ORIGINAL RESEARCH PAPER

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EVALUATION OF GROWTH PERFORMANCE OF DIFFERENT RICE VARIETIES UNDER NORTH KONKAN COASTAL ZONE OF MAHARASHTRA.

KEY WORDS: Vnr, Yield, Mahadi, Gr-11

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ABSTRACT

A field experiment was conducted during the rainy (kharif) season of 2018 at Palghar, Maharashtra, to study the growth performance of different rice varieties under North Konkan coastal zone of Maharashtra.
Results indicated that higher growth attributes like productive tillers per plant (14.4), number of panicle per plant (11.0), panicle length (25.1 cm), seed/panicle (316), 1000-grains weight (30.8 g) and grain yield (5.1 t/ha) were recorded with hybrid rice variety VNR-2 than others varieties of rice.

INTRODUCTION:

Rice is central to the lives of billions of people around the world as well as most important and staple food crop for feeding of more than two third populations globally. Rice or *Oryza sativa* (as botanists prefer to call it) is not a tropical plant but is still associated with a wet, humid climate. It is generally believed that the domestication of rice began somewhere in the Asian arc. From its place of birth, lost forever in the mists of time, the plant and its grain spread all over the world. According to some schools of thought, it is probably a descendant of wild grass that was cultivated in the foothills of the Eastern Himalayas and the upper tracts of the Irrawady and Mekong river basins. Another school of thought believes that the rice plant may have originated in southern India and then spread to the north of the country. From India, the plant spread to China and then onward to Korea, the Philippines (about 2000 B.C.), Japan and Indonesia (about 1000 B.C.). The Persians are known to have been importers of this grain. From there its popularity spread to Mesopotamia and Turkestan. It is believed that when Alexander the Great invaded India in 327 B.C., one of the priced possessions he carried back with him was rice.

Rice provides 21% of global human per capita energy and 15% of per capital protein. Calories from rice are particularly important in Asia, especially among the poor, where it accounts for 50-80% of daily caloric intake. India is the world's second largest rice producer and consumer next to China. In the world, rice is cultivated on about 163.1 mha of area with total production of 722.5 mt and productivity of 4.4 t/ha (Anonymous, 2015). The India's rice production has reached to a record high of 104.32 mt from an area of 43.17 mha with productivity 2.42 t/ha in 2015-2016 (Anonymous, 2016). In Maharashtra state, rice is cultivated on 1.513 mha area in almost all four regions *viz.*, Vidharbha (0.795 mha.), *Konkan* (0.383 mha.), Western Maharashtra (0.323 mha.) and Marathwada (0.12 lakh ha.) with annual production of 4.171 mt and 2.878 mt milled rice. The area (0.795 mha.) and production (1.681 mt) of rice crop is more in Vidharbha region while highest productivity was recorded in *Konkan* region *i.e.* 2.75 t/ha milled rice and 3.83 t/ha rough rice by production of 1.526 mt rough rice (10.53 lakh tonnes milled rice) (Anonymous, 2014). Just as rice can be grown in many different environments, it has many characteristics, making one variety more popular in one region of the world than another. Rice can be a short, medium or long grain size. It can also be waxy (sticky) or non-waxy. Some rice varieties are considered aromatic (Chaudhary, R., *et al.* 2001). The present study was carried out to study the evaluation of growth performance of ten varieties on large scale under North *Konka*n coastal zone of Maharashtra.

MATERIALS AND METHODS

A study was carried out at the ASPEE ARDF Farm, Village-Nare, Taluka.- Wada, Dist.-Palghar (Maharashtra), during *kharif* 2018. The average annual rainfall of the study area is 2600-3000 mm. The average maximum and minimum temperatures are 23.8°C and 12.6°C respectively. The treatments were tested in Randomized Block Design with three replications. Total ten rice genotypes constitute of T_1: Mahadi, T_2: GR-4, T_3: Mahisagar, T_4: VNR-1, T_5: VNR-2, T_6: VNR-3, T_7: VNR-4, T_8: VNR-5, T_9: VNR-6, T_{10}: GR-11 were tried in 4.5 m x 2.6 m plot. The recommended dose of NPK was applied in the form of urea (46-0-0), single super phosphate (0-16-0) and muriate of potash (0-0-60). Paddy was transplanted on 14th July and were harvested on 4th November in 2018. Recommended management practices and plant protection measures were followed. Observations on plant height, no. of productive tillers/plant at harvest, grain test weight (1000 grains), panicle length, no. of grains/panicle and grain yields were recorded. The data obtained during the study were subjected to statistical analysis using the WASP. (Software developed by ICAR Research complex Goa).

RESULTS AND DISCUSSION:

The observations recorded at the successive stage of the plant development were analyzed statistically and were presented in table 1. The experimental findings of the present investigation and discussion had been done with reference by different authors as co-related with the different parameters.

Plant height progressively increased with advancement of the age of crop. Data on plant height of rice (Table 1) revealed that plant height increased progressively with an increase in the age of the crop. The plant height was found to be significantly higher at harvest (125.2 cm) with variety Mahadi, observations in the present study are in confirmedly with the finding report by Mahapatra *et al.* in 2004.

Table: Evaluation Of Growth Performance Of Different Rice Varieties Under North Konkan Coastal Zone Of Maharashtra.

	Plant height (cm)	Productive tillers per plant at harvest	No. of panicle per plant	Panicle length (cm)	Seeds per panicle	Test weight (g)	Grain Yield (kg/ha)
Mahadi	125.2	9.4	9.4	19.3	82	29.5	5111
GR-4	92.9	8.8	8.8	18.6	222	16.6	4000

Mahisagar	91.0	8.2	8.0	20.5	146	21.2	2667
VNR-1	103.8	8.0	8.0	22.6	196	24.9	4222
VNR-2	104.1	11.4	11.0	25.1	316	30.8	5156
VNR-3	102.7	9.0	8.6	20.3	137	27.5	4889
VNR-4	111.2	10.2	10.4	23.7	226	21.5	3556
VNR-5	108.6	9.6	9.2	25.1	186	24.0	4044
VNR-6	108.6	10.6	10.4	25.2	208	21.2	4089
GR-11	102.6	10.8	10.4	18.5	217	19.4	3778
S.Em.±	4.11	0.37	0.54	0.57	2.39	0.53	73.65
C.D. at 5 %	12.05	1.10	1.5	1.66	6.96	1.53	214.14

In general, number of productive tillers increased with crop age upto 90 DAT but, the number of tillers at maturity were slightly reduced. VNR-2 recorded higher numbers of productive tillers at harvest (11.4), similar observations on number of productive tillers were found by Sarawgi and Sarawgi in Chhattisgarh (2004).

The hybrid variety VNR-2 also show higher numbers of panicles per plant (11.0), panicle length (25.1 cm), grains per panicle (316), test weight (30.8 g) and grain yield (5.1 t/ha.) Paraye *et al.*, 2006 also noted the similar trend at Raipur which was observed in the present study.

CONCLUSION:

It can be seen from the above data that all the genotypes were significantly higher than each other. The variety VNR-2 was significantly superior in growth as well as in yield parameters than all other genotypes.

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