Canada. The dwarf plant was transplanted before anthesis to the greenhouse along with several plants of normal height from other entries in the collection. The dwarf plant was pollinated by plants of normal height and F1 plants were grown in the greenhouse in 1970. The F2 and F3 generations were grown in the field in 1971 and 1972. Segregation for height occurred and the tall plants were discarded in the F3 generation. UC-90 is a composite of seed from the dwarf and semidwarf plants of the F3 generation.

The original dwarf plant had very stiff culms and erect, dense spikes, similar to the dwarf spring rye 'Snoopy'. Among the progeny were plants with dense, erect spikes and plants with middense to lax spikes. The range in height of the dwarf and semi-dwarf plants was about 30 to 100 cm. Grain size is somewhat smaller than found in tall commercial varieties.

It is believed that UC-90 will provide breeders a useful germplasm source for triticale development and in rye improvement where short stature may be desirable. Seed is available from the Department of Agronomy and Range Science, University of California, Davis, Calif. 95616.

REGISTRATION OF THREE SORGHUM GERmplASM RANDOM-MATING POPULATIONS
(Reg No GP 16, 17, and 18)

P. T. Nordquist, O. J. Webster, C. O. Gardner, and W. M. Ross

The Nebraska Agricultural Experiment Station and the Agricultural Research Service, U.S. Department of Agriculture, in 1972 released three grain sorghum, Sorghum bicolor (L.) Moench, random-mating populations: NP1BR, NP2B, and NP3R. They were developed by the introduction of genetic male sterility into two populations and both genetic and genetic-cytoplasmic sterility into the third to provide large-scale genetic recombination. The populations will provide germplasm for quantitative genetic studies and for practical plant breeding. Small seed lots of the three populations may be obtained from the Department of Agronomy, University of Nebraska, Lincoln, Nebr. 68503.

NP1BR (Reg. No. GP 16) - This population was initiated at Lincoln, Nebr. in 1960. Three cytoplasmic male-sterile varieties ('Combine Kafir-60,' 'Martin,' and 'Reliance') were interplanted with a composite of 19 fertile lines (both R and B types) and the crossed seed was harvested. The pollinators were basic sorghum types and improved varieties that were popular before hybrid sorghums. A split planting assured more complete cross-pollination. Two varieties, 'Combine Kafir-60' and 'Reliance,' were used as males in the pollinator composite as well as cytoplasmic male-sterile (ms) females.

In 1961 the crossed seed was planted in isolation, and seed was harvested from pollinated sterile plants that were not over 2 m tall that bloomed over a 2-week period. Seed saved represented (A X B) X (A X R) crosses. In 1962, genetic male sterile (ms) in Martin and 'Midland' backgrounds, obtained from male-sterile 'Coes' by backcrossing, was added to the composite so that B as well as R types could be selected. Thereafter, segregation was for two male-sterile genes, msr and ms; and two cytoplasms, milo and Coes (the source of ms), were present.

Four random matings followed at Lincoln, Nebr. from 1963 through 1966, followed by four more at North Platte, Nebr. from 1967 through 1970, where selection of early types. In 1971 a random mating and made at Mead, Nebr. The 21 components with respect to genetic frequencies are:

'Bourier Dura' 'Early Hegari'
'Club Kafir' 'Early Kalo'
'Coes' 'Martin'
'Combine Kafir-60' 'Midland'
'Darso' 'Pink Kafir'
'Durra' 'Redlan'
'Dwarf Yellow Milo' 'Reliance'

The relative frequencies of msr and ms are unknown, but the genetic contribution of the male-sterile, relatively greater per variety than the pollinators, however, after a decade of random mating, has been extensive. NP1BR is unique in synthesized random-mating sorghum populations in the world.

NP2B (Reg. No. GP 17) - NP2B was developed at North Platte and Lincoln, Nebr. Starting in 1965, ms was introgressed into eight B lines (Combine Kafir-60, 'Dwarf Redlan,' 'Reliance,' 'Tx 606,' Westland, and, after two backcrosses, diallel crosses were made using male-sterile segregates as females and the recurrent B lines as males. This was equivalent to an additional reduced the genetic components of the diallels were blended in equal proportions. A random mating at Mead, Nebraska, in 1970. Two random matings followed in Puerto Rico during the winter of 1970-71, and the fourth was made at Mead in 1971.

Theoretically, the nonrecurrent Coes genetic contribution is up 6.25% of the germplasm, while each of the eight B lines contributes 11.75%. NP2B has a single derivative to Coes, the original source of ms. Those and a male-sterile stock are represented. Considerable recombination has occurred, and it appears to have high yield potential. It should be useful in the development of new B lines which are now short in stature.

NP3R (Reg. No. GP 18) - Development of NP2B in all respects, except that 30 RB lines of the NPNB2 and an additional backcross was made during the development of NP3R, and the nonrecurrent B lines include the following:

'Caprock' Ga. DDES 665
'Coes' KS1
'Combine 7078' KS2
'Norghum' KS3
'Plainsman' KS6
'Redbine-60' Mp 10
'Ark. AKS 3001R' NB3494
'Colo. Ak 9-2' NB4610
'Colo. Ak 23-1' NB4917
'Ga. DDES 6399-3' OK Y-8

Although the components of NP3R have a variety of genes, the plants (two dominant height genes) is through outcrossing during crossing and early generation, inadequate isolation in Puerto Rico. A combination of unidentified modifying genes is indicated.

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