

Experiment 4:

Title: Evaluation of Growth and Yield Performance of Six Different Rice Varieties Under North Konkan Coastal Zone of Maharashtra

Objectives: To identify a high-yielding and suitable rice variety for cultivation in the North Konkan region of Maharashtra.



Introduction

Rice (*Oryza sativa* L.) is the most important staple food crop of India, providing food security to more than half of the population. India occupies a prominent position in global rice production, with productivity largely influenced by varietal selection, climatic conditions, and management practices. In the Konkan region of Maharashtra, rice is predominantly cultivated during the Kharif season under rainfed and partially irrigated conditions. However, productivity in this region is often constrained by heavy rainfall, coastal soil characteristics, and suboptimal varietal adaptability.

The development and evaluation of location-specific rice varieties with higher yield potential and better adaptability to coastal environments are essential for enhancing productivity. Varietal differences significantly influence growth behavior, yield attributes, and final yield due to their genetic makeup and response to local agro-climatic conditions. Therefore, the present investigation was undertaken to evaluate the growth and yield performance of six rice varieties under North Konkan coastal conditions.

Experimental Details:

Crop	Rice	Treatments	6
Season	Kharif	Spacing	20 X 15 cm

Replications	3	Plot Size	Gross plot: 3.30 X 3.00 m
Location	ARDF, Tansa Farm		Net plot: 3.15 X 2.80 m
Design	RBD	Transplanting Date	14/07/2024
		RDF	100:50:50 kg NPK ha⁻¹

Treatment Details:

Treat. No.	Treatment Details
T1	Karjat-3
T2	Karjat-4
T3	Karjat-5
T4	Ratnagiri-8
T5	Jaya
T6	Palghar-1

Methodology

The field experiment was conducted at the ASPEE Agricultural Research and Development Foundation (ARDF), Tansa Farm, Maharashtra, during the Kharif season of 2024. The experimental field had well-drained soil suitable for rice cultivation. The experiment was laid out in a Randomized Block Design (RBD) with six treatments and three replications.

The treatments consisted of six rice varieties: T1- Karjat-3, T2- Karjat-4, T3- Karjat-5, T4- Ratnagiri-8, T5- Jaya and T6- Palghar-1.

All agronomic practices were followed uniformly as per recommended package of practices for rice in the Konkan region. Observations were recorded on growth parameters such as plant height and number of tillers per plant, yield attributes including number of panicles per plant, panicle length, number of seeds per panicle, and test weight, as well as grain and straw yield. The recorded data were statistically analyzed using standard procedures for RBD, and significance was tested at the 5% level.

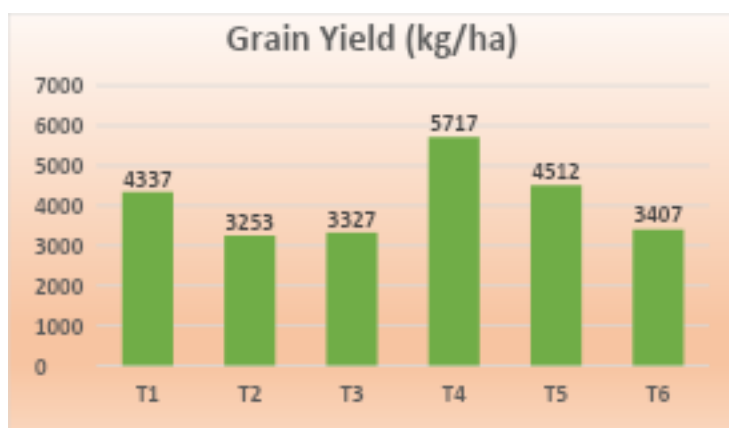
Layout



Results

Significant variation was observed among rice varieties with respect to growth parameters. Ratnagiri-8 recorded the tallest plants (101.07 cm) and the highest number of tillers per plant (14.40), which were significantly superior to the other varieties, indicating its better genetic potential and adaptability to North Konkan coastal conditions. Jaya and Karjat-3 also showed comparatively higher plant height and tiller production, whereas Karjat-4 recorded the lowest values. The superior tillering ability of Ratnagiri-8 is advantageous as it contributes to higher panicle formation and yield, confirming the significant influence of varietal differences on rice growth performance under coastal agro-climatic conditions.

Graph:



Conclusion

The present study revealed significant variation among rice varieties for growth, yield attributes, and yield under North Konkan coastal conditions. Among the six varieties evaluated, Ratnagiri-8 emerged as the most promising variety, recording superior growth performance, higher yield attributes, and maximum grain and straw yield. Therefore, Ratnagiri-8 can be recommended for cultivation in the North Konkan coastal zone of Maharashtra to enhance rice productivity and farmers' income.