REGISTRATION OF TETRAPLOID CERCOSPORA RESISTANT SUGARBEET GERMPLASMS

Four germplasm lines of sugarbeet (Beta vulgaris L.) (Reg. no. GP-98 to GP-101) were released in 1985 by USDA-ARS in cooperation with the Beet Sugar Development Foundation, and the Colorado Agricultural Experiment Station. These germplasms combine high resistance to cercospora leaf spot (incited by Cercospora beticola Sacc.), with moderate resistance to curly top virus.

FC 606 (4x) (GP-98) and FC 607 (4x) (GP-99) are the C3 colchicine-induced autotetraploids (2N = 4x = 36) of FC 606 (1) and FC 607 (2), and have not been subjected to additional selection. FC 606 CMS (4x) (GP-100) and FC 607 CMS (4x) (GP-101) are the cytoplasmic male-sterile equivalents of FC 606 (4x) and FC 607 (4x), respectively, and are also in the C3 generation following colchicine induction. These lines are monogerm. FC 606 (4x) and FC 607 (4x) are pollen-fertile nonrestorer (maintainer) lines (O-types) of FC 606 CMS (4x) and FC 607 CMS (4x), respectively.

In 3 yrs of field testing under artificially-induced epiphytotics, FC 606 (4x) had mean disease ratings for cercospora leaf spot of 3.9 compared with 3.3 and 6.3 for the resistant parents FC 606 CMS (4x) and FC 607 CMS (4x) and susceptible parents, respectively. FC 606 CMS (4x) and FC 607 CMS (4x) should be useful for R line selection to the A1 cytoplasm system. Breeders' quantities (50, 100, or 200 g) of seed composited from either the fertile or male-sterile panicles may be obtained from the Committee for Agricultural Development, 112 Agronomy Building, Iowa State University, Ames, IA 50011.

R. E. ATKINS (2)

References and Notes


REGISTRATION OF NY6432-18 AND NY6708-18 WHEAT GERMPLASM LINES

NY6432-18 (Reg. no. GP-268) and NY6708-18 (Reg. no. GP-269) are two soft white wheat (Triticum aestivum L.) lines possessing resistance to preharvest sprouting, developed and released by the Cornell Agricultural Experiment Station. The parentage of NY6432-18 (PI 610853)*7/3/ 'Heines VII'// P5752cl-7 ('Arthur' sib) ‘Talbot’ is ‘Heines VII’// P5752cl-7 ('Arthur' sib) ‘Talbot’. The parentage of NY6708-18 (PI 499283) is ‘Redcoat’/5/ 'Yorkwin'/4/ ‘Norin 10’/4/ ‘Arthur’. The parentage of NY6708-18 (Reg. no. GP-269) was ‘Houser’ and ‘Fredrick’. Spikes of both NY6432-18 and NY6708-18 sustain substantially less sprouting damage than check cultivars ‘Houser’ and ‘Fredrick’. The only red wheat genotype in the pedigree of NY6432-18 is ‘Heines VII’ and it was highly resistant to sprouting. Although there are other red wheat lines in the pedigree of NY6432-18, the presence of ‘Heines VII’ in the pedigree of NY6432-18 is highly significant (P<0.01). Single degree of freedom contrasts estimating the difference in sprouting scores of resistant genotypes vs. the susceptible checks, respectively (0 = no symptoms and 10 = complete defoliation). FC 607 (4x) averaged 3.4 for the resistance source. In order to locate the original source of the resistance to preharvest sprouting, all parents in the NY6432-18 pedigree were tested.

NY6432-18 and NY6708-18 (PI 499283) are ‘Redcoat’/5/ 'Yorkwin'/4/ ‘Norin 10’/4/ ‘Arthur’ and ‘Houser’ and ‘Fredrick’, respectively. Spikes of both NY6432-18 and NY6708-18 were rated for extent of sprouting (1) after 6 days in a rainfall simulator. Mean effects of year were highly significant (P<0.01) as was the interaction between year and location; although the location effect was not significant. No other interactions were significant (P<0.05). Single degree of freedom contrasts estimating the difference in sprouting scores of resistant and susceptible checks, ‘Houser’ and ‘Fredrick’, were significant for both NY6432-18 and NY6708-18 in each year and at each location. Mean sprouting scores ranged from 2.06 ± 0.48 to 3.65 ± 0.17 units (scores 1 to 11) lower for NY6708-18 than the mean of the checks.

In order to locate the original source of the resistance to preharvest sprouting, all parents in the NY6432-18 pedigree were tested.

R. E. ATKINS (2)

References and Notes

3. G. A. SMITH and E. G. RUPPEL (3)

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NY6432-18 and NY6708-18 (PI 499283) are ‘Redcoat’/5/ 'Yorkwin'/4/ ‘Norin 10’/4/ ‘Arthur’ and ‘Houser’ and ‘Fredrick’, respectively. Spikes of both NY6432-18 and NY6708-18 were rated for extent of sprouting (1) after 6 days in a rainfall simulator. Mean effects of year were highly significant (P<0.01) as was the interaction between year and location; although the location effect was not significant. No other interactions were significant (P<0.05). Single degree of freedom contrasts estimating the difference in sprouting scores of resistant and susceptible checks, ‘Houser’ and ‘Fredrick’, were significant for both NY6432-18 and NY6708-18 in each year and at each location. Mean sprouting scores ranged from 2.06 ± 0.48 to 3.65 ± 0.17 units (scores 1 to 11) lower for NY6708-18 than the mean of the checks.

In order to locate the original source of the resistance to preharvest sprouting, all parents in the NY6432-18 pedigree were tested.