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Study on new markets potential of hybrid paddy seed in Cooch Behar district of West Bengal

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Abstract

Paddy is one of the central grains of India. This nation has the biggest region under paddy development. India is the world's second biggest maker of paddy and the biggest exporter of paddy on the planet. Creation expanded from 53.6 million tons in Financial Year 1980 to 120 million tons in Financial Year 2020-2021. In Cooch Behar district 85%, of the total cultivated land is under paddy. The hybrid paddy is grown mainly in Rabi and Kharif season in Cooch Behar and out of the net cultivated area <1% of the land was under hybrid paddy cultivation in the district. This is mainly because the cooking quality of hybrid paddy and market value are not up to the mark. The farmers required short duration paddy seeds to increase the income of the farmers and in this research conducted in the study area to determine the socio-economic profile of the farmers.

Keywords: Hybrid Paddy, Central grains, Exporter, Financial Year, Socio-economic.

Introduction

Paddy is the dominant crop of the country. It is, in fact, one of the leading food crops. Paddy is the basic food crop and being a tropical plant, it flourishes comfortably in a hot and humid climate. Paddy is mainly grown in rain-fed areas that receive heavy annual rainfall. That is why it is fundamentally a kharif crop in India. It demands a temperature of around 25 degrees Celsius and above, and rainfall of more than 100 cm. Rice is also grown through irrigation in those areas that receive comparatively less rainfall. Rice is the staple food of eastern and southern parts of India. Paddy contributes more than 40 percent of the country's total food grain production. According to the data released by the government of India, the total paddy production in India stands at 122 million metric tons in financial year 2021. West Bengal is the largest paddy producing state in India. Almost half of its arable land is under rice cultivation. In the fiscal year 2020, the state produced about 15.57 million tons of rice over 5.46 million hectare cultivable area. Hybrid paddy technology is playing a pivotal role in increasing the rice production and productivity in India. The yield advantage of 1.0 – 1.5 t/ha can be obtained by the cultivation of hybrid as compared to the high yielding varieties under the same set of growing conditions. Seed is the most important input component for productive agriculture. In the advancement that India made in agriculture in the last four decades, the role of the seed sector has been substantial. The expansion of the seed industry has occurred in parallel with growth in Agricultural productivity. The seed industry is undergoing a significant change towards providing farmers with high-yielding seeds and reduced production cost. GM (Genetically-modified) seeds are expected to grow up from the fringes of crop protection into newer potential applications, thus increasing the presence of biotechnology in the industry. The global seed market size is estimated to be valued at USD (United States Dollar) 63.0 billion in 2021. It is expected to reach USD (United States Dollar) 86.8 billion soon. World seed market is projected to exhibit a CAGR (Compound annual growth rate) of 6.6% by 2026 (Source: Mordor Intelligence). In the recent COVID-19 pandemic is expected to impact the global seeds industry. Many countries have adopted several emergency measures to adapt to the COVID-19 crisis. Seeds are the starting point for agricultural production; therefore, during the pandemic, seed delivery is among the essential services that must continue to operate to support the current and subsequent production cycles.

2. Materials and Methods

2.1 Selection of District

Among all 23 districts of West Bengal, Cooch Behar district was selected purposely for the present study because it is one of the most important district in term of area and production of

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paddy. Almost 85-90% of the total population depends on agriculture.

2.2 Selection of Blocks

In Cooch Behar district out of total no. of 15 blocks, 1 Block namely Haldibari Block has been selected purposely for the present study. In Haldibari block most of the populations are live in rural area. Total area of Haldibari block is around 159.48 sq.km. and out of this total land 10,269 ha are agricultural land that is cultivable.

2.3 Selection of Villages

Out of 57 villages of Haldibari block of Cooch Behar district of West Bengal 5% villages was selected randomly for the present study.

Table 1: Selected villages under Haldibari Block

Sl. No.	Village Name	Area (in hectare)	Population
1.	Bara Haldibari	4080.27	32,340
2.	Banikanta	24.35	158
3.	Bibiganj	143.99	423
4.	Chhota Haldibari	248.64	2688
5	Dakshin Niztaraf	67.6	583

2.4 Selection of respondents

Village wise list of all the respondents using hybrid paddy

Table 1: Distribution of the farmers according to their age (x) Number of Respondent = 125

$$M-S-SM-M-L = 28+42+23+20+12 = 125$$

Particulars	Category					Total Respondents	%	Statistics
	Marginal	S	SM	Medium	L			
Low (<30)	7	16	12	5	4	44	35.2	Mean= 41.66 S.D.= 6.99
Medium (30-50)	15	19	10	12	4	60	48	
High (>50)	6	5	4	4	2	21	16.8	

Table 1 presents depicts that the distribution of the respondent according to their age group. The result show that the majority of the respondents (48%) are under the age group 30-50 years followed by <30 years age group (35.2%) and >50 years age group (16.8%) respectively. The mean score of the

total distribution, age is 41.66 land standard deviation of the distribution is 6.99. It is indicative that mostly the middle age farmers in the study area are associated in the hybrid paddy market in Cooch Behar district.

Table 2: Distribution of the farmers according to their education (x₁) Number of Respondent = 125

$$M- S- SM- M- L = 28+42+23+20+12 = 125$$

Particulars	Category					Total Respondents	%	Statistics
	M	S	SM	M	L			
Illiterate	2	1	-	-	-	3	2.4	Mean =15.62 S.D.= 6.43
Primary	5	8	4	4	2	23	18.4	
Middle School	12	9	6	4	6	37	29.6	
High School	2	3	4	6	5	20	16	
Graduate	2	4	5	3	6	18	14.4	
Post graduate and Above	-	-	2	5	3	9	7.2	
Can read only	3	2				5	4	
Can read and write	5	3	2	-	-	10	8	

Table 2 present the distribution of the farmers according to their education. The result shows that the majority of the respondents (29.6%) are under the middle school category followed by primary education category (18.4%), high school category (16%), Graduate category (14.4%), can read and write (8%), post graduate and above category (7.2%),

illiterate (2.4%) and can read only 4%.The mean score of the total distribution, education is 15.62 and standard deviation of the distribution is 6.43. It is revealing that the farmers who have literacy level up to middle school in Cooch Behar district are mostly involved in the cultivation.

seeds variety in this sample village was studied. All details were collected from the regular customer of the market of hybrid paddy on the basis of land holding. A complete list of all selected villages 10% respondents was selected randomly.

2.5 Selection of Market and Marketing functionaries

In the marketing of hybrid paddy the following market functionaries are involved.

- Producers – Consumers
- Producers – Retailers – Consumers
- Producers – Wholesalers – Retailers – Consumers

2.6 Analytical tools

Results were expressed as mean and standard deviation. The socio-economic profile of the farmers was calculate using the percentage formula [Percentage = (Value /Total value) × 100].

Formula of Mean = Sum of the number ÷ How many numbers

3. Results and Discussion

The Socio-economic Profile of the Respondents in the Study Area

The present study of socio- economic profile of the respondents in the study area empirical and cognitive through Operationalization according to their age, Education skill, changes in annual income, occupation of the family.

Table 3: Distribution of the farmers according to their major family Occupation (x_2) Number of Respondent = 125
M- S- SM- M- L = 28+42+23+20+12 =125

Particulars	Category					Total Respondents	%	Statistics
	M	S	SM	M	L			
Labour	6	5	3	5	2	21	16.8	Mean= 20.83 S.D. =3.46
Caste occupation	3	4	1	-	-	8	6.4	
Business	2	7	5	2	4	20	16	
Independent profession	7	8	4	3	1	23	18.4	
Cultivation	5	9	11	4	6	35	28	
Service	2	5	7	3	1	18	14.4	

Table 3 present the distribution of the farmers according to their major family occupation. The results show that the majority of the respondents are under the cultivation category (28%) as the major occupation of the family followed by independent profession category (18.4%), labour category

(16.8%), business category (16%), service (14.4%), and caste occupation (6.4%). The mean score of the total distribution, major family occupation is 20.83 and standard deviation of the distribution is 3.46. It is discernable that mostly farmers are coming from the farming family.

Table 4: Distribution of the farmers according to their family annual income (x_3) Number of Respondent = 125
M- S- SM- M- L = 28+42+23+20+12 =125

Particulars	Category					Total Respondents	%	Statistics
	M	S	SM	M	L			
Low Income (5000-10000)	16	19	11	9	7	62	49.6	Mean =41.66 S.D.=7.20
Medium Income (10000-18000)	6	9	10	8	8	41	32.8	
High Income (18000-35000)	3	3	4	5	7	22	17.6	

Table 4 present the distribution of the farmers according to their family annual income. The results show that the majority of the respondents are under the low income group category (49.6%) followed by medium income group category (32.8%) and high income group category (17.6%). The mean score of the total distribution, family annual income is 41.66 and standard deviation of the distribution is 7.20. It is discernable that mostly farmers are from low income group family and pro-poor and economically disadvantaged and trying to sustain their livelihood through cultivation of hybrid paddy.

4. Conclusion

From the overall survey it is observed that Haldibari block of Cooch Behar district is a very small market for the hybrid paddy segment in West Bengal. The leading hybrid paddy seeds producing companies were present more in numbers of market size of 115MT (Million tons), In Cooch Behar District. The adoption and awareness rate for cultivation of hybrid paddy were very low among the farmers in this block. The major challenge for each hybrid producing company is to develop a hybrid with excellent cooking quality which can mitigate the demand of the farmer and also produce short duration hybrid paddy seeds that can increasing the farmers income. In spite of all the constraints companies like Bayer and Annapurna were the two major leading players in this study area. Bayer, Pioneer and Devjan gave more emphasis on the sale promotion and advertising to promote their product in the study area. That's why these above companies were on the top in the market share in the district.

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