REGISTRATION OF GERMPLASMS

REGISTRATION OF EXTRA-LONG STAPLE COTTON GERMPLASM\(^1\)
(Reg. No. GP 150 to GP 154)

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IN 1946, a collection of upland cotton (Gossypium hirsutum L.) breeding stocks with extra fiber strength was assembled in the Pee Dee breeding program at Florence, S.C. AHA 6-1-4 (P), Earlistaple (E), Sealand (S), and Triple Hybrids 108 and 171 (K) were crossed and intercrossed to form a germplasm pool with genes for extra fiber strength.\(^3\) This germplasm pool first existed in a series of selections designated as lines A, F, J, N, and T,\(^4\) which were intercrossed to give the basic germplasm pool of genes for extra fiber strength that exists today.

Although the two extra-long staple PD breeding stocks, Sealand 542 (GP 150) and Earlistaple 7 (GP 151), were grown on limited commercial acreage, they were primarily important as basic germplasm with improved fiber properties. Sealand 542 was selected from a 'Bleak Hall' (G. barbadense L. 'Sea Island') × 'Coker Wilds' hybrid backcrossed four times to the Wilds parent. Earlistaple 7 was a selection of Earlistaple 808 that was resistant to fusarium wilt caused by Fusarium oxysporum f. sp. vasinfectum (Atk.) Snyd. & Hans., and root-knot nematode caused by Meloidogyne incognita (Kofoid & White) Chitwood. Earlistaple 808 was an F\(_{1}\) selection from the cross of 'Tidewater Acala' × Coker Wilds. Although Sealand 542 and Earlistaple 7 have important genes for extra fiber strength, obtained primarily through G. barbadense introgression, their germplasms are more valuable for the broad genetic base that they have added to the present day Pee Dee germplasm pool.

Hybrid 330 (KPS31), or Line F (GP 152) was the first promising extra-long staple PD breeding stock with genes for extra fiber strength from Beasley's Triple Hybrid, G. arboreum L. × G. hirsutum L. × G. thurberi Tod. × G. hirsutum L. Line F is from the increase of the bulk seed of the progeny of a single F\(_{1}\) plant selection from the complex cross of Triple Hybrid 108 × AHA 6-1-4 × Sealand 542 × Earlistaple.\(^5\) It yielded about 45\% less lint than did 'Coker 100 W', but its fiber and yarn strength were increased over that of Coker 100 W by 50\%. Success with this breeding stock indicated that extra-fiber-strength genes could be transferred to high-yielding upland cottons; however, the process would be difficult. Line F is maintained as a 1:1 seed bulk of Hybrid 330-378 and Hybrid 330-379.

Intercrossing of Lines A, F, J, N, and T produced several improved extra-long-staple PD breeding stocks with extra fiber strength. Lines FJA (GP 153) and FTA (GP 154), selected from complex intermatings, yielded about 15\% more lint than Line F but were about 20\% weaker than Line F in fiber and yarn strength. Studies\(^6\) showed that the genetic association between lint yield and fiber strength had not been changed but that lint yield increases resulted from sacrifices in fiber strength. FJA and FTA are maintained as 1:1 seed bulks of FJA 347 and FJA 348 or FTA 263 and FTA 266, respectively.

Although the demand for extra-long-staple upland cotton with improved fiber strength is limited, these breeding stocks possess other characters, such as earliness and disease resistance, that could be useful in cotton improvement programs. These breeding lines were released by AR-SEA-USDA and the South Carolina Agric. Exp. Stn. in 1979.

REGISTRATION OF 10 HARD RED WINTER WHEAT GERMPLASM LINES
(Reg. No. GP 122 to GP 131)

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THESE 10 lines of wheat (Triticum aestivum L.) were among 12 released by the Texas Agric. Exp. Stn and AR-SEA-USDA as superior primary breeding stocks. They were developed operatively by the Texas Agric. Exp. Stn. and AR-SEA-USDA. The lines were released for the expressed purpose of crossing in a breeding program and reselection or release by recipients is prohibited. Since the release of two have been approved by the Texas Agric. Exp. Stn. as cultivars 'TAM 105,' CI 17826, and 'TAM 109.'

The 10 lines registered herein are all awned red winter wheats originating from crosses and selections at the USDA Southwestern Great Plains Research Center, Bushland, Texas. 'Centurk' was a parent of nine of the 'Sturdy' sib, TX391-56-D8, used as a parent in the development of all 10 lines. All lines have been evaluated extensively at Bushland in Texas during the period of 1973 to 1978, and have been evaluated in the Southern Regional Performance Test for 1 or 2 years from 1976 to 1978. These lines have wide adaptation as well as high yield potential and other desirable characteristics that make them valuable as breeding stocks. They all have sufficient lodging resistance to have straw as strong as Sturdy. They have high quality characteristics. Reactions to leaf rust (caused by Pucc. graminis f. sp. tritici) and powdery mildew (caused by Erysiphe graminis DC.) were used as criteria in selecting lines, locations and years in Texas trials. No disease has been observed with stem rust (caused by Pers. f. sp. tritici Eriks. and Henn.), but excellent data on their reaction to the disease are available. It is believed that most are neither highly resistant nor susceptible to stem rust. Three lines were moderately resistant or susceptible to soil-borne mosaic virus in Kansas and Texas trials.\(^7\) The release of these breeding lines does not preclude the possibility of one or more of the lines being used as cultivars by the Texas Agric. Exp. Stn. They are registered as germplasm lines, pedigree, and a brief description of each follows.

TX71A30, 'TAM W-101'/Centurk (GP No. 122) is a brown chaff line and is the earliest of the 10. It has high test weight, powdery mildew and leaf rust. It has the highest protein of the 10 lines and has good test weight.

TX71A58-3, TAM W-101/Centurk (GP No. 125) is a white chaff wheat which is rather late in maturity and is both powdery mildew and leaf rust.

TX71A106-5, TAM W-101/Centurk (GP No. 120) has the highest yield record in irrigated trials but only mediocre in regional trials. It has good test weight but is susceptible to leaf rust and powdery mildew.

TX71A407-6, 'Palo Duro'/Centurk (GP No. 124) is a white chaff selection that has a good record in irrigated trials but only moderately resistant to resistant to soil-borne mosaic virus in field trials at Manhattan and Newton, Kansas, Illinois, 1977.\(^8\) It had the lowest average yield of the 40 entries in the 1977 Southern Regional Performance Test. It has good test weight but is susceptible to leaf rust and powdery mildew.