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 F₆₅ 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 T₅ level of pubescence (Lee, 1985), commonly referred to as ‘Deltapine Smoothleaf’. It has nectaries, normal leaf shape, and exhibits a semi-cluster fruiting pattern.

The F₅ population was used in the development of the line, which was tested extensively for yield, overall plant conformation, and fiber quality parameters. The F₂ and F₃ generations were based on apparent yield potential, overall plant conformation, and fiber quality. The resulting F₅ progeny row was selected for further evaluation as a pure line.

NC 72 is an F₅:6 selection derived from ‘DES 119’/‘KC 311’// ‘Deltapine 90’; and a fineness reading of 143 mtex, compared with 171 mtex for 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.

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TAM 88G-104 has smooth leaves, averaging 2 trichomes on expanded leaves, while Deltapine 50, Deltapine 90, and Tamcot Sphinx have 4-6 trichomes on expanded leaves. TAM 88G-104 has a distinct growth habit intermediate to 'Deltapine Smoothleaf'. It has nectaries, normal leaf shape, and exhibits a semi-cluster fruiting pattern.

TAM 88G-104 is a mid- to full-season, picker-type upland cotton cultivar developed by the Delta and Pine Land Improvement Laboratory, Department of Soil and Crop Sciences, Texas Agricultural Experiment Station, in 1998. TAM 88G-104 combines high yield potential with excellent fiber properties, and is adapted to central and southern Texas. TAM 88G-104 originated as a single F₂ progeny row from the cross of ‘Deltapine 90’ (Calhoun et al., 1994), a full-season cultivar developed by the Delta and Pine Land Improvement Laboratory, Department of Soil and Crop Sciences, Texas Agricultural Experiment Station, and released in 1999. This line ... with superior fiber quality. *Corresponding author (daryl_bowman@ncsu.edu).

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