

Konkan Sanjay (KJTR 3: IET 29264): A Promising Mid-Late Duration Rice Culture

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Abstract

Konkan Sanjay is a semi-dwarf (110-118 cm), mid-late duration (125-130 days), long slender grain type, non-lodging, higher milling percentage (72.7%), head rice recovery percentage (70.2%) and amylose content (23.34%) released for midland rice growing area of Maharashtra. This was developed by Regional Agricultural Research Station, Karjat, District Raigad, with average grain yield 4.6 to 5.0 t ha⁻¹. Konkan Sanjay is developed from selection of IR 54742-22-19-3R. Konkan Sanjay is high milling recovery (72.7%), head rice recovery (60.2%) and an amylose content of 23.3%, indicating good cooking quality. The culture is moderately resistant to stem borer and leaf blast disease, contributing to its stability across the environments. The average grain yield potential of KJTR-3 ranges from 4.6 to 5.0 t ha⁻¹, making it a promising rice culture for cultivation in Maharashtra.

Keywords: Konkan Sanjay, mid-late duration, high milling percentage, long slender grain and good cooking quality.

Introduction

In Maharashtra rice is the second important crop of the people, which is grown over an area of 15.25 lakh hectares with an annual production of 52.03 lakh tonnes. The average productivity of the state is 3.30 t/ha. The average productivity of the state is low as compared to other rice growing states viz., Punjab (5.80 t/ha) and Tamil Nadu (4.90 t/ha).

Konkan region is the major rice producing area of Maharashtra. Nearly 3.31 lakh ha area of Konkan is under rice crop with production of 14.20 lakh tonnes rough rice. The average productivity of rough rice in Konkan region is 4.28 t/ha. The Konkan region contributes 21.73% in area under rice crop and produces 32.14% rough rice at Maharashtra state level (Maharashtra State Statistics Department, Pune 2023-24 report.)

The rice cultivation in Konkan region is carried out on three types of soils classified as upland, midland and lowland requiring early, mid-late and late varieties respectively. The proportion of area under early,

mid-late and late varieties is about 40, 40 and 20 per cent, respectively. Till date, total 71 rice hybrids and varieties have been released in Maharashtra state but there is no long slender rice variety with mid-late duration and high yield. There is a need to develop high yielding, dwarf and long slender grain type rice variety suitable for transplanted condition of Maharashtra state. Accordingly, efforts were made to develop a rice variety to fulfill the requirement of rice growers of Maharashtra region.

Konkan Sanjay is a semi-dwarf (100-105 cm), non-lodging rice culture of mid-late duration (125-130 days) and long slender grain type. The growth, yield attributing characters and yield of Konkan Sanjay were found to be statistically significant over RP 4-14 rice variety. The plant height (106 cm), number of panicles per sq. m (258), number of spikelets per panicle (189) and test weight (27.72) were also observed to be statistically significant over Karjat-2 rice variety (**Table 1**).

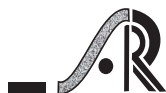


Table 1: Yield and ancillary characters of KJTR 3 in Advance Variety Trial (Maharashtra) Mid-late conducted during *Kharif* 2019- 2021.

Sl. No.	Designation	Yield (Kg/ha)	Days to 50% flowering	Plant height (cm)	Panicles / m ²	Spikelet / panicle	Test weight (g)	Grain Type
1.	KJTR 3	4814	106	112	258	189	27.72	LS
2.	RP 4-14 (Check)	4203	101	108	242	193	24.01	LS

In station trials, Konkan Sanjay recorded 31.31% increase in grain yield over the check variety RP 4-14. In the Maharashtra State Coordinated Trials, it exhibited a 14.5% yield advantage over the overall mean of three years compared to RP 4-14. In the All India Coordinated Trial (2020), KJTR-3 achieved a grain yield of 4825 kg ha⁻¹, showing superiority of 1.19% over the local check, 20.38% over the zonal check, and 31.48% over

the national check. Application of 150 per cent FYM and RDN and transplanting of rice variety Konkan Sanjay at 20 cm x 15 cm spacing recorded significantly higher growth, yield attributing characters and yield of rice as compared to application of 50 per cent RDN and transplanting of rice variety RP-1-14 at 20 cm x 15 cm spacing. During *Kharif* 2022, it registered a 9.92% increase in grain yield over RP 4-14 (**Table 2**).

Table 2: Grain Yield (Kg/ha) summary performance of rice culture KJTR-3 from *Kharif* 2019 to 2022

Name of Trial	Year	Locations	Grain yield (kg/ha)		
			TKR-35	RP 4-14 (Check)	% increase over checks
1. Station Trial					
IVT	2019	01	5526	3717	48.66
AVT	2020	01	3991	3532	12.99
Weighted mean		01	4759	3625	31.28
2. Maharashtra Trial					
IVT-Mid-late (Maharashtra)	2019	11	4881	4680	4.3
AVT- Mid-late (Maharashtra)	2020	11	4689	3827	22.5
AVT- Mid-late (Maharashtra)	2021	11	4861	4069	19.5
Weighted mean		11	4814	4203	14.5
3. AICRIP Trial					
IVT IM (AICRIP)	2020	03	5859	-	-
NDR 359 (NC)			-	4456	31.48
		Akshaydhan (Western)		4867	20.38
		Local check		5790	1.19
4. Agronomical trial					
	2022	1	4430	4030	9.92
5. Adaptive trial					
Adaptive	2022	26	4965	4296	15.58

Konkan Sanjay is a variety having high milling recovery (72.7%), head rice recovery (60.2%), and an amylose content of 23.3%, indicating good cooking quality (**Table 3**). The culture is moderately resistant to stem borer and leaf blast disease, contributing to its

stability across environments (**Table 4**). The average grain yield potential of KJTR-3 ranges from 4.6 to 5.0 t ha⁻¹, making it a promising rice culture for cultivation in Maharashtra (**Figure 2**).

Table 3: Performance against pests and diseases Maharashtra Screening Nursery-1 (MSN-1) on pooled basis

Sl. No.	Name of entry	Scale Mean (SI)		Pooled Mean (SI)	Reaction
		<i>Kharif 2020</i>	<i>Kharif 2021</i>		
	1) BLB	(2 Loc)	(2 Loc)	(4 Loc)	
1	KJTR 3	6	6	6	MS
2	RP 4-14 (Ch)	7	7	7	S
	2) Leaf Blast	(3 Loc)	(3 Loc)	(6 Loc)	
1	KJTR 3	3.0	4.0	3.5	MR
2	RP 4-14 (Ch)	3.0	4.0	3.5	MR
	3) Stem Borer	(2 Loc)	(2 Loc)	(4 Loc)	
1	KJTR 3	1	3	2	MR
2	RP 4-14 (Ch)	2	2	2	MR

S- Susceptible, MS- Moderately Susceptible, MR- Moderately resistant

Table 4: Summary of grain quality characteristics of KJTR 3 rice culture

Sl. No.	Entry	GT	Mill (%)	HRR (%)	L/B	Grain Chalk	ASV	AC (%)	GC (mm)	Protein (%)	Fe (ppm)	Zn (ppm)
1	KJTR 3	LS	68.50	58.5	3.11	A	3.0	20.6	54	7.44	12.6	11.0
2	RP 4-14 (Ch)	LS	69.89	57.0	3.10	A	3.7	25.4	78	6.73	2.8	16.0

GT-Grain type, Mill. -Milling per cent, HRR- Head Rice Recovery, L/B- Length Breadth ratio, ASV-- Alkali spreading value, AC – Amylose content, GC – Gel consistency.

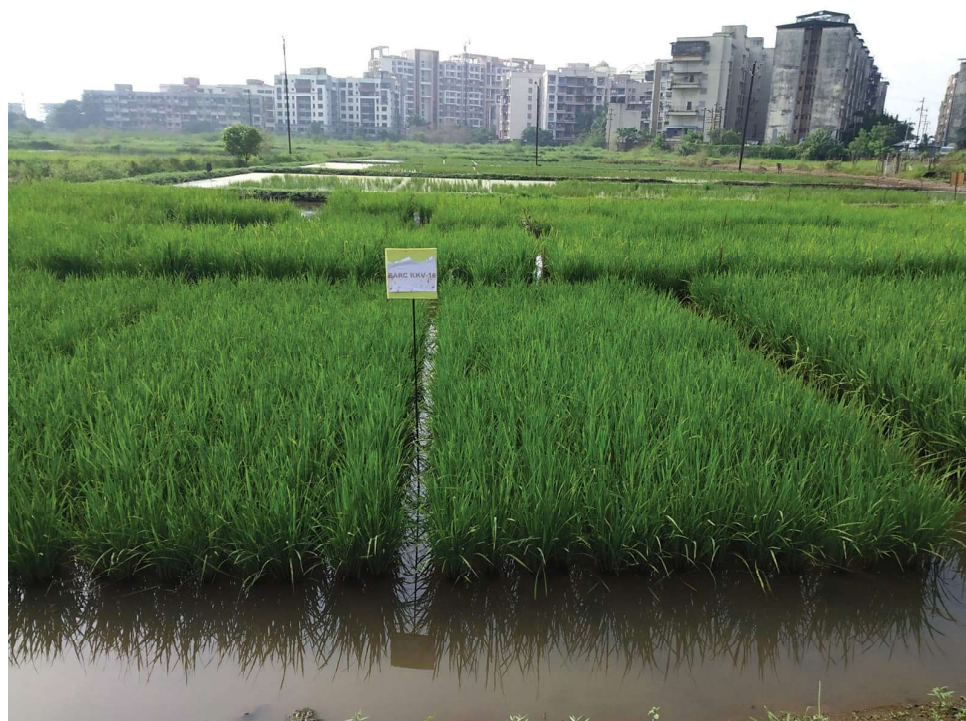


Figure 1: Field view of Konkan Sanjay rice Variety



Paddy



Rice

Figure 2: Grain characters of Konkan Sanjay Rice Variety