Registration of EL50 Monogerm Sugarbeet Germplasm with Resistance to Cercospora Leaf Spot and Aphanomyces Blackroot

Sugarbeet (Beta vulgaris L.) germplasm EL50 (Reg. no. GP-203, PI 598073) was developed by the USDA-ARS and the Michigan Agricultural Experiment Station, in cooperation with the Beet Sugar Development Foundation, and released in July 1994. EL50 was released because it has extremely high resistance to cercospora leaf spot (caused by Cercospora beticola Sacc.) and moderately good resistance to blackroot seedling disease and root rot (caused by Aphanomyces cochlioides Drec.). Two of the most destructive sugarbeet diseases in the United States.

EL50 was derived from the pair cross of in vitro shoot culture vegetative propagules of two monogerm beets (L403-2 and L828-2) selected on the basis of progeny performance for high sugar yield per hectare and cercospora leaf spot resistance. It was selected from a heterogeneous monogerm population developed in the 1970s entirely from traditional East Lansing and Beltsville USDA germplasm as part of the rhizoctonia resistance breeding program. Beginning with the F2 generation, two cycles of phenotypic recurrent selection of individual beets were made to enhance cercospora leaf spot resistance. Fifty-eight beets were interpollinated to produce the line WC86403, which after 3 yr of evaluation in the East Lansing cercospora nursery was released as EL50.

EL50 is diploid, monogerm, highly self-sterile and segregates for red and green hypocotyl. It is not a Type-O line. Sucrose concentration of EL50 was 98% of that of the commercial hybrid AG-2-2) disease index for EL50 at the USDA-ARS East Lansing cercospora nursery was released as EL50. EL50 provides a germplasm source for the development of monogerm parental lines and populations with resistance to cercospora leaf spot and blackroot diseases. Breeder seed will be made available from USDA-ARS and will be provided in quantities adequate for reproduction. Written requests should be addressed to J. Mitch McGrath, USDA-ARS, Sugarbeet and Bean Research Unit, Dep. of Crop and Soil Sciences, Michigan State University, East Lansing, MI 48824. We ask that appropriate recognition be given if this germplasm contributes to genetic research or the development of a new breeding line or cultivar.

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References and Notes


The technical assistance of Robert Simms and Rick Kitchen is acknowledged.

Published in Crop Sci. 39:883 (1999).