

**NEW SOURCES FOR ROOT-KNOT  
NEMATODE RESISTANCE**

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**Abstract**

The Southern Root-Knot Nematode (*Meloidogyne incognita*) is a major pest on Upland cotton (*Gossypium hirsutum*). The ability to control the nematode is becoming an important topic and the means of control vary. The most important control measure is the use of resistant varieties. Presently, only two cultivars have nematode resistance, CPCSD Acala C-225 and LA 887. Aub 623 has the highest amount of resistance available today. The parents of Aub 623 are Cleve-wilt and a Mexico wild line. The resistance has been shown to be from two genes, one dominant and one additive. This breeding program is designed to evaluate the possibility of more resistant genes available and/or different levels of resistance. We have identified 22 race lines with varying levels of resistance. Therefore, these race lines have been crossed with Cleve-wilt, M315 (high resistance), and M8 (high susceptibility) to evaluate the genes involved. All of the parents were screened for RKN resistance and different levels of resistance was present. A F2 population of each cross will be screened for segregation to determine if the genes in the various race lines are the same. It is believed that some lines will have the Cleve-wilt gene, some the Mexico wild gene, and some may have both. If the F2 of the Cleve-wilt cross segregates for one gene then it should be the Mexico wild gene. If two genes segregate, then it should be similar in resistance to M315. If the F2 of the M315 cross segregates for one gene, then it could be the Cleve-wilt gene or the Mexico wild gene. If the race has the Cleve-wilt gene, the cross will not segregate when crossed to Cleve-wilt but it will if the race line has the Mexico wild gene. The F2's of the M8 cross will segregate either for one gene or two genes. If two genes segregate, they should be similar M315. If one gene segregates, the specific gene can be identified by the crosses with Cleve-wilt.