REGISTRATION OF CROP GERMPLASMS

REGISTRATION OF GA 21 and GA 22 BACTERIAL LEAF STREAK RESISTANT TRITICALE GERMPLASM LINES

Two triticale (× *Triticosecale* Wittmack) germplasm lines, GA 21 (PI 527339; Reg. no. GP-11) and GA 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 of 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 F3 generation were evaluated to determine if selected F2 plants were homozygous for the resistant gene (1). The resistant rows were advanced to provide F4 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 *Xct1* (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 adult stage in the field. GA 21 and GA 22 are spring-type hexaploid triticales that are more winterhardy than Beagle 82, a commercial cultivar adapted to the southeastern USA (3). GA 21 and GA 22 had grain yields significantly greater than their resistant parents. They are both susceptible to current predominant races of leaf rust (caused by *Puccinia graminis* 'Amigo' resistance to stem rust caused by *P. graminis f. sp. tritici* E. Marchal, possess the same gene for resistance. Since GA 21 and GA 22 are allohexaploid, each line should be useful in a breeding program.

Resistance to greenbug B and C biotypes was transferred to 'TAM 105', 'TAM W-101', and the experimental germplasm line Amigo and backcrossing these lines to the Biotype C and E resistant progeny. Homozygous Biotype C resistant progeny of BC3F3 plants were then used as the recurrent parents in crosses and backcrosses to the Biotype C and E resistant germplasm line 'Largo'. Progeny of these backcrosses were screened for resistance to Biotype E. The lines registered herein are unselected F6 progeny of BC3F2 plants homozygous for resistance to greenbug Biotype E. Although not confirmed cytologically, the resis-