

**REGISTRATION OF ICMA 841 AND ICMB 841  
PEARL MILLET PARENTAL LINES WITH A1  
CYTOPLASMIC-GENIC MALE STERILITY SYSTEM**

ONE PAIR of A (male sterile) and B (maintainer) lines of pearl millet [*Pennisetum glaucum* (L.) R. Br.], with the A1 cytoplasmic-genic male sterility system, was made available in 1987 as seed parents for the production of hybrids throughout India. The lines are designated as ICMA 841 and ICMB 841 (Reg. no. PL-18; PI 537587); they were previously tested as 841A and 841B. They carry high levels of resistance to downy mildew caused by *Sclerospora graminicola* (Sacc.) Schroet. The A line, being medium in height, can give medium to tall hybrids, depending on the height of the pollinator.

ICMA 841 and ICMB 841 were developed from 5141A and 5141B, which were bred and released by the Indian Agricultural Research Institute (IARI), New Delhi, India (1). These lines later succumbed to downy mildew in India. The original 5141A and 5141B stocks showed genetic variability for several traits, including resistance to downy mildew, when planted in the downy mildew screening nursery (3) at the ICRISAT Center. Vigorous, downy mildew-free 5141B plants were selfed and crossed to downy mildew-free plants of 5141A. This process of selection, selfing, and backcrossing was repeated twice a year in the downy-mildew nursery, using pedigree selection for four generations. ICMA 841 and ICMB 841 were chosen on the basis of phenotypic similarity, vigor, tillering, seed set, and freedom from downy mildew (2).

ICMA 841 was tested multilocally for downy mildew resistance in India in the 1983 and 1984 rainy seasons. ICMA 841 had a mean downy-mildew incidence of 1.3%, with a range of 0 to 9% across the tests. In comparison, the susceptible check (NHB-3) had a mean downy-mildew incidence of 48%, with a range of 17 to 92% across the tests. In addition, ICMA 841 and ICMB 841 were tested in the All India Coordinated Millets Improvement Project (AICMIP) trials for 2 yr, during the 1984 (seven locations) and 1986 (three locations) rainy seasons. These lines did not develop

>6% downy-mildew incidence at any location under downy-mildew sick-plot conditions.

ICMA 841 and ICMB 841 have medium height (140–180 cm), moderate tillering (2–5 tillers/plant), resistance to lodging, and medium maturity (53–58 days to 50% flowering). Panicles are of medium length (16–21 cm), compact, generally cylindrical to conical. Very short bristles (<5 mm in length) are present on the majority of the panicles, but this character is greatly affected by environment. Leaves and nodes are hairy. Seeds are hexagonal to pyramidal and light grey in color, with intermediate endosperm texture. Seed mass is 6 to 8 g 1000<sup>-1</sup> grain.

Test hybrids made with ICMA 841 mature 4 to 6 d later than those made with 5141A, and are 15 to 20 cm taller. In addition, ICMA 841 and the hybrids derived from it have the ability to stay green after seed maturity. This trait is highly valuable, because the stover can then be used as green fodder at harvest.

Seed stocks of ICMA 841 and ICMB 841 will be maintained and distributed by ICRISAT, Patancheru, A.P. 502 324, India.

S. D. SINGH,\* P. SINGH, K. N. RAI, AND  
D. J. ANDREWS (4)

**References and Notes**

1. Pokhriyal, S. C., K. V. Unnikrishnan, B. Singh, A. Ramdass, and R. R. Patil. 1976. Combining ability of downy mildew resistant lines in pearl millet. *Indian J. Genet. Plant Breed.* 36:403–409.
2. Singh, S. D. 1983. Selection for downy mildew resistance in parental lines of the susceptible hybrid BJ 104. *Newsl. Int. Working Group on Gramineous Downy Mildews (IWGGDM)* 5(1):2.
3. Williams, R. J., S. D. Singh, and M. N. Pawar. 1981. An improved field screening technique for downy mildew resistance in pearl millet. *Plant Dis.* 65:239–241.
4. S. D. Singh, and K. N. Rai. Cereals Program, ICRISAT, Patancheru, A. P. 502 324, India; P. Singh, Zambia Seeds Corporation, P.O. Box 910064, Mongu, Zambia; and D. J. Andrews, Dep. of Agronomy, Univ. of Nebraska, Lincoln, NE 68583. Submitted as Journal Article no. 894 by the Int. Crops Res. Inst. for the Semi-Arid Tropics (ICRISAT). Registration by CSSA. Accepted 31 Jan. 1990. \*Corresponding author.

Published in *Crop Sci.* 30:1378 (1990).