

has excellent resistance to biotypes A and B of Hessian fly (*Mayetiola destructor* (Say)) conferred by the H6 gene.

Caldwell is moderately tolerant to aluminum in acid soils.

Caldwell averages about 160/hl lower in test weight and kernels are smaller than Arthur-type cultivars. Caldwell has excellent soft wheat milling quality and very good baking quality compared to Arthur.

Variety Protection will be applied for under the Plant Variety Protection Act, Public Law 91-577, under the seed certification required. If granted, the owners further specify that Caldwell may be sold for seed *only* by cultivar name. Breeder seed is maintained by the Purdue Univ. Agric. Exp. Stn., West Lafayette, IN 47907.

Registration of Germplasms

REGISTRATION OF THREE GERmplasm LINES OF COTTON¹ (Reg. Nos. GP 164 to GP 166)

Raymond L. Shepherd

THREE breeding lines of cotton (*Gossypium hirsutum* L.), Auburn 566 RNR (GP164), Auburn 612 RNR (GP 165), and Auburn 634 RNR (GP 166), were developed and released cooperatively by ARS-USDA and the Alabama Agric. Exp. Stn. These breeding lines represent significant progress in developing cultivars with exceptionally high resistance to root-knot nematodes (*Meloidogyne incognita acrita*) and Fusarium wilt (*Fusarium oxysporum* f. *vasinfectum*).

Auburn 566 RNR was developed by transferring root-knot and Fusarium wilt resistance to 'Coker 201' through backcrossing. The other two lines were developed by transferring both of the above traits to 'Auburn 56.' Auburn 623 RNR was the source of root-knot nematode and Fusarium wilt resistance.³ Until the current release, Auburn 623 RNR had the highest resistance to root-knot nematodes and Fusarium wilt known in cotton. In numerous tests, when seedlings were each inoculated with 8,000 root-knot nematode eggs, less than 1,200 eggs were produced per seedling in 40 days on the above three lines and Auburn 623 RNR, compared with 50,000 to 150,000 eggs produced on currently grown cotton cultivars.

Each of the above lines was developed by selecting for root-knot nematode resistance in the F₂ in greenhouse tests, growing selected F₂ plants to maturity for F₃ seed, and using the F₃ seed for progeny testing each selected F₂ for root-knot resistance in greenhouse tests. Resistant selections were evaluated in replicated field experiments for Fusarium resistance and agronomic performance in the F₃ and F₄. The most resistant and best performing resistant selections were used to initiate each backcross cycle.

Auburn 566 RNR, Auburn 612 RNR, and Auburn 634 RNR each is bulked selfed seed from ten BC₃ F₄ resistant plants. Performance of the three lines was compared with that of nonrecurrent and recurrent parents at three environments in Alabama. Where soils were relatively free of root-knot nematodes and Fusarium wilt, Auburn 566 RNR, Auburn 634 RNR, and Auburn 612 RNR yielded 100, 97, and 88% as much as their recurrent parent, respectively, and 202, 191, and 174% as much

as the nonrecurrent parent, respectively. Each line matured as early as their recurrent parent and much earlier than the nonrecurrent parent. Percent lint of Auburn 612 RNR equalled that of the recurrent parent, but the other lines had lower lint percentages than their respective recurrent parent. Boll size of each of the three lines was larger than that of the nonrecurrent parent but slightly smaller than that of their recurrent parent. The lines were similar to their recurrent parent in fiber length and micronaire, except for Auburn 566 RNR, which had slightly shorter fiber and higher micronaire. All three lines had slightly higher fiber strength than that of their recurrent parent.

Seed (10 g) of each line is available upon written request as long as present seed is available. Requests should be addressed to R. L. Shepherd, Crop Science Research Unit, ARS-USDA, Dep. of Agronomy and Soils, Auburn Univ., AL 36849.

REGISTRATION OF EIGHT GERmplasm LINES OF FREGO-BRACt COTTON¹ (Reg. Nos. GP167 to GP174)

Raymond L. Shepherd²

THE following frego-bract cotton (*Gossypium hirsutum* L.) lines were developed and released cooperatively by ARS-USDA and the Alabama Agric. Exp. Stn.

Reg. no.	Identification	Parentages
GP167	Aub Fg-16	'Deltapine 16' × frego bract
GP168	Aub Fg-56	'Auburn 56' × frego bract
GP169	Aub Fg-149	Triple Hybrid 149 × frego bract
GP170	Aub Fg-165	Pee Dee 2165 × frego bract
GP171	Aub Fg-201	'Coker 201' × frego bract
GP172	Aub Fg-213	'Stoneville 213' × frego bract
GP173	Aub Fg-277	'Deltapine 277' × frego bract
GP174	Aub Fg-310	'Coker 310' × frego bract

The eight lines were developed through backcrossing by transferring frego bract to eight recurrent parents as indicated above. The source of frego bract was a frego-bract strain of 'Deltapine Smoothleaf' developed by Dr. Jack Jones, Louisiana State Univ., Baton Rouge. Each backcross cycle was initiated at Auburn, Ala., by crossing 30 to 40 frego-bract F₂ to each respec-

¹Registered by the Crop Sci. Soc. of Am. Joint contribution of the ARS-USDA and the Ala. Agric. Exp. Stn., Auburn Univ., AL 36849. Accepted 26 Jan. 1982.

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³Shepherd, R. L. 1974. Transgressive segregation for root-knot nematode resistance in cotton. Crop Sci. 14:872-875.

¹Registered by the Crop Sci. Soc. of Am. Joint contribution: ARS-USDA and the Alabama Agric. Exp. Stn., Auburn Univ., AL 36849. Accepted 26 Jan. 1982.

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