subsequent storage-pile sugar losses due to rot and respiration. Additionally, smoothroot sugarbeets open up the possibility of peeling the beets as an added processing step to reduce the high proportion of impurities localized in the epidermal layers.

SR95 resulted from two successive open-pollination increases of half-sib seed produced on a single mother beet selected for extreme root smoothness from the population that later was released as SR94 (1). That single mother beet had been open-pollinated by seven other beets mass-selected for root smoothness and conical shape. Each of the seven beets stemmed from different complex but related parentages that as a group combined high sucrose germplasms L19 (2), C40 and C51, curly-top-resistant L35cms (2) and LS3 (2), and smoothroot germplasms SP85700-0 (3), SP85131-0, and SP85330-0 from the former USDA-ARS breeding program of G.E. Coe at Beltsville, MD. L19 (PI 590690), C40, C51, and SP85700 (PI 590776) also comprise most of the parentage of SR94, C40 (840040 and 01) and C51 (840051) are high sucrose percentage lines kindly provided by Crystal-Maribo Seeds. L19, L35cms (PI 598040), and L35 (PI 598041) were developed for the intermountain region by the former USDA-ARS breeding program at Logan, UT.

SR95 is diploid, multigermin, and segregates for red (92%) and green (8%) hypocotyl color. SR95 is relatively easy bolting, and male-sterile plants are largely self-sterile with significant pseudo-self-sterility of individual plants. Male-sterility exceeds 30%, and is thought to be nuclear-cytoplasmic and derived from L19. SR95 has been tested under the East Lansing seed number 96HS20-7. Sucrose concentrations were 108, 106, 96, and 91% of that of SR87, SR93, SR94, and SR106, 96, and 91% of those of SR87, SR94, and SR93. SR95 had a moderately resistant disease index (average for three dates) for SR95 at Ft. Collins, CO, in 1997 was 4.83 compared with 7.4, 7.6, and 7.8 for the resistant line EL50, SR94, and the susceptible check, respectively, on a scale of 0 to 10 (LSD0.05 = 0.9). In the 1997, Betsased root rot evaluation at Shakopee, MN, which largely measures response to Aphanomyces cocoides Drechs., SR95 had a moderately resistant stand rating (3.1 compared with 3.7, 4.5, and 5.7 for the resistant Michigan hybrid check, SR94, and the susceptible Canadian hybrid check, respectively, on a scale of 1 to 9; LSD 0.05 = 1.17).

SR95 provides an additional source for developing smoothroot breeding lines or cultivars. Seed will be maintained by USDA-ARS and may be obtained by writing to Dr. J. Mitchell McGrath, USDA-ARS, Crop and Soil Science Department, Michigan State University, East Lansing, MI 48824-1325. Seed of this release has been deposited in the National Plant Germplasm System where it is available for research purposes, including development and commercialization of new cultivars.

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References and Notes


4. J.W. Saunders, J.M. McGrath, and J.C. Theurer, USDA-ARS, Sugarbeet and Bean Research Unit. Dep. of Crop and Soil Sciences, and J.M. Halloon, USDA-ARS, Sugarbeet and Bean Research Unit, Dep. of Botany and Plant Pathology, Michigan State Univ., East Lansing, MI 48824. Cooperative investigations by the USDA-ARS, the Michigan Agricultural Experiment Station, and the Beet Sugar Development Foundation. Registration by CSSA. The technical assistance of Rick Kitchen and Peter Hudy is gratefully acknowledged. Registration by CSA. Accepted 31 Jan. 2000. *Corresponding author (saunderl@msu.edu).

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Registration of AR91004 Winter Rapeseed Germplasm

AR91004 (Reg. no. GP-7, PI 610258) winter rapeseed [Brassica napus L. subsp. oleifera (Metzg.) Sinzig. L. biennis] was developed as a canola-quality germplasm line by the Arkansas Agricultural Experiment Station and released in 1999. This line was released for its adaptation and yield potential in the southeastern and midwestern USA. AR91004 was derived from a single plant selection in the F2 generation from the cross ‘Cobra’ x ‘Glacier’. Cobra is a German cultivar and Glacier is a Swedish cultivar. The cross was made by personnel of Jacob Hartz Seed Co. (a unit of The Monsanto Company, St. Louis, MO) and was among 70000 segregating families donated by the company to the University of Arkansas. The single plant selection was advanced by open-pollination in the vicinity of sister lines at Kibler, AR, in an unplicated yield trial; seed has been maintained in a large block since that time. The resulting line was tested in replicated yield trials in 1997 and 1998 at two locations in Arkansas. AR91004 yielded 2108 kg ha-1, similar to check cultivars Falcon, Jetton, and Ceres, which averaged 2108, 1866, 2412, and 2225 kg ha-1, respectively. AR91004 was also evaluated in the 1997-98 National Canola Variety Trial coordinated by Kansas State University (1). The 1997-98 National Canola Variety Trial reported data from 21 locations; seven from the Southeast region, seven from the Midwest region, and seven from the Great Plains region. Of the 24 entries, AR91004 had the highest mean yield (2306 kg ha-1) across the Midwest locations and the highest fourth yield (1674 kg ha-1) across all locations.

AR91004 has excellent winter hardiness. In the National Canola Variety Trial, AR91004 averaged 84.7% winter survival, compared with 72.7% for Jetton and 81.9% for Ceres in the 12 locations reporting winter damage. The winter survival of AR91004 is similar to KS3579 (average 85.5%), which was released in 1996 for its superior winter hardness (2). AR91004 is approximately 132 cm tall, 23 cm taller than Jetton, but this greater height did not affect the lodging ratings, which was 12% for both genotypes. AR91004 flowered 2 d later (101 d after 1 January), matured 2 d later (155 d after 1 January) and had 0.5% higher harvest moisture compared with Jetton. AR91004 has slightly higher test weight than Jetton (625 vs. 615 kg m-1) and slightly less resistance to shattering than Jetton (8.3 vs. 3.3%). AR91004 has good resistance to blackleg [caused by Leptosphaeria maculans (Desm.) Ces. & De Not.], with the same percent infection rating as Jetton (7%) and slightly less than Ceres (10%).

Across 22 locations in the National Canola Variety Trial, total oil content of AR91004 was 376 g kg-1, compared to 375 g kg-1 for Jetton. Analyses performed in 1998 by the Oil Quality and Research Lab, University of Georgia, Griffin.