REGISTRATION OF FC 708 AND FC 708 CMS
SUGAR BEET GERMPLASM (Reg. Nos. GP63 and GP64)

R. J. Hecker and E. G. Ruppel

'Sugar beet' (Beta vulgaris L.) breeding lines FC 708 and its cytoplasmic male-sterile (CMS) equivalent, FC 708 CMS, were developed and released by ARS-USDA, in cooperation with the Beet Sugar Development Foundation and the Colorado State University Experiment Station.

FC 708 (Reg. No. GP63) is the pollen-fertile maintainer line (Type 0) of FC 708 CMS. FC 708 is monogerm, self-fertile, highly resistant to root rot caused by Rhizoctonia solani Kuhn, and moderately resistant to leaf spot caused by Cercospora beticola Sacc. It originated from hybridization of a pool of monogerm Type 0 leaf spot and curly top resistant lines with FC 701 (GP No. 1), a multigerm rhizoctonia resistant breeding line. FC 708 resulted from two cycles of mass selection for rhizoctonia root-rot resistance in the segregating generations, followed by one cycle of recurrent selection for resistance from which 80 S1's of eight superior maternal plants were recombinated, followed by selection of monogerm and Type 0 segregations which were mass selected for root-rot resistance for two more cycles.

FC 708 CMS (Reg. No. GP64) is the CMS BC3 equivalent of FC 708. The nonrecurrent parent was a heterogeneous CMS line resistant to cercospora leaf spot and the curly top virus.

FC 708 and FC 708 CMS are moderately bolting resistant, have low vigor, and have a tendency toward above ground root growth. These are the first monogerm CMS and Type 0 germplasms to be developed which have resistance to rhizoctonia root rot. In inoculated field trials in 2 years, FC 708 and FC 708 CMS have exhibited high resistance to a virulent root-rotting strain of R. solani. These resistant germplasms averaged 51% symptomless roots and 91% harvestable roots compared to commercial varieties with 4% and 15%, respectively. The general combining ability of FC 708 CMS has not been well investigated. These germplasms are intended primarily for breeders as root-rot resistant monogerm Type 0 and CMS source parents for back crossing or as a source of genes for rhizoctonia resistance. These germplasms have no potential for direct use by sugar beet growers.

Breeder seed is maintained by ARS-USDA, and is provided to sugar beet breeders in quantities adequate for reproduction upon written request. Requests for seed should be made to Sugar Beet Research, ARS-USDA, Crops Research Laboratory, Colorado State Univ., Fort Collins, CO 80523.


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REGISTRATION OF L-35
COMMON WHEAT GERMPLASM (Reg. No. GP 156)

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'Soft red winter wheat, Triticum aestivum L., cultivar L-35' is a allotetraploid (2n = 4x = 42), moderately bolting resistant, 15% leaf spot resistant, 15% stem rust resistant, and moderately resistant to common diseases of soft red winter wheat. L-35 was released in 1976 by the University of Kentucky and ARS-SEA-USDA. L-35 resembles T.1.1122 more than Sp G-33 when cross pollinated with Sp G-33, has a significantly shorter flowering time, and has fewer leaves than Sp G-33. L-35 has a grade index of about one-half, produced about one-half as much as the checks, had a significantly lower grain yield, and produced fewer leaves than Sp G-33. L-35 also has a significantly lower grain yield than Sp G-33. L-35 is recommended for use as a parent in the production of combine-harvested soft red winter wheat cultivars.