CROP REGISTRATIONS

REGISTRATIONS OF GERMPLASM

Registration of NC 72 Cotton Germplasm Line

NC 72 (Reg. no. GP-715, PI 615073) cotton (Gossypium hirsutum L.) germplasm line was released by the North Carolina Agricultural Research Service in 1999. This line has excellent lint yield along with superior fiber quality.

NC 72 is an F₅₆₆ selection derived from ‘DES 119’//‘KC 311’//‘Deltapine 90’. DES 119 is a cross of ‘DES 24’ and DES 2134-047 (Bridge, 1986). KC 311 was the result of a cross between ‘McNair 235’ and Deltapine 90 (Calhoun et al., 1997). Deltapine 90 came from a cross of Deltapine 6516 and Deltapine 6582 (Calhoun et al., 1997).

Lint yield of NC 72 averaged 1352 kg ha⁻¹ compared with 1333 kg ha⁻¹ for ‘Deltapine 51’ in eight North Carolina trials from 1998 to 1999. NC 72 averaged 42.6% lint compared with 41.5% for Deltapine 51. NC 72 is 7.6 cm taller than Deltapine 51. Boll size of NC 72 averaged 5.6 g, while Deltapine 51 averaged 5.9 g. Fiber length of NC 72 averaged 29.7 mm while Deltapine 51 averaged 28.9 mm. Elongation averaged 5.6 and 6.6% for NC 72 and Deltapine 51, respectively. Uniformity index was not different (P = 0.05) at 83.6 and 83.4% for NC 72 and Deltapine 51, respectively. NC 72 had a higher fiber strength at 328.3 kN m kg⁻¹, compared with 278.3 kN m kg⁻¹ for Deltapine 51. NC 72 had a lower micronaire reading of 4.2, compared with 4.7 for Deltapine 51. NC 72 had a yarn (skein) strength of 36 kg, compared with 26.8 kg for Deltapine 51; and a fineness reading of 143 mtex, compared with 171 mtex for Deltapine 51. Seed index of NC 72 is 9.7 g, compared with 10.0 g for ‘Sure Grow 125’. Maturity of NC 72 is similar to Deltapine 51.

NC 72 has fair resistance (52 % of plants showed foliar symptoms) to fusarium wilt [caused by Fusarium oxysporum Schlechtend.:Fr. f. sp. vasinfectum (Atk.) W.C. Snyder & H.N. Hans.] when compared with the resistant check, ‘M315’ (25% of plants with foliar symptoms), and the susceptible check, ‘Rowden’ (91 % of plants wilted). Evaluation was performed in the Regional Wilt Screening Test at Tallassee, AL. NC 72 has the T₁ level of pubescence (Lee, 1985), commonly referred to as ‘Deltapine Smoothleaf’. It has nectaries, normal leaf shape, and exhibits a semi-cluster fruiting pattern.

NC 72 has excellent yield and fiber properties with broad adaptability, and should be of interest to cotton breeders and geneticists in developing improved cultivars.

Small lots of seed may be obtained from the author.

DARYL T. BOWMAN*

References


Registration of TAM 88G-104 High-Yielding Upland Cotton Germplasm

TAM 88G-104 (Reg. no. GP-716, PI 614941) upland cotton, Gossypium hirsutum L., was developed by the Cotton Improvement Laboratory, Department of Soil and Crop Sciences, Texas Agricultural Experiment Station, and released in 1998. TAM 88G-104 combines high yield potential and excellent fiber properties, and is adapted to central and south Texas. TAM 88G-104 originated as a single F₃₃₄ progeny row from the cross of ‘Deltapine 90’ (Calhoun et al., 1994), a full-season cultivar developed by the Delta and Pine Land Company, and CS-8606 (Smith et al., 1988), a breeding line of complex pedigree that includes ‘Paymaster 1209’, ‘Lankart 57’, Acala 5675, and ‘Tamcot SP37’. Single plant selection in the F₁ and F₂ generations were based on apparent yield potential, overall plant conformation, and fiber quality parameters. The resulting F₃ progeny row was selected for further evaluation as a pure line.

TAM 88G-104 is a mid- to full-season, picker-type upland cotton cultivar with a growth habit intermediate to ‘Deltapine 50’ (Calhoun et al., 1994) and Deltapine 90 when grown with supplemental irrigation in College Station, TX. Average node of first fruiting limb is similar to Deltapine 90, and two nodes higher than Deltapine 50 or ‘Tamcot Sphinx’ (El-Zik and Thaxton, 1996). Open bolls resist shattering but are not storm-proof, and fluff adequately for picker harvest. TAM 88G-104 has smooth leaves, averaging 2 trichomes cm⁻² on fully expanded leaves, while Deltapine 90, Deltapine 50, and Tamcot Sphinx average 10, 16, and 26, respectively.

TAM88G-104 is resistant to the silverleaf whitefly, Bemisia argentifolii. It is moderately susceptible to “Bronze Wilt,” causal agent unknown, and is moderately resistant to bacterial blight (caused by Xanthomonas malvacearum). TAM 88G-104 carries a level of resistance or susceptibility to other insects and diseases affecting cotton similar to commercial cultivars available to producers in central and southern Texas. Averaged across 2 yr at College Station and grown under irrigated culture, TAM 88G-104 reached 60% open bolls in 136 d from planting, while Deltapine 50 required 129 d, and Tamcot Sphinx required 126 d. TAM 88G-104 averaged 5% higher lint yields than Deltapine 50 from 1990 through 1997. Micronaire reading, an indicator of fiber fineness and/or matu-