population (Flemish). In the next four generations selections were made for resistance to the following pests: spotted alfalfa aphid in Cycle 1, Phytophthora root rot in Cycle 2, bacterial wilt in Cycle 3, and both anthracnose Race 1 and Phytophthora root rot in Cycle 4. In each selection cycle a minimum of 300 plants (1 to 3% of screened population) were intercrossed (bees).

The evaluations for resistance to Phytophthora root rot and bacterial wilt at St. Paul, Minn., indicated the percentage of Phytophthora root rot resistant plants was low in NCMP1 (4.1) and moderate in NCMP2 (23.0), NCMP10 (22.4), and NCWMP22 (19.5) in comparison to resistant check ‘Agate’ (40.9) and susceptible check ‘Saranac’ (0.7). The percentage of bacterial wilt resistant plants was intermediate for NCMP2 (17.2) and NCWMP22 (16.5), moderate for NCMP1 (26.8) and very high for NCMP10 (77.9) in comparison to susceptible check ‘Narragansett’ (0.7) and highly resistant check ‘Vernal’ (51.0).

A greenhouse evaluation of resistance to anthracnose Race 1 and Race 2 at Raleigh N.C. indicated moderate to high levels of resistance to Race 1 in all germplasms: 55% in NCMP1, 75% in NCMP2, 63% in NCMP10, and 44% in NCWMP22. The resistant check ‘Arc’ had 63% resistant plants and the susceptible check Saranac had 0% resistant plants. Resistance to Race 2 was low for NCMP1 (7%) and NCWMP22 (7%), moderate for NCMP2 (18%) and high for NCMP10 (36%) in comparison to resistant check ‘Saranac AR’ (43%) and susceptible check Saranac (0%).

Spot alfalfa aphid resistance was evaluated at Tucson, Ariz. Resistance was moderate in NCMP1 (57%) and high in NCWMP22 (85%) in comparison to resistant check germplasm MSTTT (72% resistant). NCMP2 and NCMP10 have no resistance to spotted alfalfa aphid.

Evaluation of pea aphid resistance at Manhattan, Kans. indicated moderate levels of resistance in NCMP1 (29%), NCMP2 (48%), and NCWMP22 (44%) and high resistance in NCMP10 (61%) in comparison to resistant check ‘Riley’ (70%) and susceptible check ‘Ranger’ (2%).

Three years of harvest data collected from a variety trial near Raleigh, N.C. indicated the following ranking of yields in descending order: NCMP10, NCWMP22, NCMP2, and NCMP1. Each year NCMP10 forage yields were significantly greater than the best of 12 adapted cultivars in the test and the yields of NCMP1 approximated those of Arc.

Five grams of each germplasm are available to each applicant upon written request and agreement to appropriately recognize this material as a source in the development of a new cultivar, germplasm or hybrid. Seed stocks are maintained by the Forage Research Unit, Oxford Res. Stn., Route 2, Box 16 G, Oxford, NC 27565.

REGISTRATION OF XR-235-1-1 BEAN GERMPLASM
(Reg. No. GP42)

G. F. Freytag, M. J. Bassett, and N. F. Jensen

Bean (Phaseolus vulgaris L.) line XR-235-1-1 (Reg. No. GP42) was developed by annually recycling hybrid seed stocks from 1966 to 1975. The parents of the recurrent recurrent germplasm were 8-7-1-3, 35F, and XR-235-1-1. The recurrent recurrent germplasm was released as XR-235-1-1 on 25 June 1981.

The composite was first grown in 1968 and a total of 9 cycles of selection (it was not grown in 1969) was used. The field was treated with one or more applications of atrazine, each treatment level in each cycle was harvested to have adequate quantities of seed for the next cycle. The different treatment levels harvested were as follows: 1968--1.1, 2.2, 3.4, 4.5, and 5.6 kg/ha; 1970--6.7 and 13.4 kg/ha; 1971--4.5 and 9 kg/ha; 1972 and 11.2 kg/ha; 1974--11.2 kg/ha; 1977--16.8 kg/ha. Seed was screened each year on an air cleaner separator to remove small and light seed.

Information on genetic gain for tolerance of bacterial blight and bacterial wilt came from trials conducted at Ithaca, NY in 1979. The germplasm that went into the composite and includes the following materials: 1) Corn germplasm, 2) all 1967 Cornell early generation germplasm from the World Collection of Small Grains, and 4) composite crosses C.C.XXVI and C.C.XXVII.

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