Registration of 'ICMV-IS 88102' Pearl Millet

'ICMV-IS 88102' pearl millet [Pennisetum glaucum (L.) R. Br.] (Reg. no. CV-12, PI 586660) was developed for food grain production by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) and the Institut d'Études et de Recherches Agricoles (INERA) at the Agricultural Research Station at Kamboinse, near Ouagadougou, Burkina Faso. Both INERA and the Institut d’Économie Rurale (IER) in Mali conducted on-station and on-farm evaluations of ICMV-IS 88102. ICMV-IS 88102 was released by INERA in 1993 to farmers in Burkina Faso. In 1994, IER released ICMV-IS 88102 to farmers in Mali under the name 'Benkadi Nio', which means 'friendship millet' in the local Bamanan language.

ICMV-IS 88102, an open-pollinated cultivar, was developed from germplasm accession IP 6426 (P436) from Mali. Two hundred and seventy-three accessions supplied by the Genetic Resources Division at ICRISAT Center, Hyderabad, India, were evaluated at the INERA station at Farakoba, Burkina Faso, in 1986, and IP 6426 was retained for further evaluation. IP 6426 was sown at the INERA station at Kamboinse in the post-rainy season (Nov. 1986 to Feb. 1987), and 47 selected selfed plants were harvested separately. In the 1987 rainy season at Kamboinse, these 47 S₁ progeny lines were evaluated for grain yield, desirable plant characteristics, and resistance to downy mildew [caused by Sclerospora graminicola (Sacc.) J. Schröt.]. Fourteen of the 47 S₁ lines of IP 6426 were selected for intermating, based on visual assessments of agronomic worth. The S₂ progenies from 5 to 6 of the best selfed plants in each of the selected S₁ lines were harvested and bulked to produce 14 S₂ line bulks. Intermating of S₂ progeny lines was conducted at Kamboinse Station during the post-rainy season (Nov. 1987 to Feb. 1988). Eight grams of seed of each of the 14 selected S₂ line bulks was mixed and planted to produce a population of approximately 1000 plants. One hundred plants of each selected S₂ progeny line were planted separately, and plants were bagged at the time of heading. Plants from each individual S₂ line were pollinated with pollen collected from >25 plants from the S₂ bulk population. A bulk was constituted by mixing 300 g of crossed seed harvested from each of the 14 selected S₂ lines. The bulk population was designated ICMV-IS 88102; it was multiplied during the 1989 rainy season in an isolated field at Samanko, Mali.

ICMV-IS 88102 is recommended for cultivation in the 800- to 1000-mm annual rainfall zone of Burkina Faso and Mali. ICMV-IS 88102 is a photoperiod-sensitive cultivar. When planted on 21 June, it flowers in approximately 92 d and matures in 125 to 135 d. It matures at about the same time as the local cultivar Magangola in the Bamako region (approximately 2 to 3 wk earlier than Sanyo-type cultivars), and 5 to 13% compared with 18 to 71% for the susceptible check, Sanyo. In trials conducted from 1988 to 1994 at five locations in the 800- to 1000-mm rainfall zone in Mali, average grain yields of ICMV-IS 88102 were 2.40 and 1.80 t ha⁻¹, respectively. In the rainfall zone of Burkina Faso, average grain yield of ICMV-IS 88102 at Saria was 1.83 t ha⁻¹ (10% higher than Kapelga); at Farakoba, it was 1.65 t ha⁻¹ (18% higher than the local cultivar Farakoba, which matures 3 wk earlier and suffers terminal drought). In another set of trials at Samanko and Sotuba, ICMV-IS 88102 yielded 2.72 t ha⁻¹ (9% higher than the local cultivar Sanko). In 11 on-farm trials conducted at five locations in the Southern Sudanian Zone of Mali and Burkina Faso, the local cultivar Magangola yielded 2.65 t ha⁻¹ (18% similar maturity).

ICMV-IS 88102 is 3.1 to 3.6 m in height, with four to five reproductive tillers. Earheads are 31 to 37 cm long, candle-shaped, and devoid of bristles. Grains are medium to large, seed-like, globular, and light gray, with a vitreous endosperm. The taste and conservation quality of ICMV-IS 88102 were rated good by consumers. The downy mildew infection index for ICMV-IS 88102 in disease nurseries during 1992 to 1994 in Mali and Burkina Faso ranged from 2 to 3%, compared with 18 to 71% for the susceptible check, Sanyo. In trials conducted from 1988 to 1994 at five locations in the 800- to 1000-mm rainfall zone in Mali, average grain yields of ICMV-IS 88102 were 2.40 and 1.80 t ha⁻¹, respectively. In the rainfall zone of Burkina Faso, average grain yield of ICMV-IS 88102 at Saria was 1.83 t ha⁻¹ (10% higher than Kapelga); at Farakoba, it was 1.65 t ha⁻¹ (18% higher than the local cultivar Farakoba, which matures 3 wk earlier and suffers terminal drought). In another set of trials at Samanko and Sotuba, ICMV-IS 88102 yielded 2.72 t ha⁻¹ (9% higher than the local cultivar Sanko). In 11 on-farm trials conducted at five locations in the Southern Sudanian Zone of Mali and Burkina Faso, the local cultivar Magangola yielded 2.65 t ha⁻¹ (18% similar maturity).

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Breeder seed is maintained by the ICRISAT West and Central Africa Regional Program, Bamako, Mali.

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References and Notes
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Published in Crop Sci. 36:1716 (1996).