Registration of Annual O-Type and CMS Sugarbeet Germplasm Lines FC404 and FC404CMS

Sugarbeet (Beta vulgaris L.) germplasm lines FC404 (Reg. no. GP-164, PI 584987) and FC404CMS (Reg. no. GP-165, PI 584988) were developed by the USDA-ARS, Fort Collins, CO, in cooperation with the Beet Sugar Development Foundation, Denver, CO, and released in 1991. These germplasms were released to provide a monogerm annual O-type maintainer and cytoplasmic-genetic male sterile (CMS) equivalent pair. They may be useful to expedite generation advancement of specific hybridizations, in genetic studies, for other research purposes, and for O-type testing.

FC404 is the O-type maintainer for FC404CMS. It is a monogerm (mm) easy-bolting annual (B−), with green hypocotyledons (rr) and self-fertile (Sf = 0.97). FC404 was developed from the cross SLC 03(rr) x FC606(R−) (1), followed by four cycles of mass selection for monogerm annual plants. SLC 03 is a multigerm (MM) easy-bolting annual (BB), with green hypocotyledons (rr); it is self-fertile (SfSf) and highly inbred (Sf1). FC404 bolts and flowers as readily as its annual parent (SLC 03) in the field and in the greenhouse at Fort Collins. Some plants within FC404 are probably heterozygous at the B locus. After four cycles of selection, the recessive allele, b, would be expected to have a frequency of about 0.06 within the line. When planted on 23 May in the field at Fort Collins, 82% of FC404 and 95% of FC404CMS bolted. An increase (= reselection for annualism) of FC404 and its CMS was begun in 1983 with 35 red clover plants that had survived 3 yr of screening for resistance to peanut stunt (PSV) and bean yellow mosaic virus (BYMV) strains 204-1 and RC (1), and four cycles of selection for resistance to powdery mildew (caused by Erysiphe polygoni DC. emend. Salm.)

Field plot testing in broadcast sown plots began at one locations comparing 19-L38-1472 with the cultivars Kenland and Kenstar. Results over a 3-yr period indicated no superiority in yield and persistence compared with check cultivars (3,4). However, the germplasm possesses a unique combination of genes that may be useful for further breeding efforts, particularly if PSV and BYMV become more of a factor in the future or at other locations. Up to 10 g of seeds of 19-L38-1472 may be obtained from the corresponding author.

References and Notes
2. USDA-ARS, Crops Research Lab., 1701 Center Ave., Fort Collins, CO 80526-2081. A joint contribution of USDA-ARS and the Beet Sugar Development Foundation. Registration by CSSA. A. V. Shibles is the corresponding author (Email: lpmiller@larimar.colostate.edu).

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Registration of 19-L38-1472, a Powdery Mildew and Virus Resistant Red Clover Germplasm

19-L38-1472 red clover (Trifolium pratense L.) germplasm (Reg. no. GP-22, PI 586963) was released by the Kentucky Agriculture Experiment Station in 1995. It was the result of five cycles of phenotypic recurrent selection for resistance to peanut stunt (PSV) and bean yellow mosaic virus (BYMV) strains 204-1 and RC (1), and four cycles of selection for resistance to powdery mildew (caused by Erysiphe polygoni DC. emend. Salm.)

Selection was begun in 1983 with 35 red clover plants that had survived 3 yr of screening for BYMV and PSV resistance (1). Seeds from crosses of these plants were sown in a greenhouse and established on 1-m centers in a field in 1984 with 'Williams' soybean [Glycine max (L.) Merr.] sown in a 6.1-m width around the experiment. Soybean plants artificially inoculated with the RC strain of BYMV were transplanted between ranges to provide a source of inoculum. In 1985, 144 plants with no obvious virus symptoms were dug and transplanted to cages for seed increase. No strains of BYMV were transplanted between ranges to provide a source of inoculum. In 1985, 144 plants with no obvious virus symptoms were dug and transplanted to cages for seed increase. No strains of BYMV were transplanted between ranges to provide a source of inoculum. In 1985, 144 plants with no obvious virus symptoms were dug and transplanted to cages for seed increase. No strains of BYMV were transplanted between ranges to provide a source of inoculum. In 1985, 144 plants with no obvious virus symptoms were dug and transplanted to cages for seed increase.