REGISTRATION OF AG 21 AND AG 22 BACTERIAL LEAF STREAK RESISTANT TRITICALE GERMPLASM LINES

Two triticale (*Triticosecale Wittmack*) germplasm lines, GA 21 (PI 527359; Reg. no. GP-11) and AG 22 (PI 522340; Reg. no. GP-12), resistant to bacterial leaf streak (caused by *Xanthomonas campestris* pv. *translucens*) and developed by the Georgia Agricultural Experiment Station, were released in 1987 as sources of resistance to bacterial leaf streak (1). Bacterial leaf streak or black chaff is a potential threat to triticale production in the southeastern USA.

GA 21 was selected from the cross M2A-'Beagle'/Beagle 82; GA 22 was selected from the cross 'Siskiyou'/Arkansas 2306. M2A-Beagle and Siskiyou are resistant to bacterial leaf streak. Each line was derived from a single F2 plant selected for resistance to bacterial leaf streak. Plants in the F2 generation were evaluated to determine if selected F2 plants were homozygous for the resistant gene (1). The resistant rows were advanced to provide F3 progeny rows and seed for release. Selections for resistant plants were made using a greenhouse screening procedure described by Cunfer and Scolari (2). Plants were rated "resistant" if leaves had only slight watersoaking, i.e., lesions less than 2 to 4 mm. Susceptible plants had lesions that consistently exceeded 4 mm and had considerable bacterial exudate along the water-soaked area. Resistance to bacterial leaf streak is conferred by a single dominant gene which is designated as *Xct* (1). Progeny tests of intercrosses showed that the two lines carry the same gene for resistance. Since GA 21 and GA 22 are agronomically diverse, each line should be useful in a breeding program.

Based on replicated field evaluations, both lines are heterogeneous for height, head type and size, and maturity. Both lines are uniformly resistant to bacterial leaf streak in the southeastern USA (3). GA 21 and GA 22 had grain yields significantly greater than their resistant parents. They are both susceptible to wheat curl mite, *Eriophyes tulipae*, vector of wheat streak mosaic virus. All are susceptible to leaf rust caused by *Puccinia graminis* Pers. f. sp. *tritici* E. Marchal, possess the 'Amigo' resistance to stem rust caused by *Puccinia graminis* DC. f. sp. *tritici* E. Marchal, and are resistant to the greenbug, *Schizaphis graminum* (Rondani). All are resistant to powdery mildew *Erysiphe graminis* DC. f. sp. *tritici* E. Marchal, possess the 'Amigo' resistance to stem rust caused by *Puccinia graminis* Pers. f. sp. *tritici* E. Marchal, and are resistant to the wheat curl mite, *Eriophyes tulipae*, vector of wheat streak mosaic virus. All are susceptible to leaf rust caused by *Puccinia recondita* Rob. ex. Desm. f. sp. *tritici* Erics and to the Russian wheat aphid (*Diuraphis noxia*). Their inherent grain protein content and physical dough properties, determined from a limited number of evaluations, appear to be less than desirable for commercial release.

Resistance to greenbug B and C biotypes was transferred to 'Tam 105', 'Tam W-101', and the experimental wheat TX71A562-6, 'Study' sib/'Improved Triumph'/'Centurk', by crossing them to the greenbug B and C biotype resistant germplasm line 'Amigo' and backcrossing them to Biotpe C resistant progeny. Homozygous Biotpe C resistant progeny of BC1F2 plants were then used as the recurrent parents in crosses and backcrosses to the Biotpe C and E resistant germplasm line 'Largo'. Progeny of these backcrosses were screened for resistance to Biotpe E. The lines registered herein are unselected F2 progeny of BC1F2 plants and are homozygous for resistance to greenbug Biotpe B, C, and E. Although not confirmed cytologically, the resistance of these lines to powdery mildew, stem rust, and Biotpe B greenbug (characteristics possessed by Amigo but not by Largo) is compelling evidence that these lines have the wheat-rye IA/1R translocation from Amigo as well as greenbug Biotpe E resistance derived from Largo. They were developed by the Texas Agricultural Experiment Station at the USDA Conservation and Production Research Laboratory, Bushland, TX, first entered in Texas yield trials in 1985, and in the Southern Regional Performance Nursery (SRPN) in 1987 and 1988.

TXGH10563B, TAM 105*/Amigo*4*/Largo, has brown chaff and is like 'Tam 107' in appearance, plant height, and maturity. Heading dates at different locations in Texas suggest that it is photoperiod insensitive. Yields on the high and rolling plains of Texas and in north and central Texas have equaled or exceeded those of both TAM 105 and TAM 107. It ranked fifth in the 23-location average yield among 43 entries in the 1987 SRPN and second in the 28-location average yield among 45 entries in the 1988 SRPN. Its average volume weight does not differ materially from that of TAM 105.

REGISTRATION OF TXGH10563B, TXGH10989 AND TXGH13622 GREENBUG-RESISTANT WHEAT GERMPLASM LINES

TXGH10563B, TAM 105*/Amigo*4*/Largo, has brown chaff and is like 'Tam 107' in appearance, plant height, and maturity. Heading dates at different locations in Texas suggest that it is photoperiod insensitive. Yields on the high and rolling plains of Texas and in north and central Texas have equaled or exceeded those of both TAM 105 and TAM 107. It ranked fifth in the 23-location average yield among 43 entries in the 1987 SRPN and second in the 28-location average yield among 45 entries in the 1988 SRPN. Its average volume weight does not differ materially from that of TAM 105. It has given variable field reactions to stem rust at different locations, indicating location differences in races of...