Small quantities of seed of these germplasms are available upon written request. It is requested that appropriate recognition of the source be given when these germplasms contribute to research or germplasm enhancement. Seed stocks are maintained by the author.

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References and Notes


Registration of ICMR 312 Pearl Millet Topcross Pollinator Germplasm

ICMR 312 pearl millet [Pennisetum glaucum (L.) R. Br.] germplasm (Reg. no. GP-35, PI 583977) was developed by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), India, and released on 9 Dec. 1993. ICMR 312 was developed from the Bold Seeded Early Composite (BSEC) (7) and is the pollinator population of pearl millet grain hybrid ICMH 312.

Approximately 970 S1 progeny rows derived from selfing 970 S0 individual plants from the C3 selection cycle bulk of the BSEC were evaluated for large seed size and high head volume at maturity in an unreplicated nursery in the 1987 rainy season. Approximately 200 S1 progeny rows were selected and selfed to produce 399 S2 progenies. The S2 progenies were screened in a greenhouse at the seedling stage (5) for resistance to downy mildew [caused by Sclerospora graminicola (Sacc.) Schroet.] Fifty-two progenies were resistant to downy mildew and had a parental plant that produced a fertile hybrid on ICMA 88001, an isonuclear derivative of ICMA 1 (1). These 52 progenies were allowed to random mate in isolation to produce the C1 bulk of the pollinator population.

In the second cycle of selection, 255 S1 progenies were obtained by selfing in the C1 bulk. The 60 progenies that were most resistant to downy mildew in a greenhouse seedling test were random-mated in isolation. The bulk obtained at the end of this second cycle of selection was named the Bold Seeded Early Composite Topcross Pollinator 2 C2 (BSEC TCP2 C2).

The third cycle of selection was carried out for both downy mildew resistance and fertility restoration by evaluating 1488 S1 progenies derived from the BSEC TCP2 C2 bulk. Parental plants of 231 S1 progenies produced fertile testcrosses. These S1 progenies were evaluated for resistance to downy mildew, and 200 were selected as resistant. These were random-mated to produce the C3 bulk.

ICMA 1. ICMH 88088 was entered into the All India Coordinated Pearl Millet Improvement Project (AICPMIP), where it was code MH 312. Accordingly, the hybrid ICMH 88088 with ICMH 312 and the pollinator BSEC TCP2 C3 were named ICMR 312.

In AICPMIP trials, the control was a single-cross hybrid, ICMH 451, which has ICMA 1 as its seed parent. MH 312 had more grain, had larger seeds, and flowered 2 d earlier than ICMH 451, averaged over 95 replicated trials conducted from 1988 to 1990.

The hybrid and the pollinator showed high and stable resistance to downy mildew in India. ICMR 312 was tested at the National Pearl Millet Downy Mildew Nursery (IPMDMN) in India and West Africa in 1991 (2). Across 6 locations, there was a mean downy mildew incidence of 13%, compared to a resistant ICML 12 (6) and 65% on the susceptible check.

ICMR 312 had grain yield of 3330 kg ha⁻¹ in India (18° N lat), which was comparable to 'WC-C75' (3140 kg ha⁻¹). It has large seed (15 g 1000⁻¹ seed), flowers early (45 to 50% flowering), and produces fertile hybrids with other male-sterile lines with A1 cytoplasm. It is a restorer of V cytoplasm (3).

ICMR 312 has a high frequency of plants with nonpigmented glumes and yellow anthers. The frequency of plants with pigmented glumes and purple anthers in ICMR 312 is significantly lower than in the parent cultivar ICTP 8203 (4). Panicles of ICMR 312 are of medium length (19 to 23 cm), compact to subcylindrical to lanceolate. ICMR 312 has a plant height of 190 cm, compared with 202 to 209 cm for WC-C75.

Seed of ICMR 312 has been made available to national and private institutions in India, and will be maintained by the Germplasm Enhancement Division, ICRISAT Asia Center, Patancheru. A sample of the original seed stock is preserved in the ICRISAT gene bank.


References and Notes