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REGISTRATION OF GERMPLASMS

REGISTRATION OF A76-18 ALFALFA GERMPLASM WITH RESISTANCE TO PHYTOPHTHORA ROOT ROT

A76-18 (Reg. no. GP-195) (PI 506239), a nondormant germplasm, which has resistance to Phytophthora root rot (caused by *Phytophthora megasperma* Drechs. f. sp. *medicaginis* Kuan and Erwin) (Pmm), was developed by the University of California Agricultural Experiment Station, and released 8 Nov. 1985 by the Germplasm Committee, Department of Agronomy and Range Science, University of California, Davis, CA. A76-18 was derived from 34 plants selected from the following: 'Arabian' (1) (21 plants), 'Lahontan', (six plants), 'Hilmar' (three plants), UC56, (one plant), UC60 (one plant), and 'UC Cargo' (two plants), all of which showed resistance to Pmm in greenhouse inoculation tests. The population was subjected to five cycles of recurrent phenotypic selection for resistance to Phytophthora root rot. Approximately 200 plants were used to initiate each cycle. The initial plants were interpollinated by hand. Leafcutter bees [*Megachile rotundata* (Fab)] were used for pollination of plants in subsequent cycles.

In a greenhouse test in which infested soil was kept flooded for 3 days of each week, the percentage of A76-18 plants with a disease index (DI) (0=no disease, 5=100% of root affected) of 0 was 40 and for the combined DI of 0 and 1 was 64. In comparison, susceptible 'Moapa 69' had 0% plants with DI of 0 and only 1% in the combined 0 and 1 categories. Lahontan, which is moderately resistant, had 27% plants with DI=0 and 19% with DI=1. In a field evaluation, A76-18 showed a DI of 2.5 compared to 3.0 for the resistant 'Agate' and 4.7 for the susceptible 'Saranac' (2). A76-18 was susceptible to bacterial wilt (2).

Five grams of seed will be distributed upon written request and agreement to make appropriate recognition of its source when this germplasm contributes to the development of a new cultivar, hybrid, or germplasm. Requests should be sent to D.C. Erwin, Department of Plant Pathology, University of California, Riverside, CA 92521.

D. C. ERWIN, R. A. KHAN, J. S. BAUMER, AND W. F. LEHMAN (3)

References and Notes

1. Arabian plants were from seed supplied by E.H. Stanford, Univ. of California, Davis, CA 95616.
2. Evaluation by D.K. Barnes and F. Frosheiser, Univ. of Minnesota, St. Paul, MN.
3. Plant pathologist and staff research associate, Dep. of Plant Pathology, Univ. of California, Riverside, CA 92521; plant pathologist (formerly with above address, now Land O'Lakes, Inc., Webster City, IA 50595) and agronomist, Dep. of Agronomy and Range Science, Imperial Valley Res. Ctr., El Centro, CA 92243. Registration by the Crop Sci. Soc. of Am. Accepted 30 Jan. 1987.

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REGISTRATION OF UC129 ALFALFA GERMPLASM WITH MODERATE RESISTANCE TO STAGONOSPORA LEAF SPOT AND ROOT ROT

UC129 (Reg. no. GP-196) (PI 506240), a nondormant germplasm, which has moderate resistance to Stagonospora root rot and leaf spot [caused by *Stagnospora meliloti* (Lasch.) Petri] (1) was developed by the University of California Agricultural Experiment Station and released 8 Nov. 1985 by the Germplasm Committee, Department of Agronomy and Range Science, University of California, Davis, CA. UC129 was derived from 77 resistant plants selected from: UCPX 1971 (31 plants), 'Moapa 69' (seven plants), 'Hayden' (18 plants), 'Mesa Sirsa' (17 plants), and 'CUF101' (four plants). The population was subjected to three cycles of recurrent phenotypic selection for resistance to the disease. Approximately 100 plants were used to initiate each cycle. The initial plants were interpollinated in a cage by honeybees (*Apis mellifera* L.) in the field. Subsequent cycles were interpollinated by leafcutter bees [*Megachile rotundata* (Fab.)] in a glasshouse.

Root rot resistance was evaluated after wound-inoculated (upper tap roots) plants had been incubated 6 to 8 weeks in a greenhouse (21°C night and maximum 27°C day). Leaf spot was evaluated 7 to 10 days after leaves, sprayed with a suspension of pycnidiospores amended with agar as a sticker (0.015%), had been in a mist chamber of 72 h. Root disease index (DI) (0 = no disease, 5 = 100% of root affected) was always lowest on UC129, for instance UC129 = 2.0, Hayden = 2.7, CUF101 = 2.9, and Moapa 69 = 3.1. The percentages of plants with DI = 0 to 2 were: UC129 88, Hayden 38, CUF101 15, and Moapa 69 5. The percentage of plants with < 20% of the leaf area affected was: UC129 93, Hayden 69, and CUF101 29.

Two grams of UC129 seed will be available to each applicant upon written request and agreement to make appropriate recognition of its source when this germplasm contributes to the development of a new cultivar, hybrid, or germplasm. Requests should be sent to D.C. Erwin, Department of Plant Pathology, University of California, Riverside, CA 92521.

D. C. ERWIN, R. A. KHAN, AND W. F. LEHMAN (2)

References and Notes

1. Erwin, D.C., R.A. Khan, O.K. Ribeiro, and W.F. Lehman. 1987. Growth, sporulation and pathogenicity of *Stagonospora meliloti* and selection for resistance to crown rot and leaf spot in alfalfa. Plant Dis. 71:181–185.
2. Plant pathologist, staff research associate, Dep. of Plant Pathology, Univ. of California, Riverside, CA and agronomist, Dep. of Agronomy and Range Science, Imperial Valley Res. Ctr., El Centro, CA 95616. Registration by the Crop Sci. Soc. of Am. Accepted 30 Jan. 1987.

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REGISTRATION OF THREE COTTON GERMPLASM LINES

THREE germplasm lines of cotton (*Gossypium hirsutum* L.), WC-10NL (Reg. no. GP-305) (PI 506414), WC-11NSSL (Reg. no. GP-306) (PI 506415), and WC-12NL (Reg. no. GP-307) (PI 506416) were released by USDA-ARS and the Arizona Agricultural Experiment Station in 1986. These three lines

combine nectariless (N), 2(ne_1,ne_2), and okra leaf (L), 2(L^{o}_2), traits in genetic backgrounds that have high yield potentials and adequate fiber properties. One of the three lines also carries semi-smoothleaf (SS), 2(sm_3). The N and L traits impart resistance to pink bollworm (PBW) [*Pectinophora gossypiella* (Saunders)], in cotton and the SS trait reduces the amount of trash in mechanically harvested seed cotton and improves lint grade.

The pollen parent used to develop the three lines was La-Okra-2, developed by J.E. Jones, Louisiana Agricultural Experiment Station. The female parents of WC-10NL, WC-11NSSL, and WC-12NL were DES 24N, DES 24NSS, and DES 56N, respectively, developed by W.R. Meredith, Jr., USDA-ARS, Stoneville, MS. The recurrent female parents were 'DES 24' and 'DES 56', developed by R.R. Bridge, Mississippi Agricultural Experiment Station (1, 2).

The three lines were derived from crosses of the respective female parent with La-Okra-2 in 1979, followed by five backcrosses to the female parent and selection for the NL or NSSL phenotypes in F_2 through BC_5F_2 generations. The lines were BC_5F_4 in 1986.

Mean seed damage caused by PBW during the test period of 1983, 1984, and 1985 was significantly lower in the NL and NSSL lines than in the parental cultivars, DES 24 and DES 56, and also lower than in the susceptible nectaried check cultivar, 'Deltapine 61'. Seed damage was significantly lower in WC-11NSSL and WC-12NL than in the N equivalents, DES 24NSS and DES 56N, and also significantly lower than in the N check cultivar, 'Deltapine NSL' [SL=SS= semi-smoothleaf]. However, WC-10NL did not have significantly less seed damage than DES 24N or Deltapine NSL.

Mean lint yields of WC-10NL and WC-12NL over the 3 yr, from plots not protected by insecticides, were not significantly different from yields of the parental or check cultivars. However, lint yield of WC-11NSSL was significantly lower than yields of all the parental and check cultivars except DES 24. With the exception of WC-12NL, fiber properties were comparable in the germplasm lines to those in the parental cultivars. WC-12NL had slightly shorter, weaker, and coarser fiber than did DES 56.

Seed (25 g) of these germplasm lines may be obtained from USDA-ARS, Western Cotton Research Laboratory, 4135 E. Broadway Rd., Phoenix, AZ 85040.

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References and Notes

1. Bridge, R.R., and J.F. Chism. 1978. Registration of DES 24 cotton. Crop Sci. 18:523.
2. ----, and ----. 1978. Registration of DES 56 cotton. Crop Sci. 18:524.
3. Research geneticist, USDA-ARS, Western Cotton Res. Lab., Phoenix, AZ 85040. Cooperative investigations of the USDA-ARS and the Arizona Agric. Exp. Stn. Registration by the Crop Sci. Soc. of Am. Accepted 28 Feb. 1987.

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REGISTRATION OF LOW NEUROTOXIN CONTENT LATHYRUS GERMPLASM LS 8246

A LINE of grass pea (*Lathyrus sativus* L.), LS 8246 (Reg. no. GP-70) (PI 506418) low in the neurotoxin Beta-N-oxalyl-L-alpha-beta-diamino propionic acid (ODAP) was developed and released in January 1987 at the Agriculture Canada Research Station, Morden, Manitoba. LS 8246 was developed from Pusa-24, a line selected in India for low ODAP concentration.

The compound ODAP, a free amino acid, has been identified as a causal agent for Lathyrism, a neurodegenerative disorder precipitated by excessive consumption of grass pea. The disorder presently affects poor people in certain regions of Bangladesh, Ethiopia, and north-central India where ODAP concentrations of 1 to 1.5% are commonly found.

In 1982, 64 single seed selections from Pusa-24 were grown in the greenhouse at Morden. Seed from each plant was grown in separate rows in the field in 1982 and single plants were selected. These plants were analyzed for ODAP concentration with the method outlined by Briggs et al. (1). One plant was identified as having very low ODAP concentrations. Seed from this plant was increased in the field in 1983 and again in the greenhouse in 1984. In 1985, 140 plants were reselected in the greenhouse on the basis of seed size, seed color, and seed set. These plants were bulked to form LS 8246.

Seed from the single plant selected in 1982, from the increase in 1983 and from the bulked seed in 1985 were analyzed for ODAP concentration. Concentrations of 329, 259, and 401 μg/g seed were found, respectively. This compares with a concentration of 2615 μg/g found in seed of Pusa-24 grown in 1982. The variation in ODAP concentration between years was expected, as it has been shown to be influenced by environment.

Samples containing 100 seeds of LS 8246 may be obtained from the Agriculture Canada Research Station, P.O. Box 3001, Morden, Manitoba, Canada R0G 1J0.

C. G. CAMPBELL AND C. J. BRIGGS (2)

References and Notes

1. Briggs, C.J., N. Parreno, and C.G. Campbell. 1983. Phytochemical assessment of *Lathyrus* species for the neurotoxic agent -N-oxalyl-L- -diaminopropionic acid. Planta Medica 47:188–190.
2. Research scientist, Agric. Canada Res. Stn., Morden, Manitoba, R0G 1J0, and professor, Dep. of Pharmacy, Univ. of Manitoba, Winnipeg, Manitoba, R3T 2N2. Registration by the Crop Sci. Soc. of Am. Accepted 28 Feb. 1987.

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REGISTRATION OF M6388, M6411, M6415, AND M6421 SWEET CORN GERMPLASM LINES WITH HIGH-SUGAR ENDOSPERM GENOTYPE

SWEET CORN (*Zea mays* L.) germplasm lines M6388, M6411, M6415, and M6421 (Reg. no. GP-152 to GP-155) (PI 506410 to PI 506413) were released by the USDA-ARS in October 1983. The lines were developed with the high-sugar endosperm genotype commonly referred to as *ae du wx* or ADX(2). The combined effects of the recessive allele for genes amylose extender (*ae*), dull (*du*), and waxy (*wx*) are responsible for the high sugar content of the kernels at edible maturity (18–22 days post-pollination) (1). The lines carry the normal allele at the sugary (*su*) locus.

Plants of the four germplasm lines are similar to standard sweet corn inbred lines for most plant and ear characteristics. They are similar to other high-sugar genotypes in that they have lower seed quality and seedling vigor than normal starchy or standard sweet (*su*) types. The lines being released underwent five to seven generations of ear-to-row selection during the inbreeding phase of their development for improved germinability and seedling vigor relative to that generally manifested by the *ae du wx* genotype. Seed of these lines that was produced and germinated under normal field