check varieties, Stoneville LA 887 and Acala Nemx, produced the lowest root gall ratings of 1.31 and 1.44, respectively, as shown in Table 1. Eight additional entries were significantly less susceptible than the susceptible check (Stoneville 474).

Table 1. Root-knot nematode gall ratings for the 2003 regional breeder strains test.

| <b>Entry</b>      | <b>Root-knot Rating*</b> |
|-------------------|--------------------------|
| Stoneville LA 887 | 1.31                     |
| Acala Nemx        | 1.44                     |
| BSD 20080         | 3.21                     |
| Ark 9314-24-16    | 3.55                     |
| DES 816           | 3.66                     |
| Ark 24101         | 3.74                     |
| Ark 9406-40-08    | 3.80                     |
| Ark 9206-05-01    | .84                      |
| Ark 9304-39-15    | 3.90                     |
| LA 1407009        | 3.90                     |
| LA 99405055       | 4.11                     |
| DES 810           | 4.13                     |
| LA 1407021        | 4.15                     |
| LA 96W022         | 4.16                     |
| Ark 9203-03-20    | 4.20                     |
| LA 00405033       | 4.23                     |
| Ark 9202-24-13    | 4.27                     |
| PhytoGen PSC 355  | 4.33                     |
| DP Delta Pearl    | 4.39                     |
| LA 433287-020     | 4.42                     |
| LA 1407074        | 4.48                     |
| Stoneville St 474 | 4.55                     |
| Fiber Max FM 958  | 4.61                     |

LSD (P=0.05) = 0.88

CV(%) = 20.3

\* Root-knot nematode gall ratings on a scale of 0-5;

0 = no root galling;

5 = severe galling