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## Market potential of hybrid paddy seed brands in Pathalgaon block of Jashpur district of Chhattisgarh

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### Abstract

Paddy is the main cereal food crop of India. It possesses around 23.3 percent of gross edited region of the country. It assumes indispensable part in the public food grain supply. Rice contributes 43 percent of complete food grain production and 46 percent of the absolute cereal production uncommonly for a large portion of individuals of South-East Asia and Chhattisgarh is famously known as - "Rice bowl of India" since greatest region is under rice development during kharif and contribute significant offer in National rice creation. It has geological area of 13.51 million ha. of which 5.9 million hectares is under development. In Chhattisgarh around 1/3rd area of paddy is under hybrid rice specific in under irrigated production system. Hybrid rice produce around 14-18 percent higher grain yield incorporate a more overwhelming and broad underground root growth Now farmers are growing rice hybrids in lowlands and bunded uplands under irrigated ecosystem in C.G. and Pathalgaon division in particular consequently. Among the complete rice creation in the State, more than 75.00 percent of it's from rainfed and under 25.00 percent from watered regions. The pathalgaon farmers required short duration hybrid paddy seeds to increase the farmers income and this research conducted in the study area to determine the socio-economic profile of the farmers and the Market share of different hybrid paddy seed brands across the area.

**Keywords:** Hybrid paddy seeds, cereal food, rice bowl, socio-economic, market share, brands

### 1. Introduction

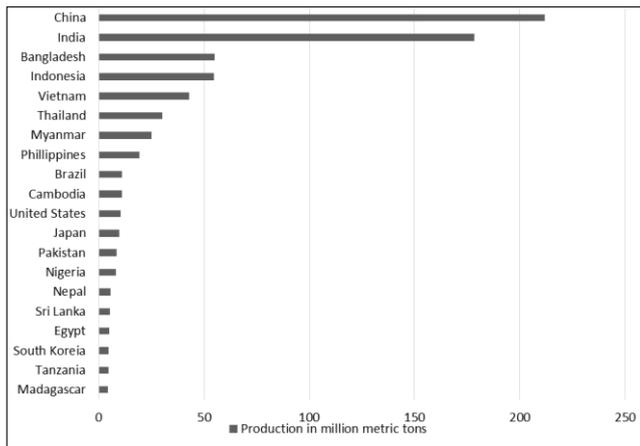
India is the world's second-largest producer of rice, and the biggest exporter of rice on the planet. Creation expanded from 53.6 million tons in FY 1980 to 120 million tons in FY 2020-21. Rice is one of the focal grains of India. Also, this nation has the biggest region under rice development, as it is one of the central food crops. It is, indeed, the prevailing yield of the country. India is one of the main makers of this harvest. Rice is the essential food crop and being a tropical plant, it prospers easily in a warm and sticky environment. Rice is essentially filled in downpour taken care of regions that get weighty yearly precipitation. For that reason, it is essentially a kharif crop in India. It requests a temperature of around 25 degrees Celsius or more, and precipitation of in excess of 100 cm. Rice is additionally developed through water system in those spaces that get similarly less rainfall. Rice is the staple food of eastern and southern pieces of India.

Hybrid rice is a type of rice that has been bred from two very different parents. It can significantly out yield other rice varieties. Because hybrid rice can out yield other varieties of rice, it is a key technology that meets the increasing global demand for rice Today, hybrid rice closes yield gaps evident in many areas. It also raises yield potential. Bountiful harvests mean that farmers earn higher incomes and rice becomes available and affordable to more consumers. key target is to produce hybrid rice with consistently high-yield heterosis (hybrid vigour), good grain quality, tolerance to key environmental stresses, multiple resistances to insect pests and diseases, and high seed production yield.

The outbreak of COVID-19 and the measures taken to control the pandemic are affecting the global agriculture sector. Seeds are the starting point for agricultural production; as a result, during times of crisis, such as the COVID-19 pandemic, seed delivery is one of the critical services that must continue to function in order to support current and future production cycles. There has been a delay in the supply of seeds to farmers as a result of the COVID-19 pandemic, which is a major pain point because seed production is dependent on allied sectors such as labour, transportation, and packaging, all of which have been affected by the lockdown. The public sector's share of seed production in India dropped from 42.72 per cent in 2017-18 to 35.54 per cent in 2020-21, while the private sector's share increased from 57.28 per

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cent to 64.46 per cent during the same period, highlighting the private sector's increasing importance in India's seed sector. According to the Department of Agriculture, Cooperation and Farmers Welfare, about 540 private seed companies, including those of Indian origin and multinationals operating in the country, according to the 25th report on Demands for Grants (2021-22) presented to the Lok Sabha in March this year. Around 80 of these companies have their research and development branches. Bayer Crop Science, Nuziveedu Seeds, and Rasi Seeds, as well as other well-known vendors such as Advanta, VNR Seeds, Bioseed, DuPont Pioneer, Kaveri Seeds, Syngenta, JK Seeds, Dhanya & Rallis India, Savannah, PAN Seeds, are all active in the Indian hybrid seed market.



**Fig 1:** Paddy rice production worldwide in 2020, by country (in million metric tons)

**2. Materials and Methods**

**2.1 Selection of district**

Chhattisgarh state consists of 5 divisions with 32 districts. Out of these, Jashpur was most preferable due to its climatic condition which is suitable for the paddy cultivation. In this district there are 9 Tehsils & blocks. From these blocks Pathalgaon block was most preferable for this study due to the availability of dealers along with their land holding property. Researcher knows the local language of the district and well within the reached. Therefore, Jashpur district was selected purposively for the study.

**2.2 Selection of block**

There are 9 blocks in Jashpur district. Among them Pathalgaon block was selected due to the Farmer's land holding capacity and its high demand of paddy seeds. That's why this block was selected purposively for the study.

**2.3 Selection of Villages**

Complete list of the village of selected block was obtained from the block development office of the concerned block. There 5% villages were selected randomly Out of 107 villages.

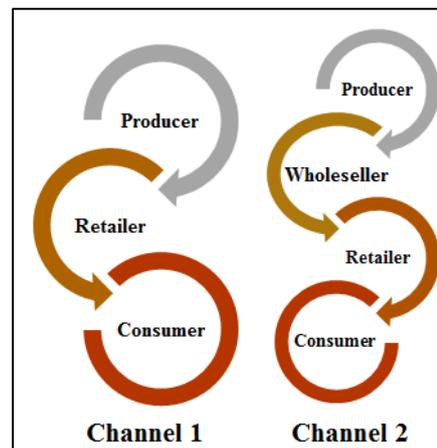
**Table 1:** Selected Villages under Pathalgaon block

Village name	Area	Population	Households
Kumekela	319.49 hectares	1786	437
Mudekela	423.36 hectares	1020	210
Shivpur	461.73 hectares	1509	367
Bagbahar	1378.91 hectares	3836	916
Pakergaon	835.32 hectares	2761	573
Kunkuri	422.61 hectares	1634	325

**2.4 Selection of Respondents**

A village wise list of all the respondent having paddy farm in the sample village was prepared along with the size of their operational holding. Further these respondents were stratified on the basis of their holding size. A complete list of all 5% farmers was selected randomly.

**2.5 Selection of market and Marketing functionaries**



**2.6 Analytical tools**

Results were expressed as mean and average. The socio-economic was calculate using a percentage formula [Percentage=( Value/Total Value) ×100]. The market share of different brands was calculated by index of market efficiency.

**3. Results and Discussion**

**3.1 Socio-Economic Profile of Respondents in the Study Area**

**Table 1:** Detail Description of Sample Size of Different Size farm Groups (values in numbers).

Total Number of Respondent= 90  
M+S+M+L= 34+24+20+12=90

SI No.	Particulars	Different size farm groups					Sample average
		Marginal	Small	Semi Medium	Medium	Large	
1.	Average size of farm families	4.08 (100.00)	4.65 (100.00)	0	5.20 (100.00)	6.93 (100.00)	4.17 (100.00)
2.	Male	2.34 (57.35)	2.68 (57.63)	0	3.01 (57.88)	3.69 (53.25)	2.34 (56.13)
	Female	1.74 (42.64)	1.97 (42.37)	0	2.19 (42.12)	3.24 (46.75)	1.82 (43.87)
3.		Age Composition					
	Below 14 years	0.83 (20.34)	0.098 (21.08)	0	1.21 (23.27)	1.78 (25.69)	0.78 (23.04)
	15-59 years	2.99 (73.28)	2.94 (63.23)	0	3.50 (67.31)	3.60 (51.95)	2.60 (62.40)
	60 years and above	0.26 (6.37)	0.73 (15.70)	0	0.49 (9.42)	1.55 (22.36)	0.60 (14.56)

**Note:** Figures in parenthesis are percentages to respective column totals.

The composition of an average size of the farm families according to sex and age composition were indicated in Table 1 Average size of the different size farm households in marginal, small, semi medium, medium and large size farm groups were 4.08, 4.65, 0, 5.20 and 6.93 respectively. The sample average percentage of male and female were 2.34 and

1.82 respectively. It could also be seen from the table that age composition of different size farm groups belongs to the age composition of below 14 years (23.04 percent), between 15 to 59 years (62.40 percent) and above 60 years (14.56 percent) respectively.

**Table 2:** Detail Description of Literacy in Different Size Farm Groups. (Values in numbers)

Total Number of Respondent = 90  
M+S+M+L= 34+24+20+12=90

SI. No.	Particulars	Different size farm groups					
		Marginal	Small	Semi Medium	Medium	Large	Sample average
1.	Average size of farm families	4.08 (100.00)	4.65 (100.00)	0 (100.00)	5.20 (100.00)	6.93 (100.00)	4.17 (100.00)
2.	Primary	0.70 (17.16)	0.76 (16.34)	0	0.88 (16.92)	1.27 (18.33)	0.72 (17.28)
3.	High School	0.31 (7.60)	0.43 (9.25)	0	0.57 (10.96)	0.89 (12.84)	0.44 (10.54)
4.	Intermediate	1.43 (35.05)	1.51 (32.47)	0	1.87 (35.96)	2.27 (32.76)	1.41 (33.91)
5.	Graduation and above	0.58 (14.21)	0.63 (13.55)	0	0.78 (15.00)	0.84 (12.12)	0.56 (13.55)
6.	Total Literacy	3.02 (74.02)	3.33 (71.61)	0	4.10 (78.85)	5.27 (76.05)	3.14 (75.29)
7.	Total Illiteracy	1.06 (25.98)	1.32 (28.39)	0	1.10 (21.15)	1.66 (23.95)	1.02 (24.62)

**Note:** Figures in parenthesis are percentages to respective column totals.

Table 2 reveals that educational status of different size of farms households. The sample average literacy percentage in different size groups was 75.29 percent. The sample average illiteracy percentage in different size farm groups was 24.62

percent. In different size farm groups intermediate students were seen maximum with 33.91 percent, lowest was seen in high school with 10.54 percent.

**Table 3:** Detail Description of Occupational Distribution in Different Size Farm Groups. (Values in numbers)

Total Number of Respondent= 90  
M+S+M+L= 34+24+20+12=90

SI. No.	Particulars	Different size farm groups					
		Marginal	Small	Semi Medium	Medium	Large	Total No. Sample
1.	Size of farm households (in numbers)	34.00 (100.00)	24.00 (100.00)	0	20.00 (100.00)	12.00 (100.00)	90.00 (100.00)
2.	One occupation (Primary occupation)	15.00 (44.12)	10.00 (41.67)	0	8.00 (40.00)	6.00 (50.00)	39.00 (43.33)
3.	Two occupations (Secondary occupation)	12.00 (35.29)	8.00 (33.33)	0	6.00 (30.00)	4.00 (33.33)	30.00 (33.33)
4.	Three occupations (Tertiary occupation)	7.00 (20.59)	6.00 (25.00)	0	6.00 (30.00)	2.00 (16.67)	21.00 (23.33)

**Note:** Figures in parenthesis are percentages to respective column totals.

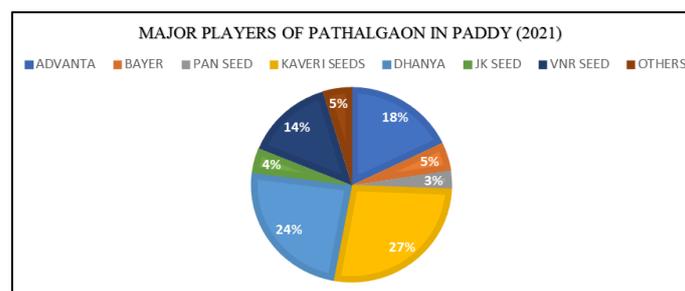
Table 3 reveals that size of the farm households in numbers in marginal, small, semi medium, medium and large size of farms were 34.00, 24.00, 20.00 and 12.00 respectively. The sample average of Primary occupation was highest with 43.33 percent. The sample average of Secondary occupation was 33.33 percent and Tertiary occupation was lowest with 23.33 percent.

**3.2 The market share of hybrid paddy segment in study area.**

Increasing population & disposable income of the people (that demand for more protein), growing urban cities, and shrinking arable land is placing significant pressure on the food supply infrastructure. Seeds are being primary input in the production of crops and other inputs are contingent upon the quality of seed for being optimally effective. Hence, good quality seed or planting material is the most critical input for the

sustainability of agriculture and seeds with higher productivity will aid in attaining growing demand for agricultural produce.

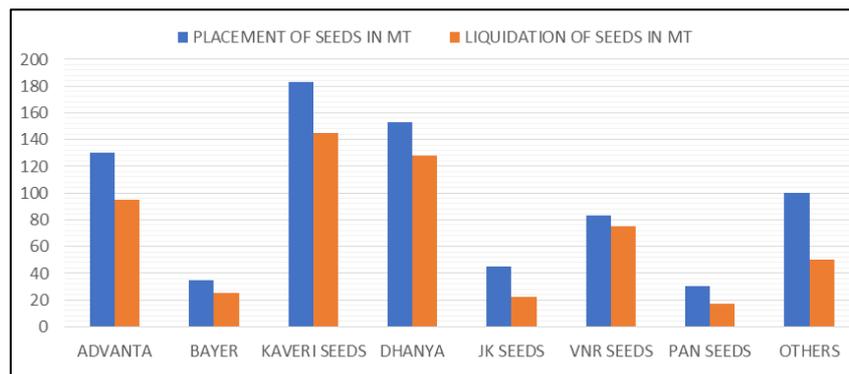
The survey conducted in the study area of different seed companies namely VNR Seeds, Advanta Seeds, Bayer, PAN Seeds, JK Seeds, Dhanya Seeds, Kaveri Seeds in Pathalgaon block in the Jashpur District of Chhattisgarh. The data related to market potential of short duration hybrid paddy seed (100 – 115 days), Productivity of seeds, Price in the market, Demand of farmers. The Pathalgaon Block has low rainfall due to which the demand of short duration paddy is high as compared to another Segment of Paddy. The farmers can increase their income by ensuring the growth of vegetable just after short duration paddy. The study area has high demand of VNR seeds for the short duration crop. The VNR 2111 is a variety which is very popular in the study area.



**Fig 2:** Market share of hybrid paddy of different brands in Pathalgaon

In year 2021 the different seed companies are placing their seeds in Pathalgaon market for the liquidation but there are only four seeds companies who acquire around 83% of

market share by liquidating their seeds in effective way namely Kaveri seeds, Dhanya Seeds, Advanta, VNR Seeds.



Source: Field Survey

Fig 3: Placement and liquidation graph of Paddy seeds in Pathalgaon in year 2021 of different companies

#### 4. Conclusion

The overall conclusion of this study which was conducted at Pathalgaon block in the Jashpur District of Chhattisgarh is that the data related to market potential of short duration hybrid paddy seed (100 – 115 days), Productivity of seeds, Market share of different brands, Demand of farmers are generated which is beneficial for the researchers, farmers or marketers. The Pathalgaon Block has low rainfall due to which the demand of short duration paddy is high as compared to another Segment of hybrid Paddy. The farmers can increase their income by ensuring the growth of vegetable just after short duration hybrid paddy. The study area has high demand of VNR seeds for the short duration crop. The VNR 2111 is a variety which is very popular in the study area.

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#### 6. Competing interests

Authors have declared that no competing interests exist.

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