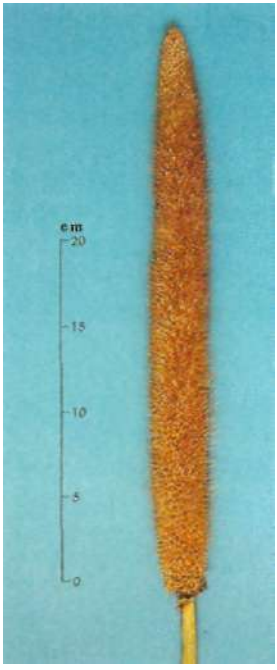
Pearl Millet
Hybrid ICMH 451



- **High grain and fodder yields**
- **Medium height (1.7-1.8 m)**
- **Matures in 85-90 days**
- **Most heads bristled**
- **Resistant to downy mildew**
- **Particularly recommended for millet-growing areas in India**
- **Marketed in India as MH 179 (ICMH 451)**

ICRISAT

Plant Material Description no. 14

International Crops Research Institute for the Semi-Arid Tropics
Patancheru, Andhra Pradesh 502 324, India

1988

Purpose of Description

ICMH 451 was released in May 1986 by the Ministry of Agriculture, Government of India, for general cultivation in all the pearl millet growing areas of the country.

Origin and Development

The parents of ICMH 451 are restorer line ICMP 451 and male-sterile line 81A (ICMA 1).

Pollinator. ICMP 451 (illustrated overleaf) is a near-inbred line, LCSN 72-1-2-1-1, derived by selfing from the ICRISAT Center Late Composite. It was identified as one of the promising entries in the breeding nursery of ICRISAT's cooperative program at Kamboinse, Burkina Faso. It was initially variable for bristles, but head-to-row evaluation of progenies for three seasons and bulking the selfed seeds of the bristled progenies increased the bristle frequency without changing the restorer line for other morphological characters.

Male-sterile line. ICMA 1 was derived from Tift $23D_2B$ after treating the seed with gamma-rays and selecting for downy mildew resistance. For the origin and development of ICMA 1, see Plant Material Description no. 4.

Synonym. MH 179.

Performance

ICMH 451 has been tested in the All India Coordinated Pearl Millet Improvement Project (AICPMIP) trials for 3 years. It has yielded 108% of the best check hybrid, MBH 110 (see table), and yielded 35% more grain than BJ 104 (once a leading commercial hybrid from the public sector). ICMH 451 gives over 20% more fodder than either MBH 110 or BJ 104, and it is highly resistant to downy mildew.

Plant Characters

ICMH 451 is of medium height (1.7-1.8 m). It flowers in 52-56 days and matures in 85-90 days. Heads are of medium length (25-30 cm), and most heads are bristled, though bristle length, bristle density, and bristle angle vary considerably from plant to plant. Bristles are brown in most of the plants but in some cases are light purple. Heads are semicompact.

Seed Characters

The grains are of medium size, 7-8 g 1000^{-1}, gray, and have a vitreous endosperm. Seed dormancy and tolerance of mold damage at ripening are equivalent to BJ 104.

Seed Production

In hybrid seed production plots grown in the dry season, both parents can be planted at the same time. ICMP 451 will usually flower 1-2 days before 81 A, so pollen is present when the first heads flower in the seed parent.

Grain yield, fodder yield, and downy mildew incidence of pearl millet hybrid ICMH 451 in AICMIP trials, 1984-86.

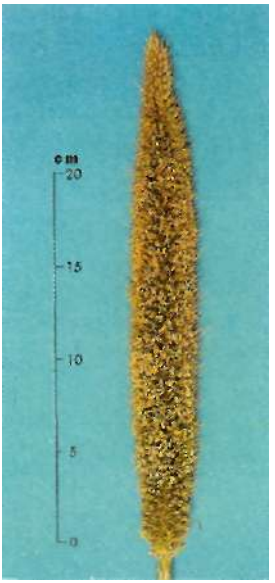
					ICMH 451 as:	
Cultivar	1984 (21)[1]	1985 (30)	1986 (34)	Mean	% of MBH 110	% of BJ 104[2]
Grain yield (t ha^{-1})						
ICMH 451	2.14	2.25	2.37	2.25	–	–
MBH 110[3]	2.03	2.11	2.11	2.08	108	–
BJ 104[3]	1.56	1.67	–	1,61	–	131
Trial mean	1.83	2.02	2.07	1.97	–	–
Fodder yield (t ha^{-1})						
ICMH 451	5.8	5.7	5.8	5.8	–	–
MBH 110	4.8	4.8	4.6	4.7	123	–
BJ 104	4.5	5.0		4.8	–	121
Trial mean	5.3	5.4	5.1	5.4	–	–
Downy mildew incidence (%)						
ICMH 451	2	1	2	2	–	–
MBH 110	2	1	–	1	–	–
BJ 104	24	36	–	30	–	–
NHB 3[4]	74	67	–	71	–	–

1. Numbers in parantheses indicate the number of locations over which the data were averaged.
2. For 1984 and 1985 only.
3. Commercial hybrids used as checks.
4. Susceptible check hybrid.

Cultural Practices

Recommended cultural practices for ICMH 451 in India are the same as those for previously released pearl millet hybrids. Advice given by State Departments of Agriculture for growing pearl millet hybrids should therefore be followed.

Pollinator, ICMP 451



Plant Material Descriptions from ICRISAT

Leaflets in this series provide brief descriptions of crop genotypes identified or developed by ICRISAT, including:

- germplasm accessions with important agronomic or resistance attributes;
- breeding materials, both segregating and stabilized, with unique character combinations; and
- cultivars that have been released for cultivation.

These descriptions announce the availability of plant material, primarily for the benefit of the Institute's cooperators. Their purpose is to facilitate the identification of cultivars and lines and promote their wide utilization. Requests should be addressed to the Director General, ICRISAT, or to appropriate seed suppliers. Stocks for research use issued by ICRISAT are sent to cooperators and other users free of charge.

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