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Hybrid Paddy: A Path Finder to Prosperity in Tribal Tract of Odisha

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Abstract— The introduction of hybrid paddy seeds into rice farming system of Odisha has attracted almost all paddy growers. Because of high production potentiality and more profit the tribal farmers have been cultivating hybrid paddy and area is increasing over the years. Both farmers and distributors are experiencing constraints. There is considerable gap in adoption of recommended practices of hybrid paddy seeds leading less profit which requires Govt support in terms of incentives and technical support. The problems of seed distributors are lack of storage facility, quick germination while in store and timely supply of seeds to the growers. These problems need well thought programming of hybrid paddy cultivation in the state particularly in tribal zone as the tribes cannot afford to bear loss.

Key words: Adoption, hybrid paddy, consumer, germination

I. INTRODUCTION

Odisha is a rice growing state in our country. It contributes about 4% of the total paddy production of the nation and supports same percentage of population. Hybrid rice is of recent innovation in the domain of rice farming system. The normal production is about eight tonnes per hectare in the farmer field. Being rice eaters the people of the state consider paddy from social, economic, cultural and religious point.

The tribal population in the state is about 24 and they are of 64 types with clear cut cultural values. The tribal people of the state are closely associated with paddy as it is their stable food item. But the normal and high yield paddy cultivation has not been profitable to them owing to low productivity potential. The Hybrid paddy with high production potential has been proved to be quite profitable. But the marketing, storage and chain of distribution have not been growers friendly.

The major breakthrough in agriculture production started in the beginning of 20th century with the introduction of dwarf high yielding varieties and innovation of hybrids. The emphasis on maximization of production per unit area through multiple cropping, appropriate technologies and precision farming are the latest approach in all agricultural based countries of world.

Seed is the key factor in agricultural, Quality Seed is a material which is used for planting or regeneration purpose. Scientifically, Seed is a fertilized matured ovule together covered with seed coat is called seed or it is a propagating material. Quality seed is true to its variety. In all agriculturally developed countries special efforts are made to produce quality seeds. In India, all Agricultural universities, Indian Council of Agriculture research and state Govt along With central bodies have the seed production programmes as top ranking activities. It is so because for good harvest farmers demand quality seeds and therefore seed technology is of prime impotence.

The characteristics of quality seeds are both genetically and physically pure. The seeds are classified as breeder, nucleus, foundation and certified seeds. The importance of quality seeds has been recognized by scientists as well as growers.

Quality seeds contribute about 20-25% towards good harvest and even some farmers claim it up to 40%. The advent of modern plant breeding methods and biotechnological advances in seed industry plays a significant role in developing of high yielding varieties and hybrids.

- Seed production and marketing are interdependent. In broad sense it covers all the activities involved in the flow of seeds from production to consumption. It refers to acquisition and selling of packed seeds, intermediate storage, delivery and sales promotional activities.
- At present seed industries is gaining importance in all countries. The seed marketing depend on factors like, total area under crop, seed multiplication ratio, extension efforts, preference of farmer, promotional activities and climate. The marketing related factors that help in use of quality seeds are, marketing structure, sale promotion.post sale service, economics of seed production and seed pricing.

To support farming communities in crop production, the different areas of seed production management have been greatly developed, such as breeding, establishment techniques, irrigation, nutrient supply, pests control and postharvest

Research has provided new technologies that respond to new and more specific demands. In the last two decades, the achievements in these areas have been extraordinary, with a special relevance of genetic engineering, essential component of biotechnology. In this context, seeds have become more than a fundamental input of the agriculture even more valuable organisms. Therefore, seeds must have high quality and flawless performance. The changes in seed production technology have attracted multinational companies to look as industry in global context

Indian seed sector has consistently played its part for ensuring quality seeds availability to farmers.

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Today Indian seed (Hybrid) sector has a turnover of INR 16,000-18,000 crores (estimate). The Indian seed sector has strong fundamentals of research & development and commitment for quality seed production. Indian seed industry which is ranked 6th in the global seed business is working proactively to forge global partnership. Many Indian companies today have global foot prints. The focus of seed industry has been more on hybrid crops contributing to the food, nutritional and economic security of both rich and poor farmers.

Seed is the basic and most critical input for sustainable agriculture. The response of all other inputs depends on quality of seeds to a large extent. The developments in the seed industry in India, particularly in the last 30 years, are very significant. A major re-structuring of the seed industry by Government of India through the National Seed Project Phase-I (1977-78), Phase-II (1978-79) and Phase-III (1990-1991), was carried out, which strengthened the seed infrastructure that was most needed and relevant around those times. This could be termed as a first turning point in shaping of an organized seed industry. Introduction of New Seed Development Policy (1988-1989) was yet another significant mile stone in the Indian Seed Industry. The policy gave access to Indian farmers of the best of seed and planting material available anywhere on the world. The policy stimulated appreciable investments by private individuals, Indian Corporate and MNCs in the Indian seed sector with strong R&D base for product development in each of the seed companies with more emphasis on high value hybrids of cereals and vegetables and hi-tech products such as Bt. Cotton. As a result, farmer has a wide product choice and seed industry today is set to work with a 'farmer centric' approach and is market driven.

The Indian agricultural sector has grown immensely during the last few decades, keeping pace with the rising food demand. Major growth in agricultural production is a result of improving productivity, as land area under agriculture has been declining over the years.

The Indian seed industry is carried out by public seed agencies like **National Seed Corporation (NSC)**, State Farms Corporation of India and State Seed Corporations (SSC). High Seed replacement Ratio and demand for quality seeds by farmers led to a rapid development in the private sector. The private sector now accounts for majority of the Indian seed company's market share, and constitutes a heterogeneous entity with companies.

Objectives:

With these back ground in view, the present study is an attempt

1) To find out problems associated with hybrid marketing system.

2) To examine the response of users and distributors of hybrid rice in tribal zone of the state.

3) To present the scenario of hybrid seed marketing system and its impact on hybrid seed production.

II. REVIEW OF LITERATURE

As per relevancy and need of the objective of the title of the paper some specific reviews have been mentioned**.**

C.P. Abeywardana & G.P.K.Nishadi (2014) stated that Paddy and rice are particularly important for resource poor households. Their findings reveal that inadequacy of infrastructure facilities, Land size and ownership style and Time of selling paddy. Results indicated that higher cost of production is the first and foremost important factor which reduces farmers' net profit while lower land size and non-ownership and the time of selling the paddy were considered as the other important factors. However, middlemen involvements, inadequacy of market information and infrastructure have a relatively moderate and lower impact to change the profits earned from the business.

Naukeswar Nag, Emeritus J.P. Srivastava & Bibhu Santosh Behera (2015) observed green revolution has been trying from since 1966 to increase production, productivity and total gross domestic product (GDP) but agriculture sector failed to maintain its pre-reform growth. Concerned by the slow growth National Development Council resolved to initiate an additional central assistant scheme (Rashtriya Krishi Vikas Yojna) to achieve 4 per cent agriculture growth rate by filling the production focused intervention necessitated the strategies for boosting the production of quality seed as the Seed Replacement Rate (SRR) of the state was one of the main concern. In order to accelerate the seed replacement rate, the RKVY through its participatory seed production programme was supposed to be the welcome feature. This programme was sanctioned to Agriculture department, Odisha and implemented in 2007-08 in Kalahandi district districts of Odisha. Since regular evaluation is a necessary concomitant of such programme to assess the impact and suggest strategy for further growth and expansion of the programme. Accordingly, the present investigation entitled "The impact of participatory seed production Programme on adoption behaviour of paddy seed producers under RKVY on Junagarh block of Kalahandi district (Odisha)" was under taken to assess the impact of the programme on adoption behaviour of paddy seed producers. The study was based on 120 respondents (60 beneficiaries and 60 non-beneficiaries as control) covering 6 villages and 1 blocks of both districts for analysing the impact on adoption behaviour of seed producers. The findings inferred that Socioeconomic and psychological characteristics i.e. cognitive and motivational factors viz. attitudes, knowledge, risk bearing, innovativeness etc. were observed higher in case of beneficiaries than non-beneficiaries. Beneficiaries had positive favourable attitude whereas, non-beneficiaries had lower responsive attitude towards agricultural technology. The level of knowledge of beneficiaries about various aspects of seed production technology was higher whereas, non-beneficiaries were ignorant about some aspects of the seed production technology. The socio-economic and psychological variables under study were highly significant and positively correlated with the of the seed producers. The profitability level of beneficiaries was recorded higher than.

- **According to Ms. Ananya Mitra Mr. Debasis Dash (2016)** India is the second largest producer of rice in the world after China. It is grown on about one-fourth of the total cropped area and provides food to about half of the country's population.

Rice is the major food of more than 70% of total population. Its distribution in India is eastern coastal plains, West Bengal, Uttar Pradesh, Madhya Pradesh, Jammu and Kashmir, Punjab and Haryana. Two to three crops of rice are raised annually in the deltas of Mahanadi, Godavari, Krishna and Kaveri. Nowadays Punjab and Haryana are known for its cultivation. It depends upon irrigation. Besides, rice is grown on terraced fields of the hills from Kashmir to Assam. This study has attempted to focus on Rice production and procurement in terms of Agricultural marketing in the state Odisha. It has shown the growth rate in rice production and success rate of rice procurement in last 13 years. Apart from it both the rates are compared with each other to show the gap. So, the present study has used Time series analysis of trend fitting by method of least square to verify the differences between the actual and forecasted values between procurement and production of rice. Histogram and line graphs are used for robustness of the study.

According to Aldas Janaiah (2018) India's rice sector has been transformed significantly with the increase of rice production by 250% and yield by 230% between 1971 and 2015. There is a wide variation in the growth of the rice sector across ecosystems as well as states. India became a leading rice exporter in the world with the worth of US $ 9 Billion with an increase in export of basmati rice by four times and non-basmati rice by 3 folds in 2015 over 2005. About 80 to 85% of rice farmers are small and marginal. Nearly 75% of India's rice production is marketable surplus-largely generated by irrigated rice farmers in the north and south Indian states as well as large farmers in other parts of the country. The marketing system for rice has huge network that purchase paddy from farmers. Nearly 85-90% of the total rice production is domestically consumed in the form of cooked and steamed rice. Thus, rice value chain is largely confined to drying at farmers' level, and milling and bagging at millers and traders' level. Total value of rice value chain in India is estimated at only US $ 71 Billion, which is only 7.4% of the gross agri-value chain.

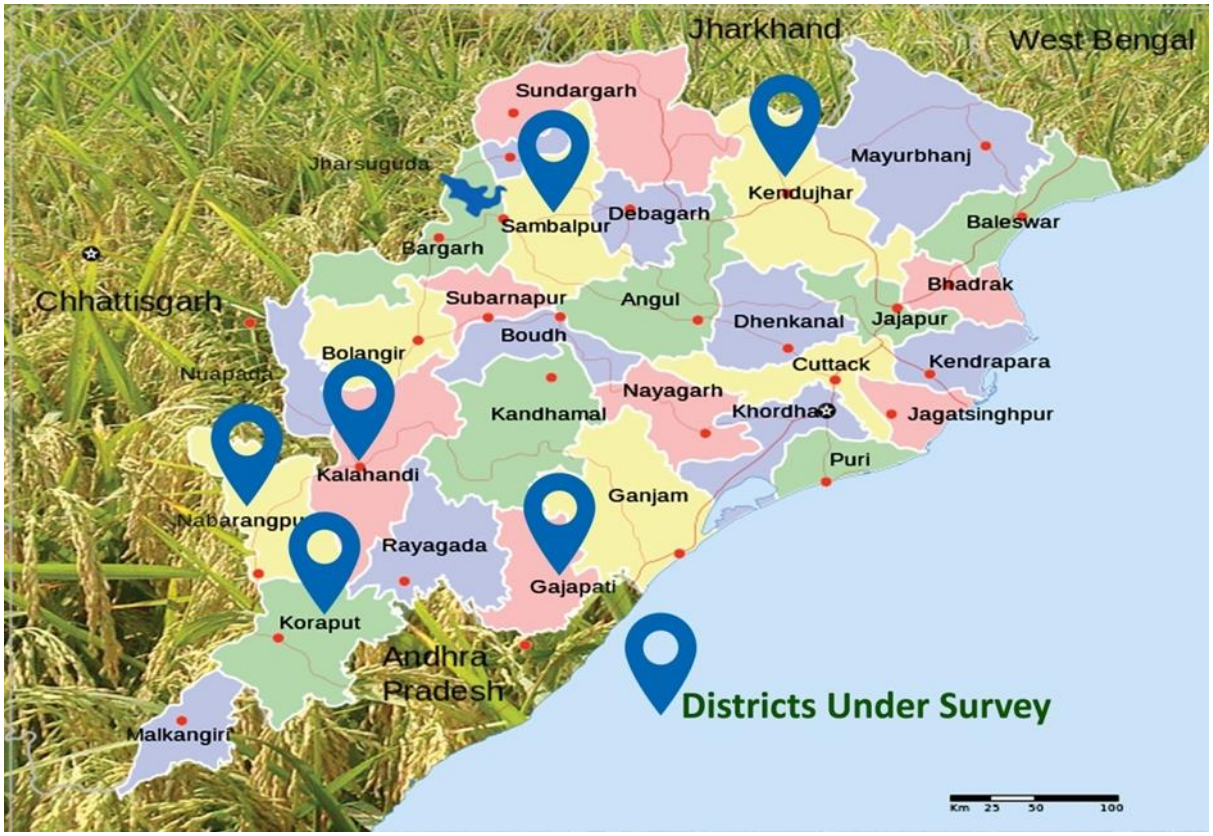
Salpriya Seby, M. J. Mercykutty and R. Sendilkumar (2018) reported that the major challenge faced by Kerala State is to achieve sustainable rice production for ensuring food security and attaining adequate income to the farmers. Decentralized planning is an approach to balanced development and reduction of regional disparities. The distinctiveness of Kerala's decentralization is that, it has formularized a participatory framework with inbuilt social accountability measures to take in citizen's involvement in local planning and governance in harmony with the national and regional policies. In this context, the present study was conducted in Adat grama panchayat in Puzhakal block of Thrissur district, Kerala. It is one of the major rice cultivating panchayats in the district and has about 3,000 acres of kole paddy fields. The panchayat has successfully launched itself on the organic path to farming and set a model for panchayats elsewhere in the State. Thirty beneficiaries of various paddy promotion programmes were randomly selected. The study intended to analyse the perception of beneficiaries on effectiveness of paddy promotion programmes implemented under decentralized planning as well as the constraints experienced. For analyzing the perception and constraints perception index and Garett ranking technique were employed respectively. The respondents had good perception on effectiveness of paddy promotion programmes implemented under decentralized planning. They had high perception on institutional support aspect. The constraint analysis pointed out that human resource constraint as the major difficulty while practising the intervention. Appropriate intervention in this area can be made cent per cent successful by overcoming this lacunae. Based on the research findings some suggestions are put forth.

III. METHODOLOGY

The sample consisted of 240 hybrid rice growers and 360 distributors. They were selected from the districts as mentioned below.

Table 1: Sample of the study

District under survey	**Sample of the study**		
	Farmer	**Distributors**	**Total**
1. Nabarangpur	40	150	190
2. Koraput	40	60	100
3. Kalahandi	40	30	70
4. Sambalpur	40	40	80
5. Keonjhar	40	30	70
6. Gajapati	40	50	90
Total	**240**	**360**	**600**



Both farmers and distributors were interviewed on structured schedules developed as per objectives of the study. Both open and closed ended questions were used to collect desired information from these primary sources. The farmers as well as distributors were selected on the criteria of being cultivating and distributing hybrid paddy not less than five years respectively. Thus the sample consisted of 240 farmers and 360 distributors totalling 600. The respondents were interviewed at their own place and were advised to offer free and frank opinion.

IV. RESULTS

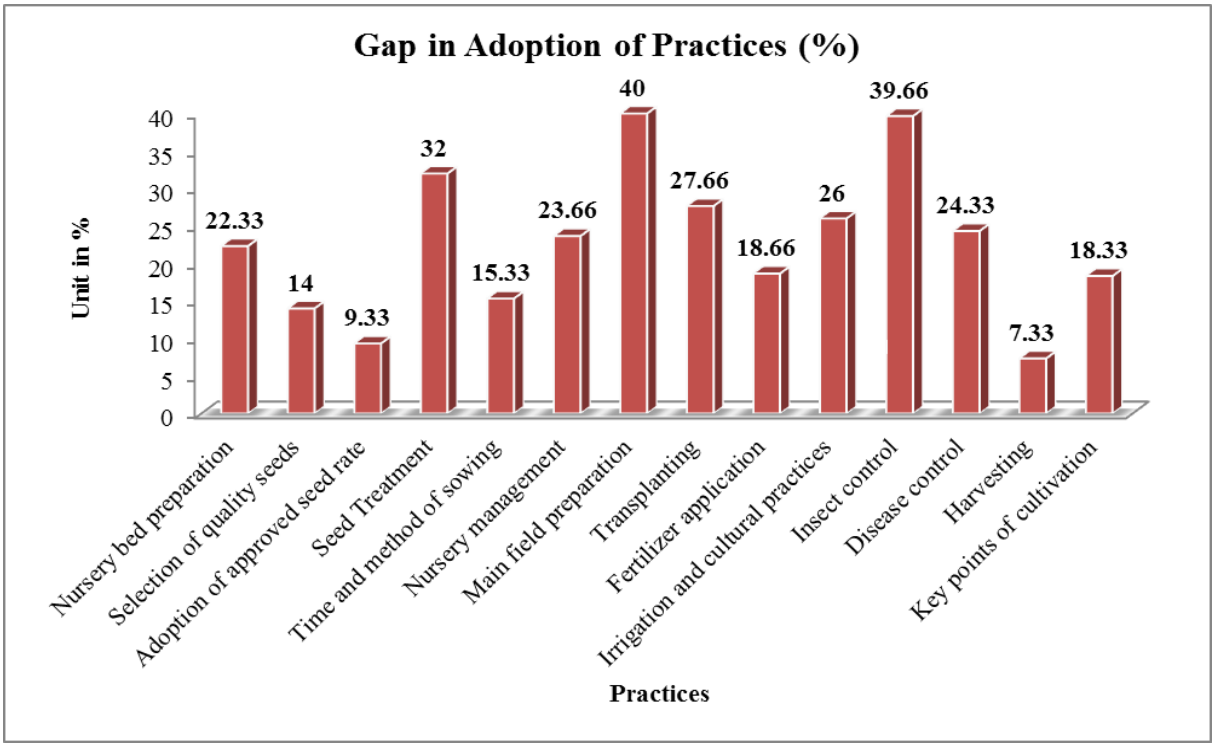
The results of the study have been presented under the category of farmers those who grow hybrid paddy and distributors who took responsibility for distribution among the farmers.

1. Farmer the growers of hybrid paddy: The study covered 240 hybrid growers spread over six districts of the state. The result with respect of farmers is presented under the adoption of hybrid paddy technology and problems that they encounter in its cultivation.

A. Adoption of hybrid paddy technology: The cultivation of hybrid paddy requires more technological inputs and the result is proportionate. The study determined the gap in adoption of recommended hybrid technology as reflected in table below.

Table 2: Gap in adoption of practices

Sl. No.	Practices	Average score	Gap (%)	Rank
1	Nursery bed preparation	2.33	22.33	8
2	Selection of quality seeds	2.58	14.00	12
3	Adoption of approved seed rate	2.72	9.33	13
4	Seed Treatment	2.04	32.00	3
5	Time and method of sowing	2.54	15.33	11
6	Nursery management	2.29	23.66	7
7	Main field preparation	1.89	40.00	1
8	Transplanting	2.17	27.66	4
9	Fertilizer application	2.44	18.66	9
10	Irrigation and cultural practices	2.22	26.00	5
11	Insect control	1.81	39.66	2
12	Disease control	2.27	24.33	6
13	Harvesting	2.78	7.33	14
14	Key points of cultivation	2.45	18.33	10
	Average	**2.32**	**22.66**	-

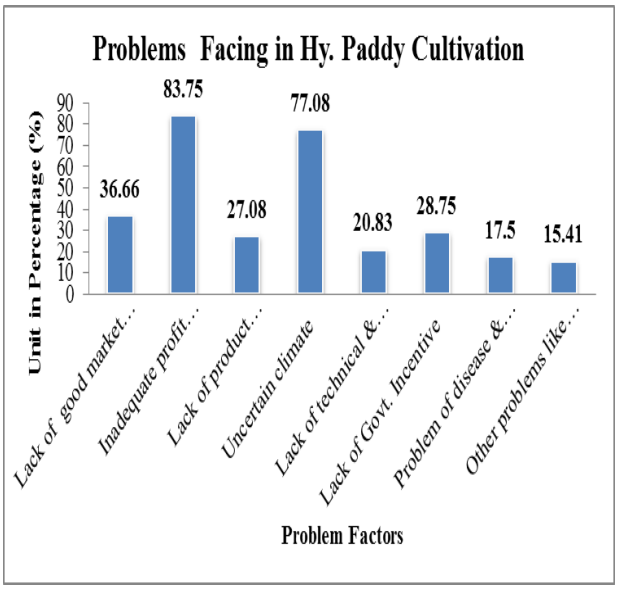


The average gap in adoption of recommended practices of hybrid rice is found to be 22.66%. The highest gap is observed in case of main field preparation followed by insect control measures, seed treatment, transplanting and irrigation and cultural practice. The lowest gap is observed in case of harvesting next to seed rate, quality seed selection and time and method of sowing.

B. Problems in cultivation of hybrid paddy: Through focus group discussion the following problems were identified that the growers encounter in cultivation of hybrid paddy.

Table 3: Problems in hybrid paddy cultivation

Sl. No.	Problems facing in cultivation	Frequency	Percentage	Rank
1.	Lack of good market price	88	36.66	III
2.	Inadequate profit margin	201	83.75	I
3.	Lack of product preserving facility	65	27.08	V
4.	Uncertain climate	185	77.08	II
5.	Lack of technical & Govt. support	50	20.83	VI
6.	Lack of Govt. Incentive	69	28.75	IV
7.	Problem of disease & pest	42	17.50	VII
8.	Other problems like labour, machinery etc.	37	15.41	VIII



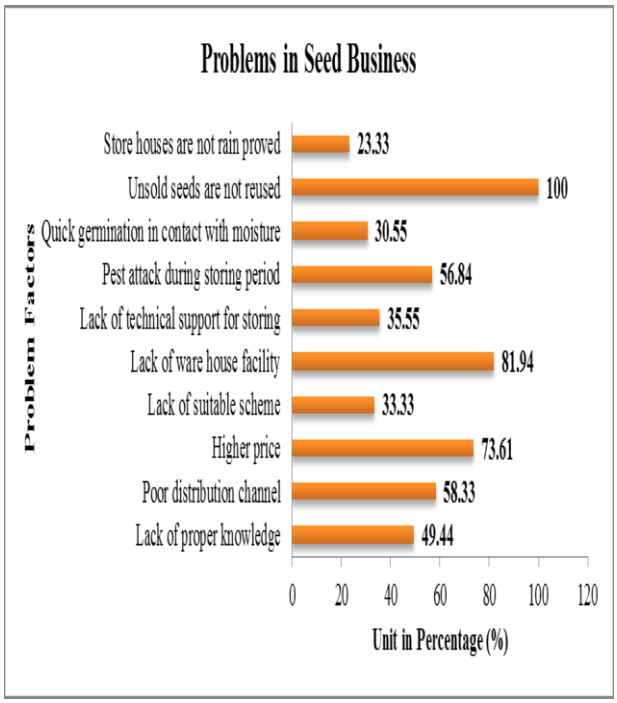
As contained in table the major problems faced by the hybrid rice growers are, inadequate profit margin, uncertain climate, lack of good market price and lack of Govt, incentives in order. The other following problems are, lack preservation facility, lack of technical guidance, and problems of pests and diseases. The other problems mentioned by 15.41% are labour, farm machineries and other facilities.

2. Distributors involved in hybrid paddy marketing: The study has examined as much as 360 distributors of hybrid paddy involved in marketing process in rural areas of tribal districts. The operational definition of the distributors of this research project, 'An entity that buys noncompeting products or product lines, warehouses them, and resells them to retailers or direct to the end users or customers.

Most distributors provide strong manpower and cash support to the supplier or manufacturer's promotional efforts. The distributor is an agent who supplies goods to retailers. The sample distributors follow push, pull and both methods in marketing suiting to their situation. The problems faced by the hybrid paddy distributors were observed as mentioned in table.

Table 4: Problems in seed business (N=360)

Sl. No.	Problems	Mentions	Percentages	Rank
1.	Lack of proper knowledge	178	49.44	VI
2.	Poor distribution channel	210	58.33	IV
3.	Higher price	265	73.61	III
4.	Lack of suitable scheme	120	33.33	VIII
5.	Lack of ware house facility	295	81.94	II
6.	Lack of technical support for storing	128	35.55	VII
7.	Pest attack during storing period	205	56.84	V
8.	Quick germination in contact with moisture	110	30.55	IX
9.	Unsold seeds are not reused	360	100.00	I
10.	Store houses are not rain proved	84	23.33	X



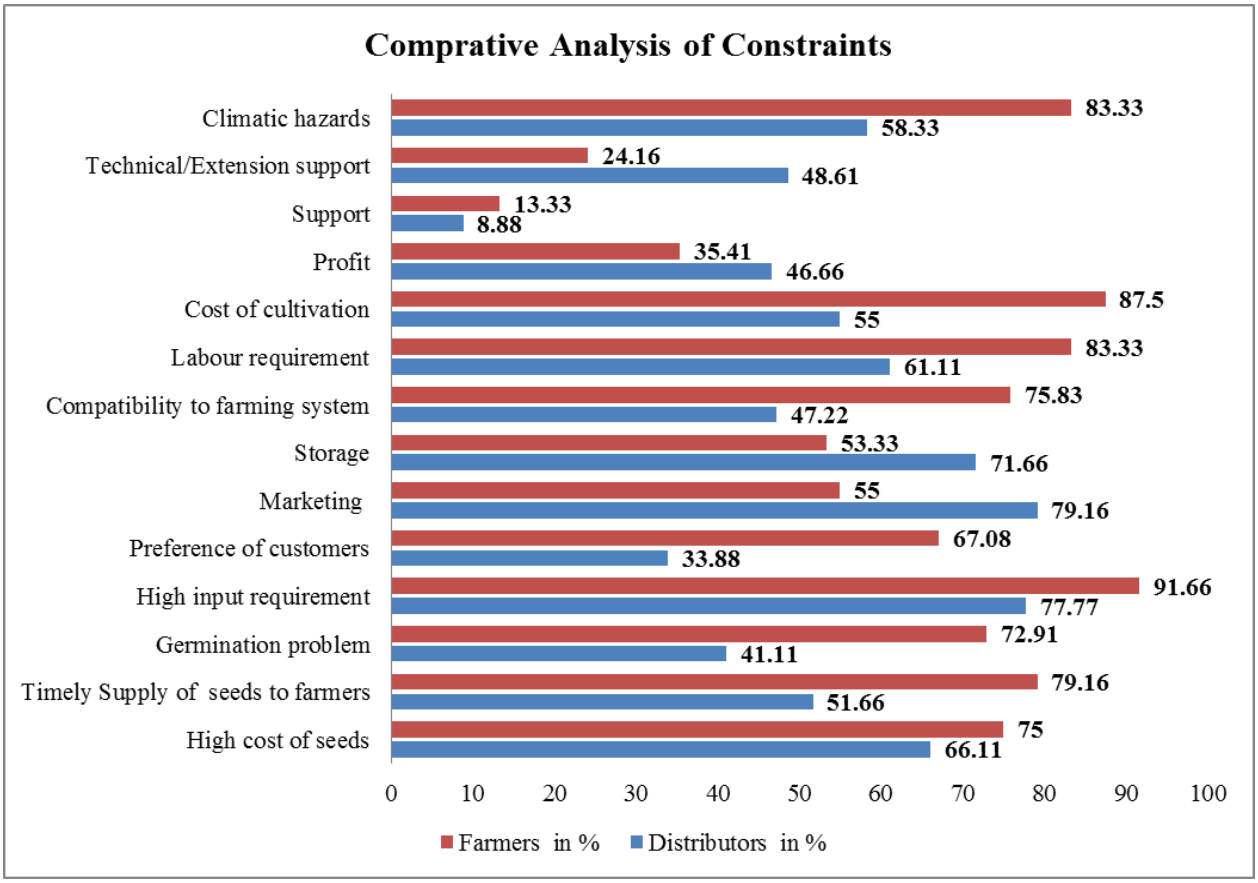
The problems of distributors and retailers are multidimensional. The major problems are fate of unsold seeds, lack of ware house facility, high price of seeds, and poor distribution channel. The other problems in order are pest attack during storing period, lack of knowledge about seed production technology, lack of constant technical support, lack of suitable scheme for seed production quick germination in contact with moisture and store housed are not are not safe. These are problems faced by the distributors and retailers under study. The unsold seeds are sold as food grain for which cost is much less .There is need for compensation for loss in seed business.

3. Both growers and distributors at a time:

The constraints associated with seed producers, distributors and farmers as expressed were compared to find out difference if any among the two categories samples. The analysis so obtained is presented in table.

Table 5: Comparative analysis of constraints

Expressed Constraints	Distributors (N=360)		Farmers (N=240)		Pooled (N=600)	
	f	%	f	%	f	%
1. High cost of seeds	238	66.11	180	75.00	418	69.66
2. Timely Supply of seeds to farmers	186	51.66	190	79.16	376	62.66
3. Germination problem	148	41.11	175	72.91	323	43.29
4. High input requirement	280	77.77	220	91.66	500	83.33
5. Preference of customers	122	33.88	161	67.08	283	47.16
6. Marketing	285	79.16	132	55.00	417	69.50
7. Storage	258	71.66	128	53.33	386	54.33
8. Compatibility to farming system	170	47.22	182	75.83	352	58.66
9. Labour requirement	220	61.11	200	83.33	420	70.00
10. Cost of cultivation	198	55.00	210	87.50	408	68.00
11. Profit	168	46.66	85	35.41	253	42.16
12. Support	32	8.88	32	13.33	64	10.66
13. Technical/Extension support	175	48.61	58	24.16	233	38.83
14. Climatic hazards	210	58.33	200	83.33	410	68.33
Average		**53.36**		**67.88**		**43.29**



Results:

1. High cost of seeds: The cost of quality seeds like High Yielding varieties and Hybrids the cost is much higher than normal paddy seeds. The seed distributors and farmers expressed it as a constraint to increase area under hybrid paddy. The constraints expressed by seed distributors and farmers are up to 66.11% and 75% respectively. The constraint is comparatively more realised by the farmers. The overall expression of the constraint is 69.66%.

2. Timely supply of seeds to the farmers; Agricultural operation is season bound and timely. The sowing of seeds follows a specific time. If the seeds are not delivered to the farmers in time he will bear loss. In the state of Odisha non-supply of seeds in time has been a problem for long time. This constraint is expressed by 62.66%.

3. Germination problem. Supply of quality seeds stands with assured germination to the desired level. The results reveal that farmers experience this problem to an extent of 72.91% followed by expression of distributors up to 41.11%. Both growers and distributors expressed the germination is a constraint in supplied seeds.

4. High input requirement: The inputs like fertilizers, organic manure, pesticides, irrigation and credit are more compared to normal paddy. This is a problem for farmers.

5. Preference of consumers: In market the hybrid paddy or rice is not that much preferred over local paddy for better price. Only high rate of production brings profit. The overall constraints is mentioned by 47.16% of the total samples

6. Marketing of hybrid paddy. From cost point of view hybrid paddy does not fetch more market value. The value of it in market is same as normal paddy to the normal consumers. Therefore it is a constraint as expressed by 69.50% of the sample.

7. Storage: Storage of seeds before sowing and paddy after harvesting has been experienced as a constraints by 54.33% of the sample and highest being in case of distributors followed by farmers.. The seed before sowing if not properly stored there is chances of germination in contact with moisture. Many of the distributors do not have proper storage facilities so also farmers which is not case with traditional varieties.

8. Compatibility to farming system: The farming system is dependent on season like kharif and Rabi. The duration of the crops is being adjusted with seasonal duration in terms of life duration of crops. The scientists have calculated duration of crops suiting to season. While examining the suitability of Hybrid seed varieties of paddy in local condition the constraint was expressed by 58.66% of the sample.

9. Labour requirements. : In Odisha farm labour availability has become greatest problems. Due to expansion of other engagement, the people in general are not willing to work in field may be due to low wages. On other hand various avenues of work has been expanded by private and public sector. The constraint is mentioned by as high as70% of the three samples and highest being in case of farmer followed by distributors and seed producers.

10. Cost of cultivation: The hybrid paddy cultivation is costly than normal paddy cultivation in terms of cost of inputs, labour and irrigation. The constraint is expressed by as much as 68% of the total samples. The constraint is more realized by the farmers over distributors and seed producers.

11. Profit: The profit in growing hybrid paddy is more but the excess over normal paddy is not viewed favourably in comparison to intensity of farm activities. The constraint is more realized by the distributors than the farmers.

12. Government support: The constraint regarding support of Government is not expressed by many.

13. Technical/Extension support. The farmers and growers need technical advice from time to time. The constraint in this regard is expressed by 38.83 % and lowest being in case of distributors.

14. Climatic hazards: The state of Odisha is constantly subjected to natural hazards like n, heavy rainfall, erratic rainfall, and untimely rain t the time of harvest draught and flood etc. The agriculture of the state is seriously affected by climatic hazards. It is a constraint in state in general and agriculture in particular.

Summarising constraints of the two categories of sample the results reveal as follows.

V. CONCLUSIONS

I. Farmers: The Hybrid Rice Growers:

The study interviewed 240 hybrid paddy growers to ascertain their reactions about cultivation of hybrid paddy varieties. The findings in this connection lead to conclude as follows..

The analysis in relation to adoption of recommended packages of practice reveals that on an average the gap is 22% taking all the packages together. The highest gap is observed in case of main field preparation, followed by insect control, seed treatment and transplanting, water management and disease control The other practices having considerable gaps are, nursery management, seed bed preparation, fertilizer application and key points in cultivation

The problems of hybrid rice cultivation are many and interrelated. The major problems as mentioned are, inadequate profit margin, uncertain climate, lack of good market price, lack of Govt incentives, absence of preserving facilities, inadequate technical support, problems of diereses and pest and scarcity of farm labour.

II. Distributors:

The reaction of 360 distributors of hybrid paddy as examined lead to following conclusions.

The problems in seed business as expressed by the sample are, unsold seeds, lack of storing facility, high cost of seeds, poor distribution system, pest attack during storing period and lack of knowledge to handle sensitive seeds.

The other problems are lack of technical support, lack of suitable scheme for seed business to meet loss and quick germination of seeds with contact of even little moisture.

REFERENCES

1. Aldas Janaiah, Hybrid Rice in Andhra Pradesh Findings of a Survey, Economic and Political Weekly June 21, 2003.
2. Behera, S.B. (2015) Constraints and suggestions reported by respondents in adoption of paddy seed production technology under Rastriya Krishi Vikas Yojona (RKVY) on Patna block of Keonjhar district (Odisha), International Journal of Agricultural Science and Research (IJASR), ISSN(P): 2250-0057; ISSN(E): 2321-0087, Vol. 5, Issue 6, Dec 2015, 247-256.
3. C.P. Abeywardana & G.P.K.Nishadi (2014), Analysis of factors affecting on low profits gained by paddy farmers with special reference to farmers in Matara district, Proceeding of International Conference on contemporary Management-2014,pp. 993-1002.
4. Ms. Ananya Mitra Mr. Debasis Dash (2016) AGRICULTURAL MARKETING OF PADDY IN ODISHA, International Journal of Research in Finance and Marketing (IJRFM), Vol. 6 Issue 8, August 2016, pp. 1-11.
5. Salpriya Seby, M. J. Mercykutty and R. Sendilkumar (2018) Perception of Farmers on Paddy Promotion Programmes under Decentralized Planning - A Case Study, Indian Res. J. Ext. Edu. 18 (4).

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- Paper presentation on Agribusiness Marketing Research in national level seminars.
- Participated in Indian Seed Congress-2011 at Hyderabad of National Seed Association of India.
- Participated in International Conference on Business Management and Social Innovation (ICBMSI-19)
- Participated in work shop on "Sales for Emerging Companies" by Chamber of Marathwada Industries and Agriculture (CMIA) jointly with NASSCOM at Aurangabad & got first prize.
- Participated in Indian Seed Congress-2012 at Pune of National Seed Association of India.

- **Dr. Rushina Singhi** is Ph.D. in Statistics. She has 12 years of experience in teaching and corporate training.
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- She has authored and presented various research papers in national and international conferences.