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#### References and Notes

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### REGISTRATION OF EIGHT NECTARILESS-FREGO BRACT COTTON GERMPLASM LINES

EIGHT cotton (*Gossypium hirsutum* L.) germplasm lines (Reg. no. GP-278 to GP-285; Table 1) with nectariless and frego-bract traits were released by USDA-ARS and the Mississippi Agricultural and Forestry Experiment Station in August 1985. These lines offer breeders the advantages of the host-plant resistance traits nectariless and frego bract in a broad germplasm base. The frego-bract trait imparts resistance to the boll weevil (1) and the nectariless trait reduces populations of several insect pests, including tarnished plant bug [*Lygus lineolaris* (Palisot de Beauvois)], bollworm [*Heliothis zea* (Boddie)], tobacco budworm [*Heliothis virescens* (F.)], pink bollworm [*Pectinophora gossypiella* (Saunders)], cabbage looper [*Trichoplusia ni* (Hübner)], and cotton leaf perforator [*Bucculatrix thurberiella* Busck] (2).

These germplasm lines were developed from crosses of each of eight nectariless with its frego bract counterpart having corresponding germplasm (Table 1). Forty to 60 nectariless, frego-bract segregants in each cross were selected in the  $F_2$ , self-pollinated, and equal numbers of selfed seed of the  $F_2$  plants of each line were bulked. Selection for nectariless and frego-bract traits was continued in each of the eight lines in the  $F_3$  and  $F_4$  generation. Each line in  $F_5$ , along with four commercial checks, were tested in a field experiment at Mississippi State University in 1984. Experimental design was a randomized complete block with six replications. Cultural practices, including insect control, were standard for the area.

These germplasm lines produced comparable yields with those of the check cultivars. Except for Aub NeFg-277, which had 37.6% lint [(lint/seed cotton)  $\times$  100], the check cultivars 'Stoneville 213', 'Deltapine 61', and 'Missouri 311' had higher

lint percentages than the germplasm lines. However, all lines had equal or higher lint percentages than the 'Auburn 56' check, which had 36.0% lint. Boll weight and seed index (100-seed weight) of most of the germplasm lines ranged from 6.0 to 7.2 g, and 10.2 to 12.0 g, respectively, which was in the range of the checks, but Aub NeFg-149 had a heavier boll (7.7 g) and a greater seed index (12.4 g) than any of the checks. The germplasm lines did not differ from the checks in 2.5 and 50% fiber span length, micronaire or fiber elongation (E). The check cultivar Missouri 311 had the highest fiber strength ( $T_1$ ) and Auburn 56 had the lowest fiber strength in the experiment. Fiber strength of the germplasm lines were in the range of these checks.

Small amounts of seed of these eight lines are available for distribution to cotton geneticists and other research workers. Written requests should be addressed to R.L. Shepherd, USDA-ARS, Crop Science Research Laboratory, P.O. Box 5367, Mississippi State, MS 39762-5367.

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### REGISTRATION OF NC-D<sub>3</sub> COMPATIBLE 1 AND NC-D<sub>3</sub> INCOMPATIBLE 1 GERMPLASM LINES OF COTTON

NC-D<sub>3</sub> Compatible 1 (Reg. no. GP-286) and NC-D<sub>3</sub> Incompatible 1 (Reg. no. GP-287) cotton germplasm lines (*Gossypium hirsutum* L.) were released by the North Carolina Agricultural Research Service and the USDA-ARS in May 1986. These cotton lines provide a means for the genetic isolation of cultivars grown for special purposes, for example, those bearing glandless (gossypol-free) seeds.

Cultivars of the tetraploid cultivated cotton, *G. hirsutum* L., 2(AD)<sub>1</sub>, and *G. barbadense* L., 2(AD)<sub>2</sub>, in the genomic nomenclatural system of cotton, are of the genotype  $Le_1Le_1Le_2Le_2$ , and the wild diploid species, *G. davidsonii* Kell., 2(D)<sub>3</sub>,  $Le_2^{dav}Le_2^{dav}$ . When the diploid species is crossed with the cultivated cotton lines, the hybrid embryos abort because of a lethal interaction between  $Le_2^{dav}$  and the *Le* alleles. A rare genotype,  $le_1le_1le_2le_2$ , stems from a wild form of *G. barbadense*. Cotton of that genotype hybridizes with *G. davidsonii* and produce vigorous, although sterile, triploid plants of the genotype  $le_1le_2Le_2^{dav}$ . The chromosome number of these triploids can be doubled to produce fertile hexaploid plants (1).

The compatibility genotype,  $le_1le_1le_2le_2$ , was transferred to several stocks of *G. hirsutum*, and one such stock was crossed with a hexaploid, 2[(AD)<sub>1</sub>D<sub>3</sub>], and the  $Le_2^{dav}$  allele bridged into the tetraploid background of upland cotton. The new stock, of the genotype  $le_1le_1Le_2^{dav}Le_2^{dav}$ , did not cross successfully with cultivars of the genotype  $Le_1Le_1Le_2Le_2$ . Therefore, stocks of the genotypes  $le_1le_1le_2le_2$  and  $le_1le_1Le_2^{dav}Le_2^{dav}$  are needed for transferring the isolating allele,  $Le_2^{dav}$ , to new cultivars (2). NC-D<sub>3</sub> Compatible 1, genotype  $le_1le_1le_2le_2$ , and NC-D<sub>3</sub> Incompatible 1,  $le_1le_1Le_2^{dav}Le_2^{dav}$ , are stocks based upon

Table 1. Eight nectariless-frego bract lines of cotton.

Germplasm identification	Registration no.	Parentages
Aub NeFg-16	GP-278	Aub Ne-16 (GP175) $\times$ Aub Fg-16 (GP167)
Aub NeFg-56	GP-279	Aub Ne-56 (GP176) $\times$ Aub Fg-56 (GP168)
Aub NeFg-149	GP-280	Aub Ne-149 (GP177) $\times$ Aub Fg-149 (GP169)
Aub NeFg-165	GP-281	Aub Ne-165 (GP178) $\times$ Aub Fg-165 (GP170)
Aub NeFg-201	GP-282	Aub Ne-201 (GP179) $\times$ Aub Fg-201 (GP171)
Aub NeFg-213	GP-283	Aub Ne-213 (GP180) $\times$ Aub Fg-213 (GP172)
Aub NeFg-277	GP-284	Aub Ne-277 (GP181) $\times$ Aub Fg-277 (GP173)
Aub NeFg-310	GP-285	Aub Ne-310 (GP182) $\times$ Aub Fg-310 (GP174)