



'ICTP 8203': A New Pearl millet Variety for Maharashtra and Andhra Pradesh

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PEARLMILLET variety 'ICTP 8203' released by the Central Variety Release Committee in December 1988 for cultivation in Maharashtra and Andhra Pradesh, yields on an average 21.2 quintals per hectare. It outyielded 'WC C75', by 7% in Maharashtra and 11% in Andhra Pradesh (Table 1). It has a high level of resistance to downy-mildew (less than 3% incidence in disease nurseries) equalling that of 'WC C75'.

In Maharashtra and Andhra Pradesh, 'ICTP 8203' attains a height of 150–160 cm, flowers in 50–53 days (2–3 days earlier than WC C75) and matures in 80–82 days (5–6 days earlier than WC C75). A large grain size (more than 12 g/1000 seeds), compact spike, and dark grey grain colour with a shiny outer surface has made 'ICTP

8203' the preferred variety in Maharashtra.

Produced by the Cereals Program of the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) from a recombination of 5 progenies derived from a large-seeded landrace population from northern Togo, 'ICTP 8203' was first evaluated in ICRISAT trials in the 1983 rainy season. This was followed by another 3 years (1984–1986) of evaluation in the All-India Co-ordinated Pearl millet Improvement Project (AICPMIP). In the AICPMIP trials, 'ICTP 8203' proved superior to 'WC C75' only in southern India. However, even before its release and notification by the Central Variety Release Committee, 'ICTP 8203' had become popular in the Jalgaon, Dhulia and Nasik districts of Maharashtra, and in the Anantapur

district of Andhra Pradesh.

Special Features

Seed production of 'ICTP 8203' and other open-pollinated varieties unlike hybrids are endowed with 2 important natural advantages. Firstly, besides foundation and certified seeds, seed production plots provide excellent opportunities for on-farm tests of the end-product itself. Secondly, the yield potential of open-pollinated varieties is higher than that of hybrids, and leads to a much higher seed-multiplication ratio for open-pollinated varieties. The Maharashtra State Seed Corporation (MSSC) monitored the performance of 'ICTP 8203' in AICPMIP trials for developing its seed production programme. By 1987, MSSC has produced, 3,685 quintals of certified seed and had 80 kg of breeder

seed. Thus the advance planning of seed production programme, integrated with inbuilt on-farm performance evaluation, both for yielding ability and farmers acceptance of evident quality traits, were crucial factors in the rapid expansion and large-scale adoption of 'ICTP 8203' in Maharashtra. In 1988, when 'MBH 110' succumbed to downy-mildew epidemic, MSSC was able to produce 12,042 quintals of certified seed of 'ICTP 8203' in 1989.

Field Observations

'ICTP 8203' was planted on about one million hectares in the 1989 rainy season and also in 1990 providing the

farmers with an alternative to 'MBH 110'. Field observations made in the 1990 rainy season led to the following conclusions.

- 'ICTP 8203' was the most widely grown cultivar in most of the regions.
- Farmers' preference for this variety was based on high grain yield and downy-mildew resistance, compact spike, large grain size with dark grey colour and shiny appearance, and bhakri quality equivalent to the local varieties.
- Under marginal environments, characterized by shallow and

highly infertile soils, and prolonged drought stress, 'ICTP 8203' was likely to yield at least twice as much as the other cultivars.

- Of 47 fields subjected to close evaluations, 33 fields had no downy-mildew incidence, 6 fields had traces of incidence (less than 1% incidence), 7 fields had 1-4% incidence, and 1 field that had a mixture of 80% plants of 'ICTP 8203' and 20% plants from the advanced generations of 'MBH 110' had 10% incidence.

Based on these observations, 'ICTP 8203' is likely to be grown on a larger scale in Maharashtra for the next 3-4 years unless a superior cultivar with equivalent seed size is made available to the farmers during this period.

Table 1. Performance of 'ICTP 8203' and 'WC C75' (Control) in AICPMIP trials in Maharashtra and Andhra Pradesh

State	Cultivar	Year			Mean
		1984	1985	1986	
Grain yield (q/ha)					
		(4)	(6)	(9)	(19)
Maharashtra	'ICTP 8203'	23.2	19.1	21.3	21.2
	'WC C75'	20.3	19.2	20.2	19.9
		(3)	(4)	(4)	(11)
Andhra Pradesh	'ICTP 8203'	18.7	14.8	11.5	15.0
	'WC C75'	14.8	15.0	10.9	13.5
Time to 50% bloom (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
Plant height (m)					
Maharashtra	'ICTP 8203'	1.7	1.5	1.4	1.5
	'WC C75'	1.8	1.5	1.5	1.6
Andhra Pradesh	'ICTP 8203'	1.7	1.5	1.6	1.6
	'WC C75'	1.6	1.7	1.7	1.7
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'	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

Source: AICPMIP Progress Reports.

Numbers in parentheses indicate the number of locations over which the grain yield, time to 50% bloom and plant height data were averaged.

* Commercial open-pollinated variety used as a check.

** Check, susceptible to downy-mildew.

Future Prospects

Presently, downy-mildew does not appear to pose any threat to this variety. Continuous monitoring of the disease on 'ICTP 8203', however, is essential for developing remedial measures, in case its resistance declines over time. Such remedial measures, could include

- Further selection for downy-mildew resistance in 'ICTP 8203' itself.
- Rotation of 'ICTP 8203' with other pearl millet cultivars.
- Replacement of 'ICTP 8203' with other large-seeded cultivars having better downy-mildew resistance.

The likely risk of deterioration in the quality of foundation and certified seed stocks of 'ICTP 8203' caused by seed admixture and pollen contamination from other cultivars needs careful attention of all the organized sectors involved in seed production and seed trade.

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