

**2002 EVALUATION OF REGIONAL COTTON BREEDERS STRAINS GROWN
IN ROOT-KNOT INFESTED SOILS**

W.D. Caldwell, J.A. Hayes, P.D. Colyer, and P.R. Vernon

LSU Agricultural Center

Bossier City, LA

J.E. Jones

JAJO Genetics

Baton Rouge, LA

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 2002, twenty-four 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. Four entries, Acala Nemx, Stoneville LA 887, Ark 9101-97-10 and Ark 9111-57-20, produced significantly lower root gall ratings than other entries.

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 2002 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 June 15 and evaluations were made on November 7, 2002. 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 Acala Nemx and Stoneville LA 887 produced the lowest root galling ratings of .97 and .99, respectively, followed by Ark 9101-97-10 with a root gall rating of 1.24 and Ark 9111-57-20 with a root gall rating of 1.40 (Table 1). Eleven entries produced root gall ratings higher than Stoneville 474, the susceptible check variety. Three entries, NX2429, DP 493 and FM 958 had severe galling from root-knot nematodes with ratings exceeding 4.0.

Table 1. Root-knot nematode gall ratings for the 2002 regional breeder strains test.

Entry	Root-knot Rating*
Acala Nemx	0.97
Stoneville ST LA 887	0.99
Ark 9101-97-10	1.24
Ark 9111-12-20	1.40
99M03	2.30
Ark 9108-04-17	2.56
Ark 9108-23-05	2.76
NX99326c	2.91
Miscot 8806	2.99
DES 816	3.09
JAJO 8200	3.16
LA 99405085	3.22
LA 00405071	3.24
Deltapine DP 491	3.27
LA 433287-147	3.32
Stoneville ST 474	3.36
LA 00405033	3.49
PhytoGen PSC 355	3.50
Deltapine DPLX 99X35	3.51
JAJO 8098	3.52
DES 810	3.53
JAJO 8185	3.54
JAJO 8190	3.61
Deltapine DeltaPEARL	3.77
FiberMax FM 958	4.19
Deltapine DP 493	4.20
NX 2429	4.37
LSD (P= 0.05) = .88	
CV(%) = 20.3	

*Root-knot nematode gall ratings on a scale of 0-5; 0 = no root galling; 5 = severe galling.