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RESEARCH ARTICLE

Market Potential and Promotional Strategies for VSPL Hybrid Paddy Seeds in Koraput District of Odisha

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ABSTRACT

Indian seed industry has contributed significantly to ensure continued access to quality seed for the Indian farmers. VSPL is pioneer in the Indian seed industry which is working continuously for providing quality seed to farmers. VSPL wanted to increase their market share in Koraput district of Odisha. Therefore, a study was conducted in 2021 to assess the market potential of VSPL and to formulate promotional strategy for VSPL in the study area. Primary data was collected from 100 farmers and 20 dealers/distributers/retailers. Convenience sampling technique was used to select farmers and purposive sampling technique to interview retailers and distributors. The data collected was tabulated and analysed to get meaningful results. Hybrid paddy seed dominates the paddy seed market in the study area. The US Agriseeds, Mahyco, Dhaanya, Bayer, Syngenta, VNR seed and Rasi seed were the leading brands for hybrid paddy seeds in Koraput district. Majority of the farmers were small and medium farmers and they cultivated paddy primarily for self-consumption. Thus, the farmers preferred medium slender grain with duration of 120-125 days. Unawareness of the farmers about VSPL hybrid paddy seeds was the main reason behind poor market share of VSPL products. VSPL should give importance to promotional activities to improve its market share. Therefore, based on the key findings of the study, 4P's of marketing mix was suggested for VSPL hybrid paddy seeds. A promotional strategy and a promotional game were designed to promote the hybrid paddy seeds of VSPL in the study area.

Key words: *Hybrid paddy seeds; Market potential; Promotional strategies; Marketing mix.*

The spread of HYV technology resulted in the Green Revolution in India in the last few decades and achievement of self-sufficiency in food-grains represent a success story for science and technology sector (*Murugan & Sivagnanam, 2020*). In order to meet the growing needs of the expanding population, it is compelled to produce more than 200 million tons of food grains per year (*Tripathy et al., 2006*).

North America occupies the largest market share and together with Europe it constitutes 55 per cent of the global seed market. Asia-Pacific is seen as the fastest growing segment with a CAGR of 7.9 per cent, followed by South America during 2015-2020. China is the second biggest seed market in the world, right behind the United States. However, India also has a significant share of 4 per cent in the global seed market (*icfa.org.in*). The Indian seed industry is worth 18,000 crores and is expected to grow at a Compound Annual Growth Rate of almost 13 per cent (*thehindubusinessline.com*).

India is the second largest producer of rice and contributes 21.81 per cent to the total world production of rice. In fiscal year 2018 paddy accounted for over 1.8 trillion Indian rupees in the Indian economy (*statista.com*). Hybrid seed market is rapidly growing in the states like Bihar, Chhattisgarh, Odisha and Jharkhand. Telangana is the largest producer of hybrid seeds, followed by Maharashtra and Karnataka. Out of the total hybrid seeds market in India, paddy has a market share of only 5 per cent. For instance, majority of the farmers in the state of Mizoram grow rice, although productivity is low; just 35.0 per cent (13,400 hectares) of that rice is grown using high-yielding varieties, while 2.29 per cent uses hybrid rice. The surpluses are insufficient to feed the non-

farming community (*Lalthamawii et al., 2022*). So, in order to unlock the potential and increase productivity in Odisha it is necessary to scale up hybrid rice and maize seed production in state under Rashtriya Krishi Vikash Yojna (RKVY). So, in coming year Odisha is going to open a wide market for hybrid paddy seeds (business-standard.com).

VNR Seeds Pvt Ltd. is pioneer in the Indian seed industry which is working continuously on research and development for providing quality seed to farmers. Company has poor market share in Laxmipur and Dasmanthpur Block and wants to increase their market share in upcoming paddy season in Koraput district by increasing their share in these two respective blocks.

- The specific objectives designed to undertake the current study were as follows:
- To analyse the trends in cropping pattern for Paddy in the study area.
- To study the perception of farmers with regards to adoption criteria for hybrid Paddy seed.
- To assess the market potential of VNR seeds Pvt. Ltd. in the study area.

To formulate promotional strategy for VNR seeds Pvt. Ltd.

METHODOLOGY

The study was conducted in Koraput district of Odisha from March 2021 to July 2021 in association with VNR Seeds Pvt Ltd. As per the objective of the study, required primary data were collected through personal interview with the help of a comprehensive pre-tested interview schedule from 100 farmers and 20 dealers/distributers/retailers. Around five sample farmers from each village were selected and data was collected from 20 villages (10 from Laxmipur and 10 from Dasmanthpur Block). Convenience sampling technique was used to select farmers and purposive sampling technique was used to interview retailers and distributors.

Keeping in view of objectives of the study, two separate questionnaires were developed for sample farmers and dealers/retailers. Secondary data was collected from the published report of State Agriculture Department, Bureau of Economic Survey, journals, magazines, and websites

The data collected through questionnaire were tabulated and analysed to get meaningful results by using charts and simple statistical tool. Garrett ranking technique was used to study the opinion of the farmers regarding the various criteria considered during selection of hybrid paddy seeds, perception about different varieties and their performance and their trust on various brands. The per cent position of each rank was found out by following equation.

$$\text{Percent position} = 100\ (Rij-0.5) / Nj$$

Where,

Rij= Rank given for the ith items by the jth individual.

Nj= Number of items ranked by the jth individual

By referring to the Garrett's table, the per cent positions estimated were converted into scores. Thus, for each factor the scores of the various respondents were added and the mean values were estimated. The mean values thus obtained for each of the attributes were arranged in descending order. The attributes with the highest mean value were considered as the most important one and the others followed in that order. Market potential of VNR seeds in the study area was calculated using the following formula:

$$\text{Market Potential} = \text{Area under paddy (acres)} \times \text{Avg seed rate applied (kg/acre)}$$

Percentage analysis was used to determine the land holding of farmers. Bar graphs were applied to the data collected to determine different crops grown in study area, different type of seed used by farmers in kharif for paddy cultivation and different hybrid paddy seed used by farmers. Pie charts were applied to discuss age profile of the farmers, educational qualification of farmers, category of farmers based on land holding, purpose of paddy production in kharif, quality of paddy grain required by farmers in kharif, required duration of paddy cultivation by farmers in kharif, market share of major hybrid seed companies in the study area, awareness of farmers about VNR hybrid paddy seed in the study area.

Line graphs were used to show the trends in cropping pattern of paddy in the study area.

RESULTS AND DISCUSSION

General characteristics of respondents : General characteristics of sample farmers have a significant bearing on the awareness, perception, selection, and purchase of different hybrid seeds. *Khandker and Thakurata* (2018) stated that farmers with smaller landholdings, higher education and higher experience of growing hybrid rice are more likely to be complete adopters of hybrid paddy seeds.

Age profile : Age influences perception and decision-making behavior of farmers. Respondents were categorized into four groups namely, below 30 years, 30-40years, 40-50 years and above 50 years. Majority of the farmers were in the age group of 40-50 years (52%) followed by 21 per cent above 50 years.

Educational status : Variables like education, annual family income, communication exposure and attitude towards hybrid rice made a significant contribution to farmers' decision in adopting hybrid rice (*Shah et al., 2014*). The study reveals that about 56 per cent of the overall sample farmers were educated up to primary level, 11 per cent of sample farmers were educated up to secondary level, 7 per cent of sample farmers were educated up to high school level and 7 per cent of sample farmers were graduates. 19 per cent of sample farmers are not able to read or write. Nearly 81 per cent farmers are educated this showed that they can readily accept the change in agriculture.

Land holding : Size of land holdings plays influences input purchase decisions of farmers. For this, four categories were developed, viz., marginal (<1 ha), small farmer (1 to 2 ha), medium (2 to 5 ha) and large (>5 ha) (Table 1), About 52 per cent of sample farmers were small farmer with landholdings of 1-2 ha. Whereas, 41 per cent of sample farmers belonged to medium, 6 per cent were marginal farmers and only 1 per cent was large farmers.

Table 1. Land holding of sample farmers

Category	No.	%
Marginal		
< 0.5	0	
0.5	1	6.00
0.5-1ha	5	
Small		
1-1.5	14	52.00
1.5-2	38	
Medium		
2-2.5	31	
2.5-3	6	41.00
3-4	2	
4-5	2	
Large		
> 5	1	1.00
Total	100	100

Around 93 per cent of sample farmers were medium and small farmers which indicates that farmers were able to accept change in input use, which is a welcome sign for input sector of agriculture. It also indicates that there is a lot of scope for companies to introduce new varieties in the market, since large farmers were willing to try new variety and find a better alternative for existing varieties.

Trends in cropping pattern for paddy : Majority of the respondents i.e., 95 per cent were growing paddy followed by finger millet and vegetables i.e., 30 per cent and 28 per cent respectively. Maize is grown by only 2 per cent of sample farmers in kharif. Finger millet is the 2nd most grown crop in Kharif as it is also one of the major cereals consumed in the study area.

In the year 2017-18, the area under kharif paddy cultivation is highest while the yield was maximum in the year of 2016-17 i.e., 36.28 qtls/ha (Table 2).

The study shows that area under paddy production is increasing in Koraput District. So, it enables more potential for paddy hybrid seed market. Dasmantpur has more area under kharif paddy cultivation i.e., 2745 ha. while Laxmipur block has highest yield i.e., 31.02 qtl/ha (Table 2).

Table 2. Yield rate & productivity of paddy in Koraput district and study area of Odisha

Year	Area (ha)	Yield (q/ha)	Production (q)
Koraput distt.			
2014-15	84130	29.08	2461001
2015-16	84298	29.19	2462103
2016-17	86715	36.28	3405925
2017-18	88441	34.84	3081410
Dasmantpur	2745	26.62	57098
Laxmipur	2091	31.02	64862

Perception of farmers with adoption criteria for hybrid paddy seed : Hybrid seeds were used (95%) more, followed by farmers own seed (58%), O.P. seeds (4%) and research variety seed (6%).

Attributes considered by farmers : In order to assess the various attributes considered by the farmers during selection of hybrid paddy seeds in study area, Garrett ranking technique was employed and the results are depicted in Table 3. The five major attributes that were considered by the farmers during the selection of hybrid varieties were quality of grain followed by yield, dealers advice, cost of seed and duration of crop. *Murthy et al.,* (2003) observed that the quality of the seed assumes top priority for its best performance, while selecting the variety.

Distribution of hybrid paddy yield : An analysis was made to understand whether farmers were growing paddy for self-consumption, for selling in market or

Table 3. Garret table scores for attributes considered by farmers' during selection of hybrid paddy seed

Factors	Garret rank	Garret score
Quality of grain	I	79.73
Yield	II	78.95
Dealers' advice	III	75.58
Cost of seed	IV	74.73
Duration of crop	V	73.19
Past experience	VI	72.63
Weather tolerance	VII	71.77
Brand name	VIII	71.08
Resistance to pest & disease	IX	69.93
Neighbour farmers' opinion	X	69.91

for both the purposes. Majority of farmers cultivated paddy in Kharif for their self-consumption i.e., 76 per cent while 24 per cent farmers cultivated paddy for both market and self-utility. Table 3 depicts that quality of grain played a vital role in selection of hybrid paddy seeds. Therefore, it could be concluded that farmer of the study area wanted a variety with good taste and high yield so that they could sell the surplus produce for revenue generation. *Singh et al., (2017)* in his study on 'Role of System of Rice Intensification Method in Improving Health and Nutritional Security (a micro level study in Tripura state)' stated that increase in the yield has increased the surplus of rice to the farmers adopting SRI technology thereby increasing income level of the farmers

Preference of farmers towards hybrid paddy : Figure 7 shows that sample respondents had high preference for medium slender grain (55%) followed by fine grain (35%). Medium bold grain was preferred by only 6 per cent of the sample farmers and bold grain was preferred by 4 per cent of the sample farmers.

Segmentation of paddy hybrid market : Duration of the crop influences hybrid paddy seed market in the study area. Table 4 shows the segmentation of study market based on duration of crop and the type of land where it was frequently cultivated. Paddy hybrid variety of 120-125 days duration was mostly preferred by the sample farmers (45%) followed by hybrid paddy crop of duration 115-120 days (32%). The study area is in the lap of mountains, so majority of the cultivated area is in upland and thus 120-125 days duration of paddy was mostly preferred by the farmers.

In the study area the average yield of paddy was 16.18 quintal per acre. The lowest yield recorded in the study area was 10 qtl/acre and the highest yield recorded was 25qtl/acre. As the yield of paddy plays a vital role in paddy seed selection, highlighting the higher yield potential characteristic may influence the farmers to adopt a new variety.

Table 4. Segmentation of paddy hybrid market based on duration of crop

Maturity days	Type /Variety	Land suitable for
105-110	Mal	Sukha saria/ Upland
110-115		
115-120		
120-125	Bema	Saria beda/ Medium land
125-130		
130-135		
135-140	Bahal	Jali beda/ Low land
140-145		
145-150		

Market potential of VSPL :

Market share of different companies in the study area for hybrid paddy seed in kharif : To understand the market potential, information was collected from farmers as well as from distributor and retailers. US Agriseeds hybrid paddy variety '312' is the most known and cultivated variety in the study area followed by different hybrid paddy varieties of Mahyco, Dhaanya and Bayer .

The market share of major hybrid seed companies in the study area. The information was collected from leading and only distributor of the hybrid seeds in the study area. It is a market of 60 tonnes of hybrid paddy seed, where US Agriseeds is the leading company with the 50 per cent market share of around 30 tonnes, followed by Mahyco 11 tonnes, Dhaanya 6 tonnes, Bayer 4 tonnes. Companies like Syngenta, VNR seed, Rasi seed has an equal share of around 2 tonnes each. Other miscellaneous Companies who were new players, had 3 per cent of market share.

Perception of dealer/distributor's towards lower market share of VNR hybrid paddy seeds : As per Table 5, 75 per cent of dealers and distributors believed that the low market share of VNR hybrid paddy seeds in the study area is due to unawareness of farmers towards VNR products as the VNR seeds had entered the market in the study area recently. About 73 per

Table 5. Perception of dealers/distributors for lower market share of VSPL seeds (N=20)

Perception	No.	%
Unawareness of farmers	15	75
Price (high compared to competitor)	06	30
Less promotional activity	14	70
Performance of VNR varieties	01	05

cent of farmers are not aware about VNR hybrid paddy products. Second most important reason for low market share of VNR seeds in the study area according to the dealers and distributors is less promotion activity of the company (70%). Price and performance factor had less influence on market share with 30 per cent and 10 per cent respectively, which reflects that the product could have good potential at genuine price range.

Determination of market potential for VNR hybrid paddy seeds : To determine the market potential of VNR hybrid seeds, data on crop acreage of VNR seeds currently in the study area along with future possibility of crop acreage as per the responses of dealers and retailers was calculated. Table 6 shows the area covered by hybrid paddy seeds of all the companies based on the quantity of the seeds sold in the study area during the period of study.

Current acreage coverage of VNR Paddy is 333 acre which is 3.33 per cent of total hybrid paddy cultivated area. The average increase in area for VNR paddy seed for next kharif season as projected by retailers and distributor is up to 8 per cent which is around 800 acres. The projected market potential for VSPL seeds as was calculated and was observed to be 4.8 tonnes.

Table 6. Cultivated area of hybrid paddy seeds of various brands

Company name	Quantity of seeds sold (kgs)	Area (acre)	Area (ha)
US Seed works	30000	5000	2024
Mahyco	11000	1834	742
Dhaanya	6000	1000	404
Bayer	4000	666	270
VNR Seed	2000	333	134
Syngenta	2000	333	134
Rasi Seed	2000	333	134
Others	3000	500	202
Total	60000	9999	4044

Formulation of promotional strategy for VSPL : Promotional strategy is designed by observing the findings of the study. It is designed after taking review from the ground players like distributors and retailers.

Top consideration of dealers/ retailers for marketing the product of the company : Dealers/retailers play an important role in rural marketing for creating demand for hybrid paddy seeds among growers (*Pandey et al., 2020*). So, it is necessary to understand driving force of distributors and retailers for recommending a particular brand of product to the farmers. Quality of the product ranked first with Garrett score of 72.70 followed by factors such as demand and supply of the product (Table 7).

Table 7. Factors influencing dealers/retailers for promoting a particular hybrid seed product (Garret scores)

Factors	Garret Rank	Garret Score
Quality of hybrid varieties	I	72.70
Regular demand/Supply	II	72.10
Promotional activity of company	III	70.40
Dealers margin	IV	70.30
Company image/Brand name	V	69.80
Company representative approach	VI	69.70
Credit facility availability	VII	69.21
Company's offer	VIII	64.80

Best promotional strategy for hybrid paddy : Hybrid paddy has significant impact on productivity. It is a high yielding variety and hence its farming lead to improved income of the farmers and increased the supply of food. It is essential to make farmers aware of the benefits of hybrid farming via extensive education campaigns. Both public and NGO extension services were considered important in terms of farmers' decisions regarding the adoption of hybrid paddy farming (*Islam & Hossain, 2013*).

Table 8. Garrett scores of best promotional strategies for hybrid paddy in study area

Factors	Garrett Rank	Garrett Score
Wall painting/Posters/Banner/Road shows	I	73.4
Village level meeting	II	73.1
Promotional games and discount coupon	III	71.4
Word of mouth	IV	68.9
Free sampling/Demo	V	68.7
Testimonial demonstration	VI	65.3
Jeep rally	VII	64.3
Media (newspapers, radio, television)	VIII	63.0

Several promotional strategies were adopted by different companies in the hybrid seed market in the study area. The best promotional strategies which were suitable in the study area and which reached the sample consumers were analysed as per the responses of the dealers/distributors using garrett ranking method. From Table 8, it could be observed that wall painting/ posters/banner/road shows ranked first with a Garrett score of 73.4 followed by village level meeting and promotional games/discount coupons which ranked 2nd and 3rd respectively. Therefore, these top 3 promotional

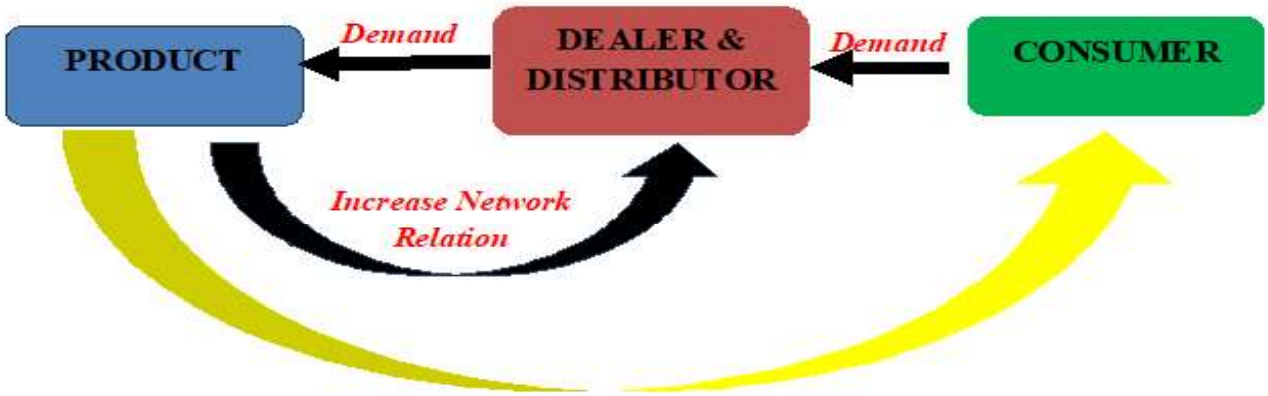

Fig.1. Suggested push-pull promotion strategy

strategies could be adopted by the case firm i.e VNR seeds to reach their customers in the study area. In rice seed marketing farmers were much aware about promotional measures such as jeep campaign, and farmers meeting (*Banjare et al., 2018*).

Suggestions and recommendations : On the basis of key findings of the study, 4P's of marketing mix was suggested for VSPL hybrid paddy seeds. A promotional strategy and a promotional game were designed to promote the hybrid paddy seeds of VSPL in the study area.

4Ps of marketing mix suggested to VSPL for hybrid paddy seeds : The marketing strategies used by the seed companies were found to have resulted in increased average brand equity and market share (*Kisu, 2015*). Marketing mix suggestion according to the study area are:

Product: Quality of VNR hybrid paddy seed is superior and competitive but the company must give importance to after sale services.

Price: Company must focus on dealers margins initially and also consider farmers purchasing power.

Place: Distribution channel should ensure better liquidation. In the study area rainfall occurs at early stage during seed purchasing which starts from May 15. But in some surveyed areas product reached after June i.e. 15 days after beginning of the season. So timely supply of seed is also important to match the demand and supply.

Promotion: There is strong need for the repetitive promotion of the product and communicating the farmers about the product benefits for establishing it as a brand and making it a top of the mind product.

Promotional strategy : Poster and display should be pasted on the village focus point, pan shops and dealer's shop. Public relation should be developed through Field Assistant (FA) by developing database of the farmers which will latter help to connect with individual farmer and address their issues related to VSPL products. VSPL can adopt mobile marketing to increase customer base. *Sharma & Goyal (2019)* stated that to acquire customers and to penetrate the market, mobile marketing can be the suitable method.

A promotional strategy was designed with the observations and also from the findings of the project. VSPL is generally applying push promotion strategy, means pushing products up to distributor level and little bit at dealer level. A push-pull promotion strategy (Fig. 1) is suggested because in this strategy efforts are applied at both dealer/distributor level and consumer (Farmer) level. Therefore, demand would increase from both ends.

Designed promotional game : A dart game was designed (Fig.2) along with the help of leading distributor of the study area. The main objective was to increase the reach of VSPL products to maximum number of villages. It was suggested to first conduct as village level meetings followed by entertainment games such as dart game and the winners would be rewarded discount coupons. Discount coupon might drive interest among farmers

Fig. 2. Dart game

for VSPL products. These strategies followed by crop shows in each village of the study area might prove to be more effective in promoting VSPL products.

The designed promotional strategy was also implemented in the study area at one distributor centre, where one coupon was redeemable for each packet of 3kg paddy seed. The farmers showed interest to buy VSPL seeds at that distributor location.

CONCLUSION

Seed, the vehicle for delivering the benefits of technology, is the most important input, influencing the growth and sustainability of Indian Agriculture. The organized Indian Seed industry has contributed significantly to ensure continued access to quality seed for the Indian farmers and improving their food, nutritional and livelihood security.

Hybrid paddy seed dominates the paddy seed market in the study area. The US Agriseeds, Mahyco, Dhaanya, Bayer, Syngenta, VNR Seed and Rasi Seed were the leading brands for hybrid paddy seeds in Koraput district. Majority of the farmers were small and medium farmers and they cultivate paddy primarily for self-consumption. Thus, the farmers prefer medium slender grain more with duration of 120-125 days. Unawareness of the farmers about VSPL hybrid paddy seeds which were new in the market was the main reason behind poor market share of VSPL products. VSPL should give importance to promotional activities to improve its market share.

CONFLICTS OF INTEREST

The authors have no conflicts of interest.

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