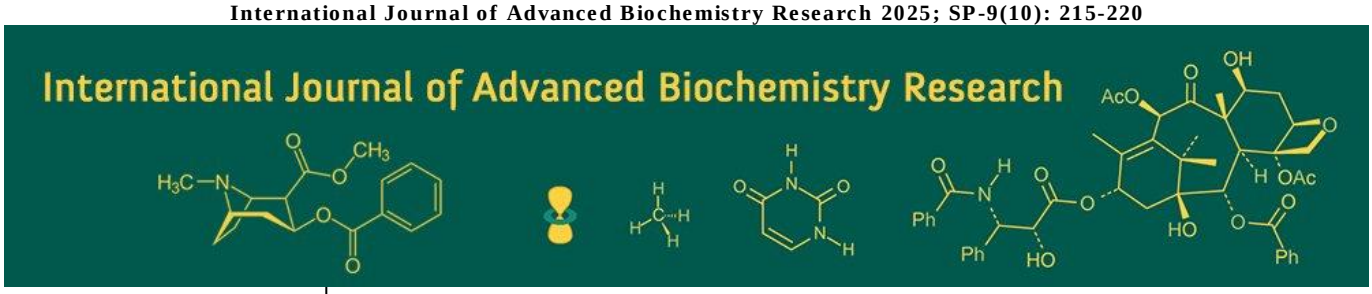

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Physiological screening of released rice varieties for direct seeded condition

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Abstract
The field experiment was laid out in Randomized Block Design (RBD) with 35 genotypes including one check replicated twice. The result revealed that, the yield attributing characters *viz*. panicle length (26.25 cm), filled grains panicle^{-1} (153), number of panicles m^{-2} (391.5), grain yield plant^{-1} (36.10 g) and straw yield plant^{-1} (39.40 g) of rice is highest in Karjat 10. The screening revealed that Karjat 10 was best genotype under direct seeded rice condition because of its high yielding, non-lodging and non-shattering characters having maximum shoot length (33.10 cm), seedling vigour (3380.50), total dry matter plant^{-1} (90.50 g), relative water content (82.52 %), chlorophyll 'a' (2.700 mg/g FW), chlorophyll 'b' (0.688 mg/g FW) and total chlorophyll content (3.402 mg/g FW).

Keywords: Direct seeded rice, Days to 50% flowering, Plant height, Grain yield plant^{-1}, Straw yield plant^{-1} and Harvest index.

Introduction
Rice (*Oryza sativa* L.) is one of the most important food crops in the world and a staple food for more than 50% of the global population. As the major source of food after wheat, it provides 43% of the calorie requirements for more than two-third of the Indian population. India ranks second in rice production followed by China, with a production of 136.70 million tonnes (Anonymous, 2024) [1]. In Maharashtra, rice is second most important crop. The production scenario of Maharashtra reflected that rice occupies 1.69-million-hectare area with total production of 4.0 million metric tons and average productivity 2.37 tones per hectare (Annonymous, 2025) [2].

In Konkan region rice is primarily cultivated traditionally by transplanted method. The transplanted rice gives higher yield over direct seeded rice. However, transplanting is a labour intensive processes such as raising of nursery, puddling and transplanting which are time consuming and costly operations with rapid urbanization in Konkan region, scarcity of labour is posing a severe problem to agriculture in general and rice cultivation in particular.

Direct seeded rice, probably the oldest method of crop establishment is gaining popularity because of its low input demand. It offers certain advantages *viz*., it saves labour, requires less water, less drudgery, early crop maturity, low production cost, better soil physical condition for crops and less methane emission provides better option to be the best fit in different cropping systems. (Kaur *et al*. 2017) [11].

Direct seeded rice has established its potential in the modern era of the intensive cropping system because photo-insensitive short duration varieties have become available. They fit in very well during the short growing period as in the short summer season and in pre and post-flood periods in the flood prone rice growing areas. Direct seeded rice has an edge over transplanted rice because growing same variety, the former matures a week to 10 days earlier than the latter. This period looks to be very small but has great significance in economic intensive cropping system.

Thus, rice cultivation needs continuous efforts to create a resource-efficient and sustainable alternative system that can address the challenges of climate change and other emerging risks. DSR represents a viable alternative, as it has the potential to produce higher yields with less labour while ensuring optimal water use in an environmentally sustainable manner.

Materials and Methods

The research was carried out at Regional Agricultural Research Station, Karjat, Dist Raigad (MH) during *Kharif* 2024 season. The University released thirty-five genotypes including one check were grown in Randomized Block Design (RBD) with two replications to study physiologically efficient, high yielding and suitable rice varieties for direct seeded rice. The plot size was 2.00 m × 1.20 m and consisting of 30 cm × 10 cm spacing. The observations were recorded on trait *viz* days to 50% flowering, plant height (cm) at tillering, flowering and harvesting, panicle length (cm), number of panicles m^{-2}, spikelet fertility (%), test weight (g), number of tillers at flowering, grain yield (g $plant^{-1}$), straw yield (g $plant^{-1}$) and harvest index (%).

Result and Discussion

Days to 50 % flowering

The data presented in Table 1 the average days 50% flowering was 82.54 days with a range of 61.50 days (Ratnagiri 73) to 106.50 days (Ratnagiri 2). The maximum days to 50% flowering was recorded in Ratnagiri 2(106.50 days) which was at par with Karjat 2 (91.50 days), Karjat 8 (102 days), Karjat 9 (89 days), Karjat 10 (100 days), Sahyadri 3 (88.50 days), Ratnagiri 3 (101 days), Ratnagiri 8 (94 days), Panvel 3 (90 days) and the minimum days to 50% flowering was recorded in Ratnagiri 73 (61.50 days), Karjat 184 (67 days), Ratnagiri 24 (68 days) and Ratnagiri 711 (69 days). The study revealed considerable variation in days to 50% flowering. Early duration genotypes are Karjat 184 (67 days), Karjat 3 (85 days), Karjat 4 (74.5 days), Karjat 5 (83 days), Karjat 6 (86.5 days), Karjat 7 (76.5 days), Karjat 9 (89 days), Karjat Shatabdi (78 days), Trombay Karjat Kolam (88 days), Trombay Konkan Khara (79 days), Sahyadri (87 days), Sahyadri 2 (74 days), Sahyadri 3 (88.5 days), Sahyadri 4 (77.5 days), Ratnagiri 24 (68 days), Ratnagiri 711 (69 days), Ratnagiri 73 (61.5 days), Ratnagiri 1 (75.5 days), Ratnagiri 4 (82.5 days), Ratnagiri 5 (71.5 days), Ratnagiri 6 (85 days), Ratnagiri 7 (79.5 days), Palghar 1 (86 days), Palghar 2 (77 days), Panvel 1 (84 days), Panvel 2 (72.5 days), Panvel 3 (90 days), Phondaghat 1 (76.5 days) and Konkan Sanjay (87 days). Mid-early duration genotypes are Karjat 2 (91.5 days), Karjat 10 (100 days) and Ratnagiri 8 (94 days). Medium duration genotypes are Karjat 8 (102 days), Ratnagiri 2 (106.5 days) and Ratnagiri 3 (101 days). Among the genotypes, Ratnagiri 73 (61.50 days) is early flowering genotype in direct seeded rice systems because it completed its life cycle in less duration and may avoid terminal drought or heat stress and ensuring timely harvest (Padma *et al.* 2024) [17]. Similar variability in flowering duration was reported by Dhillon *et al.* (2021) [6] the rice genotypes into early, medium and late maturing based on days to 50% flowering under direct seeded rice. Kesh *et al.* (2022) [13] also reported that genotypes flowered earlier in direct seeded rice compared to other methods, suggesting that direct seeding can influence phenological expression. The results are aligned with Osman *et al.* (2015) [16] and Shanta *et al.* (2020) [23].

Plant height (cm)

In the present investigation, plant height increased up to harvest in all the rice genotypes. The rapid increase in height was observed during the period of tillering, flowering and thereafter rate of increase was slow up to harvest. The data presented in Table 1 showed that at tillering stage, the plant height ranged from 46.30 cm (Sahbhagi Dhan) to 76.70 cm (Trombay Konkan Khara) with an average of 65.62 cm. The maximum plant height was significantly recorded in Trombay Konkan Khara (76.70 cm), while the minimum plant height was recorded in Sahbhagi Dhan (46.30 cm). At flowering stage, the plant height ranged from 85 cm (Ratnagiri 73) to 147.50 cm (Konkan Sanjay) with an average of 119.30 cm. The maximum plant height significantly recorded in Konkan Sanjay (147.50 cm) which were at par with Karjat 10 (141.00 cm), Karjat Shatabdi (136.00 cm), Trombay Karjat Kolam (135.00 cm), Trombay Konkan Khara (133.00 cm), Sahyadri (128.50 cm), Sahyadri 3 (142.50 cm), Ratnagiri 3 (136.50 cm), Palghar 1 (135.00 cm), Panvel 3 (135.50 cm), while the minimum plant height was recorded in Ratnagiri 73 (85.00 cm). At the harvesting stage, the plant height ranged from 87.26 cm (Ratnagiri 73) to 149.20 cm (Konkan Sanjay) with an average of 121.85 cm. The maximum plant height significantly recorded in Konkan Sanjay (149.20 cm) which was at par with Karjat 10 (143.20 cm), Sahyadri 3 (147.50 cm), Ratnagiri 3 (139.00 cm), Ratnagiri 4 (145.00 cm), while the minimum plant height was recorded in Ratnagiri 73 (87.26 cm). Plant height is a key morphological trait influencing canopy architecture, light interception and lodging resistance in rice. The taller plants lodge at maturity because of top heaviness due to panicle weight and weaker lower stem, which ultimately reduces the yield. Therefore, non-lodging and medium tall plants would be preferable. In this study, significant differences in plant height were observed among genotypes across all growth stages. Ratnagiri 73 significantly recorded minimum plant height at harvesting stage (87.26 cm) and Konkan Sanjay significantly recorded maximum plant height (149 cm) at harvesting stage. The consistent increase in plant height from tillering to harvest reflects active vegetative growth and also reported by Golam *et al.* (2001) [10] and Padma *et al.* (2024) [17]. The variations in height mainly due to crowding effect in sowing where plants tend to compete with each other for light. The plants grow taller due to more amount of plant population m^{-2} (Reddy *et al.* 2022) [20]. Similar trends of height enhancement under direct seeded rice were observed by Arulmozhi *et al.* (2024) [3] found greater plant height in direct seeded rice than in transplanted rice.

Panicle length (cm)

The panicle length ranged from 15.60 cm (Karjat 4) to 26.25 cm (Karjat 10) with a general mean of 21.67 cm was presented in Table 2. The highest panicle length was significantly recorded in Karjat 10 (26.25 cm) which was at par with Sahyadri 4 (24.20 cm) and Ratnagiri 7 (24.35 cm), while the lowest panicle length was recorded in Karjat 4 (15.60 cm). The significantly higher panicle length recorded in Karjat 10 (26.25 cm). These findings are recorded by Kesh *et al.* (2022) [13] that genotypes evaluated under direct seeded rice systems exhibited substantial variation in panicle length with earlier flowering genotypes generally producing longer panicles. Moreover, Arulmozhi *et al.* (2024) [3] recorded that panicle length was positively correlated with earlier flowering and taller plants under both direct seeded and transplanted conditions. This suggests that early vegetative vigour and reproductive synchronization favour panicle development.

Number of panicles m^{-2} under DSR condition

The average number of panicles m^{-2} was 249.10 with a range of 117.5 (Panvel 1) to 391.5 (Karjat 7) and (Karjat 10) was presented in Table 2. The maximum number of panicles $m^{-2}$was significantly recorded in Karjat 7 and Karjat 10 (391.5) which was at par with Karjat 184 (306.5), Karjat 2 (340), Karjat 3 (386.5), Karjat 5 (365), Karjat 8 (360), Sahyadri 4 (278), Ratnagiri 4 (318.5), Ratnagiri 5 (351.5), Ratnagiri 7 (299.5), Palghar 1 (281.5), Phondaghat 1 (317.5), while the minimum number of panicles m^{-2} recorded in Panvel 1 (117.5). The highest number of panicles m^{-2} was significantly recorded in Karjat 7 and Karjat 10 (391.5). Similar findings were reported by Osman *et al.* (2015) [16] that early sowing under direct seeded rice favours higher panicle number due to better plant stand and early vegetative growth. Moreover, Sarma *et al.* (2024) [22] reported that establishment techniques like drum seeding and effective weed management significantly increased tiller and panicle density which led to superior yield performance indirect seeded rice. Similarly, Asmamaw *et al.* (2017) [4] confirmed that higher planting densities (e.g., 50 hills m^{-2}) enhanced panicle number significantly in direct seeded rice.

Spikelet fertility (%)

The average spikelet fertility was 85.98 % ranged from 79 % (Karjat 6) to 92 % (Karjat 7) and (Trombay Karjat Kolam) was presented in Table 2. The highest spikelet fertility was significantly recorded in Karjat 7 and Trombay Karjat Kolam (92 %) which was at par with Karjat 3 (90%), Karjat 10 (91%), Sahyadri 3 (91%), Ratnagiri 73 (89%), Ratnagiri 7 (90%), while the lowest spikelet fertility was recorded in Karjat 6 (79 %). The highest spikelet fertility was significantly recorded in Karjat 7 and Trombay Karjat Kolam (92%). Godwin Gilbert *et al.* (2023) [9] reported that genotypes with high spikelet fertility showed good yield performance under direct-seeded stress conditions. Raj *et al.* (2022) [19] reported that conventional puddled transplanted rice and improved conservation agriculture-based direct seeded rice systems with better weed and nutrient management led to higher spikelet fertility compared to standard direct seeded rice. Their study observed that improving spikelet fertility is for achieving yield grains in direct seeded rice.

Test weight (g)

The data presented in Table 2 with an average test weight of 20.24 g ranged from 10.82 g (Karjat 4) to 27.41 g (Ratnagiri 1). The highest test weight was significantly recorded in Ratnagiri 1 (27.41 g) which was at par with Karjat 5 (25.26 g), Trombay Konkan Khara (24.87 g), Sahyadri 2 (25.22 g), Sahyadri 4 (24.48 g), Ratnagiri 711 (25.14 g), Ratnagiri 4 (24.58 g), Panvel 1 (25.95 g), Panvel 3 (24.10 g), Konkan Sanjay (26.33 g), while the lowest test weight was recorded in Karjat 4 (10.82 g). The maximum test weight was significantly recorded in Ratnagiri 1 (27.41 g). Nimje (2010) [15] reported that grains are that actual sites where the accumulation of photosynthesis takes place in panicles and hence constitute the real sink. The size of the grain has a direct bearing on yield. Osman *et al.* (2015) [16] reported that increased test weight due to favourable climatic conditions during grain development and grain yield. Kaur *et al.* (2016) [12] reported that wider row spacing in direct seeded rice significantly improved grain filling and test weight.

Number of tillers $plant^{-1}$

The average number of tillers in $plant^{-1}$ was 12.99 with a range of 10.84 (Ratnagiri 2) to 16.01 (Karjat 7) was presented in Table 2. The maximum number of tillers $plant^{-1}$ was significantly recorded in Karjat 7 (16.01) which were at par with Karjat 10 (15.90), Trombay Karjat Kolam (14.50), Ratnagiri 4 (15.40), Ratnagiri 7 (14.78), while the minimum number of tillers $plant^{-1}$ was recorded in Ratnagiri 2 (10.84). The maximum number of tillers $plant^{-1}$ was significantly recorded in Karjat 7 (16.01). Reddy *et al.* (2022) [20] reported that the total tiller production in direct seeded rice is heavily influenced by the establishment method and initial plant density. Although the overall plant population may be higher in direct seeded rice, the number of tillers $plant^{-1}$ can be lower compared to transplanted rice (TPR) due to early competition or stress exposure. These types of findings were obtained by Osman *et al.* (2015) [16] and Kaur *et al.* (2016) [12].

Grain yield $plant^{-1}$ (g)

The general mean of grain yield $plant^{-1}$ was 21.5 g with range of 21 g (Karjat 6) to 36.10 g (Karjat 10) was presented in Table 2. The maximum grain yield $plant^{-1}$ was significantly recorded in Karjat 10 (36.10 g) which were at par with Karjat 3 (24.10 g), Karjat 5 (25.70 g), Sahyadri (33.12 g), Sahyadri 3 (34.40 g), Sahyadri 4 (25.00 g), Ratnagiri 4 (26.16 g), Ratnagiri 8 (30.30 g), Konkan Sanjay (25.65 g), while the minimum grain yield $plant^{-1}$ was recorded in Karjat 6 (15.21 g). The highest grain yield $plant^{-1}$ was significantly recorded in Karjat 10 (36.10 g). The findings align with Pramanik *et al.* (2013) [18] and Osman *et al.* (2015) [16] reported that healthy seedling vigour under direct seeded rice significantly enhance grain yield by supporting better grain filling. Kaur *et al.* (2016) [12] reported that direct seeded rice led to increased grain yield by promoting improved plant architecture, reduced inter-plant competition and enhanced root development. Furthermore, Godwin Gilbert *et al.* (2023) [9] reported that under direct seeded rice conditions genotypes with strong physiological traits such as higher tiller $plant^{-1}$ and superior single plant yield performed yield $plant^{-1}$. Similar types of findings were obtained by Choudhary *et al.* (2021) [5] and Kesh *et al.* (2022) [13] under direct seeded rice conditions.

Straw yield $plant^{-1}$ (g)

The general mean of straw yield $plant^{-1}$ was 25.55 g with a range of 18.60 g (Karjat 184) to 39.40 g (Karjat 10) was presented in Table 2. The maximum straw yield $plant^{-1}$ was significantly recorded in Karjat 10 (39.40 g) which was at par with Karjat 3 (30.10 g), Karjat 5 (30.35 g), Karjat 7 (29.30 g), Sahyadri (35.80 g), Sahyadri 3 (36.90 g), Ratnagiri 4 (31.00 g), Ratnagiri 8 (34.50 g), Konkan Sanjay (29.23 g), while the minimum straw yield $plant^{-1}$ was recorded in Karjat 184 (18.60 g). The highest straw yield $plant^{-1}$ was significantly recorded in Karjat 10 (39.40 g). Pramanik *et al.* (2013) [18] recorded that significantly improved straw yield due to increased vegetative growth and dry matter accumulation. Shanta *et al.* (2020) [23] reported that improved leaf area index and total dry matter production leading to higher straw yield in direct seeded rice. This result was similar with strong vegetative vigour tend to produce more straw biomass. Similar type of findings was obtained by Kaur *et al.* (2016) [12].

Harvest Index (%)

The general mean of the harvest index was 45.56 %. The harvest index ranged from 42.24 % (Karjat 6) to 48.66 % (Sahyadri 4) was presented in Table 2. The maximum harvest index was significantly recorded in Sahyadri 4 (48.66 %), while the minimum harvest index was recorded in Karjat 6 (42.24 %). The maximum harvest index was significantly recorded in Sahyadri 4 (48.66%). Pramanik *et al.* (2013) [18] reported that significantly increased the harvest index in hybrid rice by enhancing dry matter production and grain yield. Kesh *et al.* (2022) [13] reported that harvest index is the ratio of grain yield over biological yield. The high harvest index reveals the better translocation of assimilates to the panicle.

Table 1: Days to 50 % flowering and plant height as influenced by rice genotypes under direct seeded rice (DSR) method.

Sr. No.	Genotypes	DFF	Plant height (cm)		
			Tillering	Flowering	Harvesting
1	T_1-Karjat 184	67.0	63.23	103.00	105.00
2	T_2-Karjat 2	91.5	68.42	112.00	115.00
3	T_3-Karjat 3	85.0	69.75	111.50	114.00
4	T_4-Karjat 4	74.5	70.50	92.00	97.50
5	T_5-Karjat 5	83.0	72.96	120.00	122.00
6	T_6-Karjat 6	86.5	69.79	110.00	113.50
7	T_7-Karjat 7	76.5	70.79	105.00	109.50
8	T_8-Karjat 8	102.0	67.20	125.00	128.00
9	T_9-Karjat 9	89.0	71.85	118.00	120.00
10	T_{10}-Karjat 10	100.0	74.55	141.00	143.20
11	T_{11}-Karjat Shatabdi	78.0	70.25	136.00	138.00
12	T_{12}-Trombay Karjat Kolam	88.0	67.17	135.00	137.00
13	T_{13}-Trombay Konkan Khara	79.0	76.70	133.00	135.00
14	T_{14}-Sahyadri	87.0	71.60	128.50	129.00
15	T_{15}-Sahyadri 2	74.0	60.70	108.20	109.50
16	T_{16}-Sahyadri 3	88.5	67.15	142.50	147.50
17	T_{17}-Sahyadri 4	77.5	63.10	111.00	114.00
18	T_{18}-Ratnagiri 24	68.0	63.70	110.00	110.50
19	T_{19}-Ratnagiri 711	69.0	62.80	95.00	95.50
20	T_{20}-Ratnagiri 73	61.5	52.00	85.00	87.26
21	T_{21}-Ratnagiri 1	75.5	64.20	115.00	117.00
22	T_{22}-Ratnagiri 2	106.5	63.60	112.00	115.50
23	T_{23}-Ratnagiri 3	101.0	61.00	136.50	139.00
24	T_{24}-Ratnagiri 4	82.5	73.81	143.00	145.00
25	T_{25}-Ratnagiri 5	71.5	65.55	113.00	115.35
26	T_{26}-Ratnagiri 6	85.0	62.40	112.00	115.58
27	T_{27}-Ratnagiri 7	79.5	66.20	126.00	129.00
28	T_{28}-Ratnagiri 8	94.0	58.40	125.00	129.00
29	T_{29}-Palghar 1	86.0	61.55	135.00	138.00
30	T_{30}-Palghar 2	77.0	65.31	125.50	129.50
31	T_{31}-Panvel 1	84.0	66.91	110.50	114.50
32	T_{32}-Panvel 2	72.5	58.50	112.50	114.00
33	T_{33}-Panvel 3	90.0	61.80	135.50	137.00
34	T_{34}-Phondaghat 1	76.5	57.50	110.50	112.00
35	T_{35}-Konkan Sanjay	87.0	74.95	147.50	149.20
36	T_{36}-Sahbhagi Dhan	77.5	46.30	113.50	115.90
	G.M.	82.5	65.62	119.30	121.85
	S.E. ±	1.91	4.14	2.62	5.84
	C.D. (5%)	5.48	11.88	7.51	16.76
	C.V. (%)	3.27	8.92	3.10	6.78

Table 2: Yield and yield attributing characters as influenced by rice genotypes under direct seeded rice (DSR) method.

Sr. No.	Genotypes	Panicle length (cm)	No of panicles m^{-2}	Spikelet Fertility (%)	Test weight (g)	No of tillers $plant^{-1}$	Grain yield $plant^{-1}$ (g)	Straw yield $plant^{-1}$ (g)	Harvest index (%)
1	T_1-Karjat 184	20.80	306.5	85	15.25	12.10	16.10	18.60	46.40
2	T_2-Karjat 2	21.55	340.0	80	20.16	12.25	19.00	21.55	46.84
3	T_3-Karjat 3	21.75	386.5	90	22.69	14.26	24.70	30.10	45.05
4	T_4-Karjat 4	15.60	233.0	88	10.82	12.94	19.70	21.70	47.58
5	T_5-Karjat 5	23.65	365.0	85	25.26	13.83	25.70	30.35	45.86
6	T_6-Karjat 6	19.10	210.0	79	13.43	12.35	15.21	20.80	42.24
7	T_7-Karjat 7	23.45	391.5	92	22.01	16.01	23.11	29.30	44.09
8	T_8-Karjat 8	23.66	360.0	84	13.76	13.63	22.00	25.35	46.47
9	T_9-Karjat 9	19.65	190.0	88	15.63	12.33	20.25	24.13	45.63
10	T_{10}-Karjat 10	26.25	391.5	91	23.40	15.90	36.10	39.40	47.78
11	T_{11}-Karjat Shatabdi	18.55	202.0	80	16.53	12.50	16.60	21.63	43.44

12	T_{12}-Trombay Karjat Kolam	17.20	250.5	92	13.05	14.50	22.50	28.10	44.46
13	T_{13}-Trombay Konkan Khara	20.75	163.5	86	24.87	13.25	19.00	23.50	44.75
14	T_{14}-Sahyadri	23.40	178.5	84	24.08	12.27	33.12	35.80	48.02
15	T_{15}-Sahyadri 2	23.25	188.5	88	25.22	12.55	22.00	25.80	46.00
16	T_{16}-Sahyadri 3	23.05	230.0	91	23.00	12.25	34.40	36.90	48.26
17	T_{17}-Sahyadri 4	24.20	278.0	85	24.48	14.10	25.00	26.40	48.66
18	T_{18}-Ratnagiri 24	22.45	231.5	86	13.40	12.55	16.80	20.83	44.67
19	T_{19}-Ratnagiri 711	22.05	261.0	85	25.14	13.10	20.40	24.78	45.18
20	T_{20}-Ratnagiri 73	20.60	192.5	89	20.70	12.72	19.80	22.70	46.59
21	T_{21}-Ratnagiri 1	23.40	189.5	87	27.41	12.52	23.50	26.18	47.31
22	T_{22}-Ratnagiri 2	19.05	142.5	87	23.22	10.84	19.36	22.30	46.47
23	T_{23}-Ratnagiri 3	22.85	188.0	88	23.62	12.31	18.40	24.60	42.80
24	T_{24}-Ratnagiri 4	23.85	318.5	86	24.58	15.40	26.16	31.00	45.78
25	T_{25}-Ratnagiri 5	22.90	351.5	85	13.39	13.12	19.80	22.40	46.96
26	T_{26}-Ratnagiri 6	21.10	161.0	85	16.79	12.62	16.90	20.30	45.42
27	T_{27}-Ratnagiri 7	24.35	299.5	90	23.14	14.78	21.20	26.30	44.63
28	T_{28}-Ratnagiri 8	22.60	217.0	83	16.40	12.91	30.30	34.50	46.72
29	T_{29}-Palghar 1	20.85	281.5	87	16.20	12.31	15.60	20.70	43.01
30	T_{30}-Palghar 2	21.00	180.5	84	12.50	12.78	18.40	22.40	45.09
31	T_{31}-Panvel 1	19.05	117.5	84	25.95	13.02	15.30	19.70	43.73
32	T_{32}-Panvel 2	23.50	158.5	87	21.47	13.17	18.20	21.90	45.40
33	T_{33}-Panvel 3	20.60	167.5	86	24.10	11.82	20.37	23.80	46.12
34	T_{34}-Phondaghat 1	19.80	317.5	83	18.55	11.05	17.20	22.40	43.44
35	T_{35}-Konkan Sanjay	22.70	269.0	80	26.33	12.00	25.65	29.23	46.68
36	T_{36}-Sahbhagi Dhan	21.50	258.0	85	22.20	11.65	18.00	24.25	42.68
	G.M.	21.67	249.10	85.98	20.24	12.99	21.55	25.55	45.56
	S.E. ±	0.84	8.87	0.83	1.35	0.47	1.04	1.04	1.18
	C.D. (5%)	2.40	25.48	2.38	3.86	1.35	2.98	2.98	3.39
	C.V. (%)	5.46	5.04	1.36	9.40	5.12	6.82	5.75	3.66

Conclusion

Karjat 10 showed superior results in panicle length, no. of panicles m^{-2}, filled grain $panicle^{-1}$, grain yield $plant^{-1}$ and straw yield $plant^{-1}$. Ratnagiri 2 showed maximum days to 50% flowering (106.50 days) and Ratnagiri 73 showed minimum days to 50% flowering (61.50 days). At the harvesting stage, maximum plant height was recorded in Konkan Sanjay (149.20 cm). Rice genotype Karjat 10 recorded maximum panicle length (26.25 cm), filled grains $panicle^{-1}$ (153), grain yield $plant^{-1}$ (36.10 g), straw yield $plant^{-1}$ (39.40 g) and Ratnagiri 1 recorded the highest test weight (27.41 g). Karjat 10 recorded the maximum number of panicles m^{-2} (391.5) which was statistically similar to Karjat 7 (391.5). Karjat 7 recorded the maximum number of tillers $plant^{-1}$ (16.01) and maximum spikelet fertility (92 %) which was statistically similar to Trombay Karjat Kolam (92 %). Sahyadri 4 recorded maximum harvest index (48.66 %).

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