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REGISTRATION OF PARK BARLEY[1]

(Reg. No. 162)

A. E. Foster, M. K. Anderson, V. D. Pederson, and R. E. Pyler[2]

'PARK' barley (*Hordeum vulgare* L.), C.I. 15768, was developed by the North Dakota Agricultural Experiment Station in cooperation with AR-SEA-USDA and was released 12 Jan. 1978. It was tested as ND 231 and traces to a single F_3 plant selected from the cross, 'Dickson'/3/CI 4738//'Traill'/UM570/4/ND B133, made in 1966. Early generations of this cross were grown in the field and greenhouse at Fargo, N. Dak., and the F_4 generation was grown in a winter increase nursery at Ciudad, Obregon, Sonora, Mexico.

Park is a six-rowed, rough-awned spring barley. The kernels are covered and medium-sized with a colorless aleurone and short hairs on the rachilla. It is medium-early, mid-tall, and has moderately strong straw. Compared with 'Larker', Park is 1 day later in heading, equal in height, and stronger strawed. Park is resistant to *Puccinia graminis* Pers. f. sp. *tritici* Eriks. and Henn. and is much more resistant than Larker to prevalent strains of *Helminthosporium sativum* P.K. and B., *Helminthosporium teres* Sacc., and *Septoria passerinii* Sacc. The yield of Park has exceeded that of Larker by 2% in 60 trials in North Dakota. Park performs best, relative to Larker, under conditions where leaf diseases affect yield.

Park is best adapted to northeastern North Dakota and northwestern Minnesota. The kernel plumpness and test weight of Park are slightly lower than Larker. Quality tests conducted by North Dakota State University, the USDA Barley and Malt Laboratory, Madison, Wis., and industry laboratories indicated that Park is superior to Larker in extract, wort N, and enzyme activity. It has been classified as a cultivar acceptable for malting and brewing by the Malting Barley Improvement Association. Breeder seed will be maintained by the North Dakota Agricultural Experiment Station, Fargo, ND 58105.

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[2] Professor, Dep. of Agronomy, former associate professor, Dep. of Agronomy (now senior barley breeder, North American Plant Breeders), professor, Dep. of Plant Pathology, and assistant professor, Dep. of Cereal Chemistry and Technology, respectively, North Dakota State Univ., Fargo, ND 58105.

REGISTRATION OF SC-1 COTTON[1]

(Reg. No. 72)

T. W. Culp and D. C. Harrell[2]

'SC-1' cotton (*Gossypium hirsutum* L.), released in March 1977, was developed cooperatively by AR-SEA-USDA and the South Carolina Agricultural Experiment Station. It is the product of 30 years of breeding to overcome the undesirable genetic association between lint yield and fiber strength. SC-1 was developed by pedigree selection from the cross 'Coker 421' × PD 4398. Coker 421 is a selection of 'Coker 413'. Coker 413 is traced to a glabrous plant selected in an advanced progeny row increase from the cross, 'Coker 100 Wilt' × 'Coker Wilds'. PD 4398 was developed from a series of complex crosses involving Triple Hybrid 108 and 171, AHA 6-1-4, 'Earlistaple', 'Sealand 542', C 6-5, and 'Atlas'[3]. SC-1 was tested under the designation Pee Dee 9241.

Fibers of SC-1 are slightly longer (1 mm) and finer (0.4%) than those of 'Coker 201', but they are shorter (0.5 mm) than fibers of 'Coker 310' and more uniform (3%) than fibers of Coker 201 or Coker 310. Fiber strength approaches that of the high fiber strength check, Pee Dee 2165, and averages 5.3 to 12.1% stronger than Coker 310 and Coker 201, respectively. Thus, yarn strength averages 10.3 to 19.2% higher than that of these two check cultivars.

Fiber elongation (E_1) of SC-1 averages 10.8% more than that of Coker 201 and Coker 310 and 25.4% more than that of Pee Dee 2165, a typical high fiber strength breeding line. The unusually high E_1 may partially account for the excellent yarn strength of this cultivar.

SC-1 yielded 7.0% more lint than Coker 201 in 10 station tests in 1970, 1971, and 1972. In the 1974, 1975, and 1976 Official South Carolina Cotton Variety Test at Blackville, Clemson, and Florence, SC-1 yielded 7.3 and 10.0% more lint than Coker 310 and Coker 201, respectively. SC-1 is the first upland cotton cultivar adapted to production in the Southeast that combines high yield potential with high fiber strength and elongation. This rare combination of yield and quality should meet the requirements of cotton growers and the demands of textile manufacturers.

SC-1 is released and offered for production in South Carolina and other southeastern states. It should not be planted on soils known to be highly infested with nematodes or wilt.

Breeder seed is maintained by the South Carolina Agricultural Experiment Station. Foundation seed is produced by the South Carolina Foundation Seed Association and sold to qualified producers of certified seed.

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[2] Research agronomist and research agronomist (retired), AR-SEA-USDA, Pee Dee Exp. Stn., Florence, SC 29503.

[3] Harrell, D. C., T. W. Culp, W. E. Vaught, and J. B. Blanton. 1974. Recent breeding progress in improving lint yield and fiber quality in PD lines of upland cotton (*Gossypium hirsutum* L.). South Carolina Agric. Exp. Stn. Tech. Bull. 1052.

REGISTRATION OF TAMCOT SP21S COTTON[1]

(Reg. No. 73)

L. S. Bird[2]

'Tamcot SP21S' (*Gossypium hirsutum* L.) was developed in the Texas A&M Multi-Adversity Resistance (TAM-MAR) program of the Texas Agricultural Experiment Station and was released in October 1977 (1, 6). Parents were strains of Tamcot SP21 (Reg. No. 61) and Tamcot SP37 (Reg. No. 63) (3). The cross (SP21F×SP33F)F_1×F_1 (SP21V×SP37V) was made and individual plant selection began in the F_1 of the double cross. Individual plant selection was based on seed coat resistance to mold and a reduced rate of germination when held for 8 days on 1.5% water agar at 13.3 C. This was followed by selection for seedling cotyledon resistance to a mixed inoculum of races 1, 2, 7, and 14 of the bacterial blight pathogen (*Xanthomonas malvacearum* (E. F. Sm.) Dows.). An F_4 progeny was given the strain designation H^4-14-71 and an F_7 progeny was given the strain designation H^4-18-72. Tamcot SP21S is a composite of these strains and was evaluated under the name TX-CAMD-S. The described levels of resistance used for representing differences with respect to departure from a susceptible type have been given (4).

SP21S has high resistance to bacterial blight (conditioned by the B_2, B_3, and B_7 genes); resistance to the *Fusarium* wilt root-knot nematode complex [incited by *Fusarium oxysporum* f. sp. *vasinfectum* (Atk.) Snyd. and Hans. and *Meloidogyne incognita* (Kofoid and White) Chitwood] and *Verticillium* wilt caused by *Verticillium albo-atrum* Reinke and Berth., MS. SP21S has intermediate resistance to the seedling disease complex, seed rot, seed deterioration, and early season cold conditions. It has the same delay-kill resistance (plants dying at a reduced rate) to *Phymatotrichum* root rot [incited by *Phymatotrichum omnivorum* (Shear) Dug.] as SP21. SP21S is susceptible to the leaf spot caused by *Alternaria macrospora* Zimm.

Tamcot SP21S is less sensitive to damage from fleahoppers (*Pseudatomoscelis seriatus* (Reuter)) compared with Tamcot SP21 (3, 5, 6, 7). The glabrous surface of all plant parts of Tamcot SP21S provides intermediate resistance to the boll-

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[2] Professor, Texas Agric. Exp. Stn., Dep. of Plant Sciences, College Station, TX 77843.

worm [*Heliothis zea* (Boddie)] and the tobacco budworm [*H. virescens* (F.)]. Tamcot SP21S has given yields significantly higher than the pubescent Tamcot SP37 in the presence of fleahoppers and *Heliothis* spp (3, 5, 6, 7). In addition, the earliness of Tamcot SP21S aids in evading late season damage from *Heliothis* spp. and the boll weevil (*Anthonomus grandis* Boh.).

Tamcot SP21S has the same degree of earliness as Tamcot SP21 and Tamcot SP37 (2, 3, 5). The yield potential for Tamcot SP21S is significantly higher than that for Tamcot SP21, Tamcot SP37, and Stoneville 213, respectively. Bolls of Tamcot SP21S are storm resistant and the plant type and fruiting habit are suitable to both machine picking or stripping.

Average characteristics for Tamcot SP21S fiber are estimated to be: length 26.7 mm, strength 554 MPa, and micronarie 4.19. Average boll weight is 5.3 g; seed cotton and lint percent is 40.3.

The Foundation Seed Service of the Texas Agricultural Experiment Station will produce foundation seed which will be sold to producers of registered and certified seed. Application for plant variety protection with title V, which requires that Tamcot SP21S be sold only by cultivar name as a class of certified seed, has been made.

ACKNOWLEDGMENTS

I am indebted to research associates who participated in developing the germplasm and to numerous individuals who participated in evaluating the cultivar.

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REGISTRATION OF TAMCOT CAMD-E COTTON[1]

(Reg. No. 74)

L. S. Bird[2]

'TAMCOT CAMD-E' cotton (*Gossypium hirsutum* L.) was developed in the Texas A&M Multi-Adversity Resistance (TAM-MAR) program of the Texas Agricultural Experiment Station and was released in October 1977 (1, 5). Parents were strains of the Tamcot SP21, 17M², (Reg. No. 61), and Tamcot SP37, MDR·SP7, and SP46, (Reg No. 63) families (2). The cross (MDR·SP7-67×17M²)F_1×F_1(SP46-67×17M²) was made and individual plant selection began in the F_1 of the double cross. Individual plant selection was based on seed coat resistance to mold and a reduced rate of germination when held for 8 days on 1.5% water agar at 13.3 C; this was followed by selection for seedling cotyledon resistance to a mixed inoculum of races 1, 2, 7, and 14 of the bacterial blight pathogen (*Xanthomonas malvacearum* (E. F. Sm.) Dows.). An F_7 progeny was given the strain designation H^9-2-72 and was evaluated under the name TX-CAMD-E.

The following levels of resistance are used to describe departure from a susceptible type. *Tolerance*: tolerant cultivars may have the same damage symptoms as non-tolerant ones, but suffer less yield reduction. *Partial Resistance*: some resistance but not sufficient to prevent serious losses but require less input by management for protection than susceptible cultivars. *Intermediate Resistance*: better resistance than the partial level and still not adequate to prevent appreciable losses, but requires less input by management for protection than cultivars with partial resistance. *Resistance*: better than partial resistance and adequate to prevent appreciable losses unless infection or infestation levels are very high. *High Resistance*: provides adequate protection from an adversity and prevents economic losses from the production hazard.

CAMD-E has high resistance to bacterial blight (conditioned by the B_2, B_3, and B_7 genes); resistance to the *Fusarium* wilt root-knot nematode complex (incited by *Fusarium oxysporum* f. sp. *vasinfectum* (Atk.) Snyd. and Hans. and *Meloidogyne incognita* (Kofoid and White) Chitwood); demonstrates intermediate resistance to *Verticillium* wilt caused by *Verticillium albo-atrum* Reinke and Berth., MS. CAMD-E has shown intermediate resistance to the seedling disease complex and seedling resistance specific for *Rhizoctonia solani* Kuhn (42 propagules/100 g non-sterile Houston clay), one of the main pathogens of the complex; intermediate resistance to seed rot, seed deterioration, and early season cold conditions. CAMD-E also possesses a partial resistance to *Phymatotrichum* root rot caused by *Phymatotrichum omnivorum* (Shear) Dug. and resistance to a leaf spot caused by *Alternaria macrospora* Zimm.

Formal testing for actual damage revealed that Tamcot CAMD-E had 57.6% less square damage from oviposition by the boll weevil (*Anthonomus grandis* Boh.) compared with Tamcot SP37 (4, 7). During the same 3-year period in other tests CAMD-E consistently gave above average yields, which were 60% of the expected potential with no damage, where cotton fleahopper [*Pseudatomoscelis seriatus* (Reuter)] bollworm [*Heliothis zea* (Boddie)], and tobacco budworm [*H. virescens* (F.)] populations were damaging singularly in some tests and in combinations for others. CAMD-E has tolerance to fleahoppers and *Heliothis* spp. (3, 5).

Tamcot CAMD-E is significantly earlier than Tamcot SP37. Earliness of CAMD-E is due in part to resistance to seedling disease pathogens, a fast vertical flowering rate with a high percentage of its plants having early blooms (6). Earliness helps evade losses caused by diseases and insects which occur late in the season. The yield potential for CAMD-E is significantly higher than that for Tamcot SP37 and Stoneville 213 respectively. The bolls of CAMD-E are storm resistant and the plant type and fruiting habit are suitable to both machine picking or stripping. CAMD-E is a pubescent type with hair density the same as Tamcot SP37.

The average characteristics for CAMD-E fiber are estimated to be: length 25.4 mm, strength 492.5 MPa, and micronaire 4.36. Average boll weight is 5.4 g seed cotton and lint percent is 40.1.

The Foundation Seed Service of the Texas Agricultural Experiment Station will produce foundation seed which will be sold to producers of registered and certified seed. Application for plant variety protection with title V, which requires that CAMD-E be sold only by cultivar name as a class of certified seed, has been made.

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We are indebted to research associates who participated in developing the germplasm and to numerous individuals who participated in evaluating the cultivar.

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[2] Professor, Texas Agric. Exp. Stn., Dep. of Plant Sciences, College Station, TX 77843.