

# REGISTRATION OF PARENTAL LINES

## Registration of ICMR 356 Parental Line of Pearl Millet

ICMR 356 (Reg. no. PL-27, PI 591337), the restorer line of the pearl millet [*Pennisetum glaucum* (L.) R. Br.] single-cross grain hybrid cultivar ICMH 356 (ICMA 88004 × ICMR 356), was developed by the Genetic Enhancement Division, Asia Center, of the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Patancheru, Andhra Pradesh, India, and was released in January 1993 by the Central Sub-Committee on Crop Standards, Notification and Release of Varieties, Ministry of Agriculture, Government of India. ICMR 356 was developed from a cross, B 282 × J 104, made in the 1982 dry season. B 282 is a  $d_2$  dwarf, downy mildew [caused by *Sclerospora graminicola* (Sacc.) J. Schröt.] resistant inbred line received from the former Arid Land Agricultural Development Program in Lebanon. J 104 is a short-statured, downy mildew-susceptible inbred line with high tillering capacity that was received from the Agricultural Research Station, Gujarat Agricultural University, Jamnagar, Gujarat, India.

The  $F_2$  seed from B 282 × J 104 and its reciprocal cross was bulked and sown in the downy mildew disease nursery at ICRISAT Asia Center (IAC) during the 1983 dry season. Twenty short, downy mildew resistant plants with high tillering capacity were selected from approximately 100 selfed  $F_2$  plants. Bulked seeds of these 20 selections were sown as an  $F_3$  population during the 1984 dry season. Seventeen plants were selected for short height and high tillering capacity from among more than 100 plants selfed. Seeds from these plants were evaluated as  $F_4$  progeny rows during the 1984 rainy season in the downy mildew disease nursery at IAC. An additional four generations of bulk pedigree breeding for short height, high tillering capacity, and downy mildew resistance in the disease nursery at IAC finally led to the identification of two elite  $F_8$  progenies. Four generations of pedigree bulk advance in one of these  $F_8$  progenies produced a superior  $F_{12}$  progeny. This  $F_{12}$  progeny was random-mated twice in isolation to produce breeder seed of ICMR 356.

ICMR 356 is an elite inbred restorer line with grain yield ranging from 1477 to 3373 kg ha<sup>-1</sup>, which is 51% higher than

H 77/833-2 but 34% lower than D 23. It has medium height (109 to 172 cm) and a flowering requirement of 49 to 54 d from time of planting. ICMR 356 produces 3 to 7 basal tillers plant<sup>-1</sup>, with a nodal hairy ring that serves as a marker. Anthers are creamy-yellow in color. Panicles are compact, candle-shaped, and short (14 to 16 cm). Grains are medium-sized (8.5 g 1000 seed<sup>-1</sup>), obovate, and slate-gray.

ICMR 356 was tested for resistance to downy mildew in 11 disease nurseries in India and western Africa. In India, downy mildew severity of ICMR 356 ranged from 0 to 4% (compared with 0 to 20% for P 7-04, the resistant check). In western Africa, ICMR 356 exhibited 5 to 36% downy mildew severity (3 to 49% for P 7-04). Thus, ICMR 356 is more resistant than P 7-04 in India and similar to P 7-04 in western Africa. The susceptible inbred line, 7042, had a high level of downy mildew severity in the trials in India (6 to 89%) and western Africa (25 to 100%).

Breeder seed of ICMR 356 has been made available to many public and private sector institutions in India. Small quantities of seed of ICMR 356 can be obtained from the Genetic Enhancement Division, ICRISAT Asia Center, Patancheru, Andhra Pradesh, India. A sample of the original seed is preserved in the gene bank at the ICRISAT Asia Center.

K. N. RAI, A. S. RAO, B. S. TALUKDAR,\* A. M. RAO,  
AND J. R. WITCOMBE (1)

### References and Notes

1. K.N. Rai, A.S. Rao, and B.S. Talukdar, Genetic Enhancement Div., ICRISAT Asia Ctr., Patancheru, A.P. 502 324, India; A.M. Rao, Amreshwari Agrotech Ltd., 301, Durga Apartments, Raj Bhavan Road, Somajiguda, Hyderabad, A.P. 500 016, India; and J.R. Witcombe, ODA Plant Science Res. Program, Ctr. for Arid Zone Studies, Univ. of Wales, Bangor, Gwynedd, LL57 2UW, Wales, UK. Registration by CSSA. Accepted 31 Mar. 1996. \*Corresponding author (Email: icrisat@cgnet.com).

The authors are thankful to Mr. P.P. Prakash Babu for his assistance in preparing the release proposal of ICMH 356, the hybrid of the parental line ICMR 356.

Published in Crop Sci. 36:1426 (1996).