
Pearl Millet

Open-pollinated Variety

ICTP 8203



- High grain yield
- Large seed size
- Early maturity
- Medium height
- Resistant to downy mildew
- Yields well under terminal drought
- Recommended for Andhra Pradesh and Maharashtra (India)
- Released in India as MP 124 (ICTP 8203)



ICRISAT

Plant Material Description no.18

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

Purpose of Description

ICTP 8203 is an open-pollinated variety which was released in December 1988 by the Ministry of Agriculture, Government of India, for cultivation in Maharashtra and Andhra Pradesh as MP 124 (ICTP 8203).

Origin and Development

ICTP 8203 was produced by random mating five S_2 progenies of an Iniari (early-maturing) landrace originating from northern Togo. Initially, 37 open-pollinated heads of this landrace sown in border rows of late-maturing breeding lines growing in the ICRISAT cooperative nursery at Kamboinse, Burkina Faso, were selected in the rainy season of 1980. These were grown as half-sibs at ICRISAT Center, and advanced to produce S_2 progenies with visual selection for yielding ability and adaptation at each selfing generation. Ninety-nine S_2 progenies were evaluated in a replicated trial at Bhavanisagar, Patancheru (ICRISAT Center), and Hisar. Based on visual selection for grain yield and phenotypic similarity for plant height, maturity, and head type, five S_2 progenies were selected and the sib-multiplied seeds of these were crossed in a diallel fashion in the dry season of 1983. The variety, made by bulking equal amounts of seed of the resulting 10 crosses, was first tested in the rainy season of 1983. Since then, ICTP 8203 has been maintained once by controlled crossing and subsequently by random mating in isolation, whilst discarding a proportion of the plants by roguing.

Performance

After evaluation by ICRISAT at Patancheru (three tests), Hisar, and Bhavanisagar in the rainy season of 1983, in which it yielded 18% more than WC-C75, ICTP 8203 was contributed to the All India Coordinated Pearl Millet Improvement Project (AICPMIP) trials in 1984 and was tested every year until 1986. Over 3 years in 79 tests in India, ICTP 8203 yielded 96% of WC-C75, the leading commercial open-pollinated variety, but out-yielded WC-C75 in Maharashtra and Andhra Pradesh. In 19 tests in Maharashtra it yielded 7% more grain than WC-C75 (1.99 t ha^{-1}), and in 11 tests in Andhra Pradesh it yielded 11% more grain than WC-C75 (1.35 t ha^{-1}) (see table). It is early-maturing, flowering 2-3 days earlier and filling grains more rapidly than WC-C75. It has a high level of resistance to downy mildew in Maharashtra and Andhra Pradesh.

ICRISAT conducted trials in terminal drought stress environments over 4 years in the drought nursery at ICRISAT Center, and at Anantapur, Andhra

Pradesh, with late sowing. In these trials the grain yield of ICTP 8203 was 1.67 t ha⁻¹, which was 20% more than WC-C75.

Plant Characters

ICTP 8203 normally has a plant height of 1.5-1.6 m in Maharashtra and Andhra Pradesh, although these values will be exceeded in extreme environments. It has a medium panicle length (16-18 cm) and the panicles are compact to semicompact, cylindrical to lanceolate with slight tapering towards the tip. Glume and anther color are mixed with green or purple glumes and cream or purple anthers.

Grain yield, time to 50% flowering, and downy mildew incidence of pearl millet open-pollinated variety ICTP 8203 in AICPMIP trials, 1984-86.

State	Cultivar	Performance			
		1984	1985	1986	Mean
Grain yield (t ha⁻¹)					
Maharashtra	ICTP 8203	(4) ¹ 2.32	(6) 1.91	(9) 2.13	(19) 2.12
	WC-C75 ²	2.03	1.92	2.02	1.99
Andhra Pradesh	ICTP 8203	(3) 1.87	(4) 1.48	(4) 1.15	(11) 1.50
	WC-C75	1.48	1.50	1.09	1.35
Time to 50% flowering (d)					
Maharashtra	ICTP 8203	50	50	50	50
	WC-C75	52	54	52	53
Andhra Pradesh	ICTP 8203	55	51	54	53
	WC-C75	58	53	55	55
Downy mildew incidence (%)					
Maharashtra	ICTP 8203	1.6	0.3	5.7	2.5
	WC-C75	0.3	0.5	2.8	1.2
	NHB 3 ³	52.4	72.0	61.0	61.8
Andhra Pradesh	ICTP 8203	1.0	3.0	1.5	1.8
	WC-C75	0.0	3.0	3.5	2.1
	NHB 3	-	83.0	-	83.0

1. Numbers in parantheses indicate the number of locations over which the grain yield data were averaged.
2. Commercial open-pollinated variety used as a check.
3. Downy mildew susceptible check hybrid.

Seed Characters

ICTP 8203 has large grains ($>12 \text{ g } 1000^{-1}$), which serves as the key identifying character of this variety. The grains are dark gray, but the outer surfaces that are exposed to the sunlight attain a light gray shiny appearance. The grains are less dense than those of WC-C75.

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.

ICRISAT is a nonprofit scientific educational institute receiving support from donors through the Consultative Group on International Agricultural Research. Its major mandate is to serve as a world center for the improvement of grain yield and quality of sorghum, millet, chickpea, pigeonpea, and groundnut, and to act as a world repository for the genetic resources of these crops. The plant materials announced in these leaflets are end-products of this work, which is aimed at enhancing the agricultural productivity of resource-poor farmers throughout the semi-arid tropics.