Registration of C762-17, a Parental Line of Sugarbeet

Sugarbeet (Beta vulgaris L.) parental line C762-17 (Reg. no. PL-33, PI 560130) was developed by the USDA-ARS. This line was released in 1989 for potential use as a parent in hybrids. A cytoplasmic male-sterile (CMS) equivalent has been developed and is available. C762-17 is a monogerm (mm), O-type, green hypocotyl (rr), self-fertile (S) line that will segregate at a low frequency for genetic male sterility (A-.aa). It has high resistance to curly top virus and high combining ability. From the original set of greenhouse crosses among plants of [S, (population-755aa/C546)]aa/C718, four to six individual S lines within each F, were crossed by a common multigerm tester to produce experimental three-way hybrids. Either a nested design of hybrids within and across S lines or a composite of hybrids within an F, line was used to test hybrid performance for gross sugar yield in trials at Salinas and Brawley, CA. Based upon the best mean three-way hybrid performance among the F, lines, the 0-type (CMS rating) of the F, CMS hybrids, and curly top reaction of the F, lines from greenhouse tests, three F, lines were selected for further evaluation. With the aid of genetic male-sterile segregates within the S, increases of these three lines, topcross hybrids were made. These single-cross hybrids were evaluated at Salinas under nondiseased and diseased (virus yellows and powdery mildew) conditions and at Brawley, under lettuce infectious yellows conditions. Based on these trials, the line that was released as C762-17 was selected, increased, backcrossed to produce a CMS near-equivalent, and retested in variety and disease nursery trials. The performance of this line in experimental hybrids and disease nurseries suggests that hybrid performance and reaction to disease can be identified very early.

Breeder seed is maintained by the USDA-ARS and will be provided to sugarbeet breeders in quantities adequate for reproduction.

REFERENCES AND NOTES


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Registration of C790-6, C790-15, and C790-54 Parental Lines of Sugarbeet

Sugarbeet (Beta vulgaris L.) parental lines C790-6, C790-15, and C790-54 (Reg. no. PL-34, PI 564757, PI 564758, and PI 564759) were developed by the USDA-ARS in cooperation with the Beet Sugar Development Foundation and the California Beet Growers Association. These lines and their cytoplasmic male-sterile (CMS) equivalents were released in 1992 for potential use as parents in hybrids. These lines are known to combine well with multigerm testers and have adaptation throughout California. C790-6, C790-15, and C790-54 are monogerm (mm), O-type, and self-fertile (S), and they segregate for genetic male sterility (aa). C790-54 is homoyzogenic for red hypocotyl (RR) color. C790-6 and C790-15 segregate for hypocotyl color. All have fair to moderate resistance to bolting, curly top virus, and the virus yellow complex (best yellows and best western yellow virus complex). C790-15 has high resistance and C790-6 and