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Study on marketing of hybrid paddy seeds in Gaya district of Bihar state

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Abstract
For agricultural production amongst all inputs required hybrid seeds is the most cost- efficient means to increase the agricultural production and productivity. The current project was carried on Marketing of Hybrid Paddy Seeds in Gaya district of Bihar State in the year 2021-2022 to analyze the Socio-economic characteristics of sample farmers, key existing competitors, their market share, consumer behaviour on selecting the hybrid paddy variety and constrain in adoption of VNR hybrid paddy seeds. The respondents were selected by Multi stage random sampling procedure. Out of 195 villages of Imamganj block of Gaya district, 10 villages were selected randomly. A set pattern of questionnaire was prepared and 15 hybrid paddy growers from each village were interviewed. Using a structured schedule, the date collected through survey method was analyzed.
When the conclusion was drawn, it was found that Bayers and Sygenta hybrid seeds were most preferred by the farmers, followed by VNR seeds. Majority of Sample farmers (71%) have given first ranking to extra yield attribute when it comes to choose hybrid seeds. Price of hybrid seeds and lack of availability of information at farm level were the two major constraints impacting the adoption of VNR hybrid paddy seeds.

Keywords: Market share, hybrid, constraints, competitors

Introduction
Paddy (*Oryza sativa*) is the major staple food for a large proportion of world's population especially in South and East Asia. In respect of production, India ranks second (21.6%) worldwide, next to China (28.8%). Similar pattern can be observed in consumption rate in the 2 countries. To meet the increasing demand of rice, Multiple development methods are being introduced daily. Among many genetic approaches being explored to break the yield barrier & to increase the productivity, the most feasible & readily adaptable technology is hybrid paddy. It has been proven that Hybrid paddy seeds can generate up to 30% additional yield than general seeds. China has successfully demonstrated the difference by producing up to 300 million tons additionally in last 25 years with the use of Hybrid paddy seeds. As India has the largest area for crop production after China & Indonesia, It can become the next biggest game changer.
In India, Bihar alone has about nearly 36+ lakh acres total area under rice cultivation (as per Directorate of rice development). Due to high consumption, Bihar has become a net borrower to meet the seed demands. Seeds like Paddy and Wheat are sourced from states such as Uttarakhand, Telangana and West Bengal. Total in-house production meets approximately 23% (~3.5 lakh Qtl) only of Bihar state. Thus, the private sector has taken over the entire seed production and supply in the state, As the hybrid paddy provides higher number of tillers per plant, the requirement for same has increased. (Indian Seed Sector, 2010)
A number of seed producing companies, including multinationals like Bayer crop sciences, Sygenta, Pioneer, VNR seeds etc. are now engaged in evolving new private hybrids of paddy, cotton, chilies and other vegetable crops. Thus, the private sector has emerged as the dominant player in the seed industry in Bihar. One of the major players is VNR seeds. The company specializes in development and production of hybrid seeds. It is currently engaged in research, development and marketing of multiple products in species like cereals, vegetables and fruits. They are doing demand generation following pre- seasonal and post-seasonal activities to attract new customers in the area.
In order to increase the sale & expand the market, it is necessary to analyze the socioeconomic background of farmers in the area and pinpoint consumer preference among different brands &

attributes to make the experience beneficial for the company as well as the annual growth of paddy yield.

Materials and Methods

The present study was carried out in Gaya district of Bihar. Bihar comprises 38 districts and gaya district was selected purposively because this is one of the famous districts for high paddy production and there is high demand of hybrid seeds. There were 24 Blocks in district. Imamganj block was selected purposively for the study as the farmers of the block Imamganj are progressive and ready to use Hybrid paddy products, The farmers of this block have been growing Hybrid paddy for several years. Randomly 10 villages were selected out of 195 villages of Imamganj block for the study of Hybrid Paddy Seed. The villages selected as per randomly in an unsequenced order. A list of all the hybrid paddy growers of block were prepared. Out of total Paddy respondents of the hybrid paddy growers were selected with the help of randomly data. The sample was consisted of 150 respondents which were finally selected to collect the data. The well-structured interview schedule was developed. The data was collected via personal meetings & taking individual interviews keeping the information discreet. The data were tabulated, classified, quantified and analyzed with the help of bar-charts, frequency and percentage.

Results and Discussion

The summary of the results of the study showed that the sample contains maximum number of farmers in the age group of 35-45 (34 per cent). Among the total respondents, majority of the sample respondents (~50 per cent) in the study area were small and marginal farmers with a land holding of less than 2 hectares. The market share of hybrid paddy in Gaya district of different companies is 48.52 Mt and Bayers is the Major Player with the sales of 12.61 Mt i.e., Bayer hybrid paddy varieties are mostly preferred by the famers in the study area where VNR Seeds with 9.21 Mt is the third most preferred seed and there are many companies which are doing business extensively in the Gaya district. 71% of sample farmers have given first ranking to extra yield attribute in Gaya district because hybrid paddy yielded 15-20% more yield over the normal paddy yield. The preferences of Farmers on selecting the hybrid paddy, yield is the most preferred attribute. The major constraints faced by the farmers of hybrid paddy seeds of VNR is the price of hybrid seeds (26%) and the lack of availability of information at farm level (16%) followed by disease and pest attack (15.34%) If VNR seed company puts appropriate efforts in converting 10% area under paddy cultivation into hybrid paddy cultivation by next year it would be a great potential on the part of the company to increase its sales and to increase per unit area production.

Table 1: Age of sample respondents

Age (in years)	No. of respondents					Overall	Percentage
	Marginal	Small	Semi-medium	Medium	Large		
15-25 year	8	4	3	2	1	18	12
25-35 year	15	6	8	6	4	39	26
35-45	17	6	13	9	6	51	34
45-55	8	3	3	2	7	23	15.33
Above 55	6	3	3	4	3	19	12.67
Total	54	22	30	23	21	150	100

Table 2: Education level of sample respondents

Literacy level	No. of Respondents					Overall	Percentage
	Marginal	Small	Semi-medium	Medium	Large		
Below SSC	9	5	6	4	5	29	19.33
SSC	4	3	9	7	8	31	20.66
HSC	5	11	16	13	14	59	39.34
Graduation	3	5	7	7	9	31	20.67
Total	21	24	38	31	36	150	100

Table 3: Respondents' land holding size

Sl. No.	Category	Number of farmers	Percentage
1.	Marginal (Below 1.00 hectare)	54	36
2.	Small (1.00-2.00 hectare)	22	14.66
3.	Semi- Medium (2.00-4.00 hectare)	30	20
4.	Medium (4.00-10.00 hectare)	23	15.34
5.	Large (10.00 hectare and above)	21	14
	Total	150	100

Table 4: Respondents' annual income

S.no	Annual income	Number of farmers	Percentage
1	Low (Up to Rs.1 lakh)	21	14
2	Medium (Rs.1 Lakh to 2 Lakh)	79	52.67
3	High (Above 2 lakh)	50	33.33
	Total	150	100

Table 5: Market share of major companies

S. No	Company	Quantity (in tons)	% Of Market Share
1.	Dhaanya Seeds	4.36	8.98
2.	VNR seeds	9.21	18.98
3.	Syngenta	10.18	20.99
4.	US Agriseeds	2.42	4.99
5.	Pioneer	7.76	15.99
6.	Bayer	12.61	25.99
7.	Others	1.98	4.08

Table 6: Ranking of various USP'S preferred by the respondents

Parameter		Rank				
		1	2	3	4	5
a) Extra yield	No/%	71	17	12	0	0
b) short crop duration	No/%	42	19	14	17	8
c) Less water requirement	No/%	25	15	13	14	33
d) Less pest or disease attack	No/%	63	13	15	7	2
e) Less seed rate	No/%	8	12	22	13	45

Table 7: Constraints in adoption of hybrid paddy.

SI. No.	Constraints	Farmers Response	%	Rank
1.	Lack of availability of information at farm level	24	16	II
2.	Lack of irrigation	9	6	VIII
3.	Adverse climate	13	8.66	VI
4.	Disease/Pest attack	23	15.34	III
5.	Lack of awareness	18	12	IV
6.	Price of seed	39	26	I
7.	Quality of seed	10	6.66	VII
8.	Lack of motivation	14	9.34	V
Total		150	100%	

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