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Registration of Germplasms

REGISTRATION OF GEORGIA SUPER D COTTON GERMPLASM[1]

(Reg No. GP 19)

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GEORGIA SUPER *D* cotton (*Gossypium hirsutum* L.), a breeding line, was released to plant breeders in April 1973 by the University of Georgia Coastal Plain Experiment Station, Tifton, Georgia. Georgia Super D is unique in that it contains five genetically controlled characters that have shown resistance to boll weevil (*Anthonomus grandis*), bollworms (*Heliothis* sp.), and boll-rotting organisms. These characters are red plant color, frego bract, okra leaf, smooth leaf, and nectariless. The line is also homozygous for glandless stem (gl_1) and has reduced glands in seed and foliage (gl_2) but is not homozygous and a small percentage of plants with normal glands in foliage and seed can be found.

Georgia Super D resulted from crosses involving an M8 smooth leaf, glandless, and nectariless line from USDA-ARS, Mississippi State University; a frego bract line designated 29B, BV67, RI-67 237 from the Texas Agricultural Experiment Station, and an unknown source of red okra leaf. The red okra leaf, CP 152, was a rogue plant from a F_2 population of 'Pope' × 'Stardel' obtained from Dekalb Seed Company.

When evaluated in small plots with commonly grown cultivars and other nonpreferred strains, Georgia Super D has consistently shown significantly less insect injury. Results from sprayed and unsprayed plot clearly show an expression of resistance. Alternate row planting of 24 rows of Georgia Super D and 8 rows of commercial cultivar resulted in 50% less boll weevil damage with 40% less pesticide applied to the Georgia Super D.

Three of the characters, frego bract, okra leaf, and nectariless have contributed to the abatement of boll rot losses. Georgia Super D has less boll rot when compared with presently grown cultivars and breeding strains with the exception of frego bract alone.

The agronomic properties of Georgia Super D are commercially inadequate. Yield, lint percent, and fiber length are significantly below commercial cultivars but fiber strength is equal to that of available cultivars.

Seed will be maintained and distributed in small quantities on request by the Agronomy Department, University of Georgia Coastal Plain Experiment Station, Tifton, GA 31794.

[1] Registered by the Crop Science Society of America. Received June 24, 1974.

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REGISTRATION OF AUBURN 623 RNR COTTON GERMPLASM[1]

(Reg. No. GP 20)

R. L. Shepherd[2]

Auburn 623 RNR cotton (*Gossypium hirsutum* L.) is an elite breeding line released to plant breeders in March 1970 by the Auburn University (Alabama) Agricultural Experiment Station at Auburn and the ARS, USDA. This line has root-knot nematode [*Meloidogyne incognita* var. *acrita* (Kofoid & White, 1919) Chitwood, 1949] resistance greater than that of any other *Gossypium*, based on tests of all known resistant germplasm. In addition, Auburn 623 RNR had greater fusarium wilt [*Fusarium oxysporum* f. *vasinfectum* (Atk.) Snyd. & Hans.] resistance than that of any other *G. hirsutum* tested.

Auburn 623 RNR is a selection from the cross Clevewilt 6-3-5 × Mexico Wild. Clevewilt 6-3-5 was derived from Clevewilt, a breeding stock developed in the 1930's by Coker Pedigreed Seed Company. Mexico Wild is a primitive *G. hirsutum* line. Louisiana State University obtained Mexico Wild from a New Orleans businessman, who reported that it came from Mexico. Its origin otherwise is unknown. Research at Louisiana State University found Mexico Wild to be root-knot resistant. The Auburn University (Alabama) Agricultural Experiment Station arranged for the above cross to be made in Iguala, Mexico. Selections were made for root-knot resistance in F_2 and F_4 in root-knot-infested fields. The cross was advanced from F_2 to F_3 and from F_4 to F_5 without selection. Auburn 623 RNR was derived from a single F_6 plant. Pure-line breeding was used. Selection for root-knot resistance from F_6 through F_8 was made in greenhouse tests. The F_9 and F_{10} were evaluated for agronomic potential in field nurseries and for root-knot resistance in greenhouse tests.

Root-knot nematode populations were drastically reduced in greenhouse and field soils planted to Auburn 623 RNR. In comparison, root-knot nematode populations grew to high levels in greenhouse and field soil planted to 'Auburn 56' and other varieties. The Auburn 56 source of resistance to both root-knot and fusarium wilt was one of the highest available in a *G. hirsutum* cultivar before the development of Auburn 623 RNR.

Auburn 623 RNR had significantly lower wilting percentage than any of 13 other *G. hirsutum* lines and varieties tested in field tests in 2 years. Germplasm sources with the highest resistance to fusarium wilt available in *G. hirsutum* were included for comparison. Whether the high fusarium wilt resistance of Auburn 623 RNR is due to fusarium-wilt resistance genes per se or is conferred by its high root-knot nematode resistance genes or both has not been determined.

Selection for desirable agronomic characters received secondary emphasis during development of Auburn 623 RNR. Yields averaged about 78% of Auburn 56 yields. Auburn 623 RNR has small bolls, small seeds and relatively low lint percentage. Compared with Auburn 56, it is slightly later maturing and has slightly shorter staple length, but has greater tensile strength (T_1) and slightly higher micronaire. Fiber elasticity (E_1) is about equal to that of Auburn 56.

Auburn 623 RNR germplasm is available upon request from the Auburn University (Alabama) Agricultural Experiment Station, Auburn, AL 36830.

[1] Registered by the Crop Science Society of America. Cooperative investigations of the ARS, USDA, and Department of Agronomy and Soils, Auburn University (Alabama) Agricultural Experiment Station, Auburn, AL 36830. Received August 1, 1974.

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REGISTRATION OF MAIZE INBRED GA 209 GERMPLASM[1]

(Reg. No. GP 50)

A. A. Fleming[2]

GA 209 is a white-kerneled, dent inbred line of maize (*Zea mays* L.) with good combining ability and a high degree of tolerance to maize dwarf mosaic (MDMV), corn stunt (CSM) and maize chlorotic dwarf (MCDV), downy mildew (*Sclerospora sorghi* Kulk.), southern leaf blight (*Helminthosporium maydis* Nish. and Miy.), and northern leaf blight (*Helminthosporium turcicum* Pass). It is susceptible to corn leaf rust (*Puccinia sorghi* Schw.).

This inbred line was developed in the research program of the College Experiment Station, University of Georgia, Athens, by selfing and selecting from T 61 × NC 37, utilizing the pedigree method of breeding.

GA 209 is a medium to full-season line (1000-1100 Maturity Series) at this location. It has good seed yield, with two ears per plant, excellent grain quality, and a white cob. The line also produces ample pollen as a pollinator. Ear and plant

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