Registration of Germplasms

REGISTRATION OF A77-10B ALFALFA
GERMPLASM
(Reg. No. GP 118)

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The alfalfa (*Medicago sativa* L.) germplasm line A77-10B was developed by the University of California Agricultural Experiment Station and released in February 1982.

A77-10B is a synthetic derived from intercrossing 22 plants from the cultivar 'Arabian' and three plants from the cultivar 'Lahontan' which had been selected for resistance to Phytophthora root rot caused by *Phytophthora megasperma* Drechs. *f. sp. medicaginis* Kuan and Erwin (Pmm.) The original 25 plants were randomly handcrossed in the greenhouse. Three-week-old plants from these seeds were tested for resistance to Pmm. At least 10 cycles of phenotypic recurrent selection were completed for this germplasm. Plants selected for resistance in each cycle were crossed by leaf cutter bees, *Megachile rotundata* (F.), in the greenhouse.

The average root index (0 to 5) was 2.0 and the percentage in the resistant class (0 to 2) was 77% for the resistant A77-10B, 2.6 and 51% for the moderately resistant cultivar Lahontan and 4.2 and 7% for susceptible 'Moapa'. In a trial at the University of Minnesota, the average severity indexes for A77-10B, 'Agate' & Lahontan were 2.45, 2.97, and 3.33 respectively.

A77-10B also was resistant to two of three isolates of *Peronospora trifoliorum* d By. Against isolate 15-12, 44% were resistant (about the same as the resistant cultivar 'Saranac'), against isolate 17-12, 33% resistant (217% of Saranac) against isolate 18-2, 23% resistant (48% of Saranac).

Seed (10 g) of A77-10B will be distributed upon written request and agreement to make appropriate recognition of its source as a matter of open record when the germplasm contributes to the development of a cultivar or hybrid. Requests for seed should be directed to Dr. D. C. Erwin, Dep. of Plant Pathology, Univ. of California, Riverside, CA. 92521.

ACKNOWLEDGMENTS

The authors thank E. H. Stanford, for supplying seed of the cultivar Arabian, and Fred Frosheiser and D. L. Stuteville for providing resistance evaluation data for Phytophthora root rot and downy mildew, respectively.

REGISTRATION OF FOUR GERMPLASM POPULATIONS OF ALFALFA
(Reg. No. GP119 to GP122.)


Four alfalfa (*Medicago sativa* L.) populations, NCMP1 (Reg. No. GP119), NCMP2 (Reg. No. GP120), NCMP10 (Reg. No. GP121), and NCWMP22 (Reg. No. GP122) with various levels of resistance to bacterial wilt [caused by *Corynebacterium insidiosum* (McCull.) H.L. Jens], Phytophthora root rot [caused by *Phytophthora megasperma* Drechs], anthracnose [caused by *Colletotrichum trifolii* Bain], Races 1 and 2, spotted alfalfa aphid [*Thrips palmi* Buckton], and pea aphid [*Acyrthosiphon pisum* Harris] and with adaptation to the Southeastern U.S. were released by USDA-ARS, and the North Carolina Agricultural Research Service in January 1981.

NCMP1 began as 410 plants selected from 62 strains of alfalfa under field evaluation near Raleigh, N.C. Selections were made for plant habit, a broad genetic base, and resistance to the following diseases: common leaf spot (caused by *Pseudoperonospora medicaginis* (Lib.) Sacc.), bacterial wilt, anthracnose, Phytophthora root rot, and pea aphid. The 62 strains were comprised of 2 Chilian, 26 Flemish, and 34 unknown or very mixed parentage alfalfas. In the next four generations, selections were made for the following traits: vigor in Cycle 1, resistance to spotted alfalfa aphid in Cycle 2, resistance to bacterial wilt and anthracnose Race 1 in Cycle 3, and resistance to Phytophthora root rot and anthracnose Race 1 in Cycle 4. In each cycle of selection not fewer than 200 selected plants (up to 3% of screened populations) were intercrossed (bees) in cages.

NCMP2 began as a cross of 49 Phytophthora root rot resistant plants selected from the cultivar 'Apalachee' and 49 plants selected for vigor and plant habit from an alfalfa weevil resistant population (Flemish) which was a precursor to the cultivar 'Liberty'. Four cycles of selection for disease resistance were made as follows: anthracnose Race 1 in Cycle 1, Phytophthora root rot in Cycle 2, and both anthracnose Race 1 and bacterial wilt in Cycles 3 and 4. No fewer than 350 plants (2 to 4% of screened population) were intercrossed (bees) in each cycle of selection.

NCMP10 began as hand crosses of 20 plants from Saranac and 20 plants randomly selected from an alfalfa weevil resistant population (Flemish). NCMP10 and NCWMP22 have about 17% common ancestry. Five cycles of selection for disease resistance were performed as follows: anthracnose Race 1 in Cycle 1, bacterial wilt in Cycles 2, 3, and 5 and Phytophthora root rot in Cycle 4. No fewer than 400 plants (3.6 to 10% of screened population) were intercrossed (bees) in each cycle of selection.

NCWMP22 (formerly NCW22) began as 22 plants resistant to spotted alfalfa aphid from screening 20,000 plants (mostly of Flemish origin) which were crossed with 75 plants selected in the field for plant habit and vigor from an alfalfa weevil resistant