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REGISTRATION OF 'BELAIR' ZOYSIAGRASS

'BELAIR' zoysiagrass (*Zoysia japonica* steud.) (Reg. no. 104) was developed by the USDA-ARS at the Beltsville Agricultural Research Center (BARC), Beltsville, MD. Belair originated as a single plant selection in 1971 from F_2 polycross progeny of a promising vegetative selection from an old turfgrass nursery on the Beltsville Agricultural Research Center. Origin of the original material is unknown, but it is believed to have been introduced from North Korea. Belair was vegetatively increased in 1974 and tested as R52-25. It has been evaluated along with other promising selections and standard cultivars in several laboratory and field tests. These tests show that Belair has desirable turf-forming properties.

Belair is intermediate in growth habit between 'Meyer' and the more open-growing, coarse types of common *Z. japonica*. Established turf is medium coarse in texture, less dense than Meyer and other fine-leafed zoysiagrasses and has a medium dark-green color during the growing season. In field trials planted at Beltsville, MD., and in trials in Illinois and New Jersey, it has been superior to Meyer in rate-of-spread, rust (caused by *Puccinia zoysiae* Diet.) resistance, drought tolerance, fall color retention, and early spring growth. Actively growing plants of Belair are somewhat similar in appearance to the improved turf-type tall fescue (*Festuca arundinacea* Schreb.). It is easier to mow with homeowner rotary-type lawn mowers than other zoysiagrass cultivars and is less prone to thatching.

Belair has performed well at low to moderate fertility levels on various soil types and at mowing heights of 2.5 to 7.5 cm. Growth has been sufficient to establish turf at soil pH levels from 5.4 to 7.0. It is similar to Meyer in area of adaptation. However, it is probably best adapted to the region south of a line from southern New Jersey and Baltimore, MD, and westward to St. Louis, MO and northeastern Kansas.

Belair was released as a vegetatively propagated cultivar by the USDA-ARS in April 1985. It is highly self sterile under conditions tested, but produces a few viable seed. Plants arising from seed are different from Belair. Breeder class sod will be maintained by the USDA-ARS, Germplasm Quality and Enhancement Laboratory, Plant Genetics and Germplasm Institute, BARC, Beltsville, MD 20705.

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References and Notes

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REGISTRATION OF GERMPLASMS

REGISTRATION OF CM 221 SEMIDWARF BUCKWHEAT GERMPLASM

A SEMIDWARF line of buckwheat (*Fagopyrum esculentum* Moench), CM 221 (Reg. no. GP-2), was developed at the Agriculture Canada Research Station, Morden, Manitoba. CM 221 was developed from a single plant semidwarf mutation found in breeding line CD 7464 at Morden. This plant was crossed with a large-seeded line, CM 108, and the normal appearing F_1 was backcrossed to a cutting propagated from the semidwarf mutant. This was followed by three successive generations of sib-mating between the semidwarf progeny. The normal appearing plants in the first generation were discarded. Sib-mating was used as buckwheat has a heteromorphic, sporophytic incompatibility system, which precludes selfing. The progeny were selected for dwarfing, earliness, and a very upright growth habit.

CM 221 has been designated semidwarf in plant habit because it is about 80-cm tall compared with 110 cm for CM 108. This height difference is conditioned by a single recessive gene (unpublished results) that allows ready transfer of the trait to other lines. The reduction in height is due mainly to shortening of the first six internodes of the plant. The average lengths of the first eight internodes on 20 plants of CM 221 were 12, 20, 37, 47, 62, 75, 84, and 80 mm, compared with 65, 87, 109, 101, 102, 94, 89, and 83 mm measured on a similar number of plants of 'Mancan', a commonly grown cultivar. The remaining internodal growth is normal. The resultant semidwarf plant has reduced height and early initiation of branching, especially from cotyledonary axils. This results in a much-branched upright growth habit.

CM 221 has been very resistant to lodging, even under conditions of high soil fertility. It is later in maturity than Mancan by 4 days to 100% bloom and has a seed weight of 24 mg compared to 27 mg in Mancan. Another advantage of the semidwarf plant habit is the almost solid stem in the region of reduced internodes. This greatly reduces any plant breakage due to wind. The plants are also much more resistant to hail damage when compared with normal hollow stemmed plants.

Limited quantities of seed of CM 221 may be obtained from the Agriculture Canada Research Station, P.O. Box 3001, Morden, Manitoba, Canada R0G 1J0.

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References and Notes

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REGISTRATION OF FOUR BACTERIAL BLIGHT RESISTANT-OKRA LEAF COTTON GERMPLASM LINES

FOUR cotton (*Gossypium hirsutum* L.) germplasm lines (Reg. no GP-288 to GP-291) with bacterial blight resistance and okra-leaf traits were released by the USDA-ARS and the Alabama Agricultural Experiment Station in 1986. Bacterial blight resistance reduces angular leaf spot and boll rot [caused

by *Xanthomonas malvacearum* (E. F. Sm) Dows.]. The okra-leaf trait reduces boll rot by opening up the plant canopy and confers resistance to white fly [*Trialeurodes abutilonea* (Haldeman)] (1), and to pink bollworm [*Pectinophora gossypiella* (Saunders)] (4). Okra-leaf plants also mature earlier (1). These germplasm lines should be useful in cotton improvement programs to reduce leaf and boll diseases, and to control insects.

The four germplasm lines were designated Aub Br Ok4 (GP-288), Aub BR Ok5 (GP-289), Aub BR Ok6 (GP-290), and Aub BR Ok7 (GP-291). The lines originated from the cross (Auburn BR1 with B_2B_3 genes × Auburn 56 Okra Leaf) × (Auburn BR1 × 79N with $B_2B_3B_7$ genes). The origin of okra leaf in Auburn 56 Okra Leaf is unknown. The origins of 79N (3) and Auburn BR1 (2) were reported previously. Selections were made for okra leaf and bacterial blight resistance in the F_2 through F_4 generations after plants were inoculated with a mixture of races 1, 2, 6, 7, 10, and 18 of the bacterium in the field. In F_4, self-pollinated seed of 40 to 50 bacterial blight resistant–okra leaf plants of each line were bulked for increase and release. The germplasm lines, along with the check 'Auburn 56', were field tested in 1984.

Lint yield of Aub BR Ok4 was not significantly different than that of Auburn 56, but the other three lines had lower yields. Each of the lines had lower lint percentages [(lint/seed cotton) × 100], fiber elongation (E_1), and micronaire than that of the check. Boll weights of the lines were similar to the check. All of the lines had longer and stronger fiber than the check.

Small amounts of seed of these four lines are available for distribution to cotton breeders, geneticists, and other research workers. Written requests should be addressed to R. L. Shepherd, USDA-ARS, Crop Science Research Laboratory, P.O. Box 5367, Mississippi State, MS 39762-5367.

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REGISTRATION OF EIGHT BACTERIAL BLIGHT RESISTANT COTTON GERMPLASM LINES

EIGHT cotton (*Gossypium hirsutum* L.) germplasm lines (Reg. no GP-292 to GP-299; Table 1) with resistance to bacterial blight [Xanthomonas malvacearum (E. F. Sm) Dows.] were released by the USDA-ARS and the Alabama Agricultural Experiment Station in 1986. Bacterial blight resistance reduces angular leaf spot and boll rot diseases caused by the bacterium. These germplasm lines offer breeders and other research workers the advantages of host plant resistance to bacterial blight in a broad germplasm base. These germplasm lines should be useful in cotton breeding programs to reduce bacterial blight and associated diseases.

The B_2B_3 genes in the Auburn 56 line, which originated from K_4E, provides resistance to bacterial blight races 1, 2, 6, 7, and 10, and the $B_2B_3B_7$ genes in 79N provides resistance to bacterial blight races 1, 2, 6, 7, 10, and 18 (Table 1). The origins of K_4E and 79N were reported previously (1). Selection for resistance was done in each backcross cycle and in the F_2 through F_4 generations after the last backcross by inoculating plants in the field with a mixture of races of the bacterium. In the F_4 after the last backcross, self-pollinated seeds of 40 to 50 resistant plants of each germplasm line were bulked for increase, field testing, and release.

Each germplasm line, along with a 'Stoneville 213' check, was tested in a field in which incidence of bacterial blight disease was insignificant in 1984. All germplasm lines produced yields comparable with that of the check, except Aub BR10 had a lower yield. All germplasm lines had equal or longer fiber, comparable fiber elongation, equal or stronger fiber, generally lower micronaire, and lower lint percentages [(lint/seed cotton) × 100] than that of the check.

Small amounts of seed of these eight lines are available for distribution to cotton breeders, geneticists, and other research workers. Written request should be addressed to R.L. Shepherd, USDA-ARS, Crop Science Research Laboratory, P.O. Box 5367, Mississippi State, MS 39762–5367.

Table 1. Eight bacterial blight resistant lines of cotton.

Germplasm identification	Registration no.	Parentage
Aub BR3	GP-292	'Deltapine 16' × an Auburn 56 line with B_2B_3 genes, then four backcrosses (BC) to Deltapine 16, next crossed to 79N with $B_2B_3B_7$ genes and then four BC to Deltapine 16.
Aub BR4	GP-293	Same as Aub BR3, except BC were to Pee Dee 0109.
Aub BR5	GP-294	Same as Aub BR3, except BC were to 'Dixie King II' and three BC to 79N instead of four.
Aub BR6	GP-295	Same as Aub BR3, except BC were to 'Deltapine 26'.
Aub BR7	GP-296	Same as Aub BR3, except BC were to 'McNair 511'.
Aub BR8	GP-297	Same as Aub BR3, except BC were to 'Coker 310' and three BC to 79N instead of four.
Aub BR9	GP-298	Same as Aub BR3, except BC were to 'Acala SJ-2'.
Aub BR10	GP-299	Same as Aub BR3, except BC were to 'Delcot 277'.

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References and Notes

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