

EVALUATION OF TWENTY-THREE CRS/TAM 94-L25//³/TAM 94L-25 POPULATIONS

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Abstract

Seventy-nine converted race stocks were crossed and backcrossed to TAM 94L-25, an advanced breeding line, at College Station, TX from 1998-2001. Twenty-three populations were advanced to the BC₃F₁ generation during the summer growing season of 2001. The objective was to obtain information on these 23 populations for fiber quality and yield, in an effort to evaluate the usefulness of the populations in cotton breeding programs. The 23 populations were planted in March 2001, in single row plots 13 m x 1 m. Plants were thinned to 1 plant per 0.25 m. Cultural practices were standard for College Station, TX, including furrow irrigation. Seed cotton was hand harvested from 10 randomly selected individual plants per plot on September 21, 2001. Seed cotton samples were ginned on an eight-saw laboratory gin and fibers were analyzed using HVI by the International Textile Center at Texas Tech University. Micronaire ranged from 3.89 units to 4.66 units with 18 of the 23 populations not different from the recurrent parent, 94L-25. Fiber length ranged from 1.16 inches to 1.24 inches with 17 of 23 populations not different from 94L-25. Fiber strength ranged from a minimum 26.53 g/tex to 30.61 g/tex with 11 of 23 populations not different from the recurrent parent. For elongation 11 of the 23 were better than 94L-25 with a range of 4.00 % to 4.96 %. Uniformity ratios ranged from 80 to 84 with 11 of 23 populations not different from 94L-25. Seed cotton yield per plant ranged from 68.65 g to 212.85 g. Fifteen of the 23 populations did not differ from the recurrent parent for yield while 1 population was significantly greater than all other populations evaluated. Gin turnout ranged from 36 % to 41 % with 16 of the 23 populations not different than the recurrent parent. Suggested populations for fiber length improvement are TX0063, TX0002, TX0017, TX0067, and TX0068, and for fiber strength TX0062, TX0068, TX0017, TX0072, and TX0067. Finally, for seed cotton weight improvement the suggested breeding populations are TX0031, TX0062, TX0040 and TX0074.