



Original Research Article

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Strategies to Overcome Constraints in Adoption of Improved Paddy Cultivation Practices in Navsari and Surat District of South Gujarat, India

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The present study reports strategies to overcome constraints in adoption of improved paddy cultivation practices and it was conducted in Navsari and Surat districts of South Gujarat in the year 2014-2016 with 100 respondent paddy growers, strategies were developed by prior identification of constraints and suggestions from respondent paddy growers and experts opinion. Majority of the respondent paddy growers reported the constraint "Labour problem" followed by the constraint "High cost of inputs" and "Lower market price of produce", on contrary to constraints the suggestions were "Provide financial support for purchasing of farm machinery" followed by the suggestions "Generic agriculture stores should be formed where quality inputs are sold at higher subsidized price" and "Provide storage facility for harnessing advantage of hoarding". The proposed strategies were Farmers should collectively help each other with their available resources by forming Commodity Interest Group under ATMA to mitigate labour problem, ATIC should be approached for low cost input and avoid high input cost, Approach APMC in the district for storage of produce and take advantage of hedging. The proposed strategies must be implemented effectively by implementing agencies for counteracting the constraints faced by the paddy growers in adoption of improved paddy cultivation practices.

Introduction

Agriculture is the mainstay of India's food security and rural economic security, which for centuries has shaped the culture of its human resource. More than 72.20 per cent of India's population is living in villages and majority of them are engaged in agricultural enterprise. Agriculture sector employs 54.60 per cent of the total workforce (Anonymous, 2014). Rice (*Oryza sativa L.*) is considered as a first cultivated crop of Asia. More than 90.00 per cent of the world's rice is grown and consumed in Asia, where 60.00 per cent

of the world's population lives. Rice accounts for 35.00 per cent to 60.00 per cent of the caloric intake of three billion Asians. Over 150 million hectares of rice is planted annually, covering about 10.00 per cent of the world's arable land, thus rice is the most important staple food in Asia. With the world population estimated to increase from 7.00 billion in the year 2014 to about 8.2 billion in the year 2030, the global rice demand will rise to about 765 million tonnes, or 533 million tonnes of milled rice (FAO, 2014). Since the

Green Revolution, the rice yield growth rate was approximately 2.5 per cent per year this has decreased to 1.1 per cent (Riveros and Figures, 2000). In respect of production, India ranks second with 154.6 million tonnes of paddy (103.6 million tonnes, milled basis) next to China (206.4 million tonnes of paddy, 144.4 million tonnes on milled basis), (FAO, 2015). As far as average yield per hectare is concerned, Korea Republic ranks first (5200 kg/ha) and that of India is only 2424 kg/ha (Anonymous, 2014a). Rice, besides being a major source of dietary energy, constitutes a natural medicine used mainly as a popular remedy. Gujarat State rice occupies about 7.00 to 8.00 per cent of the gross cropped area of the country and accounts for around 14.00 per cent of the total food grain production. It is observed from the yield of paddy, the average yield at national level is 2424 kg per hectare and the average yield of rice of Gujarat state is 1500-1800 kg per hectare. Similarly, the average yield in the districts under study Navsari and Surat is 3600 kg per hectare and 3650 kg per hectare respectively. The yield of selected Navsari district is higher than the national and state average yield and also it is higher than the potential yield 1500-1800 kg per hectare. To reach the fullest yield potential adoption of improved technology is central. Technology adoption is as important as its availability, various factors influence the adoption. Thus lower level of adoption is reported. Majority of paddy growers' adoption level was medium (Sasane *et al.*, 2012). Even the beneficiaries of certain programmes reported to have medium level of adoption of paddy production technology (Dholariya *et al.*, (2015). It is indicative of certain constraints hindering our farmers in adopting technologies. Various researchers reported constraints faced by farmers in adoption of paddy cultivation practices (Shanmugasundaram and Helen, 2015; Gopal *et al.*, 2014; Thorat *et al.*, 2012). Strategies refer to long-term plan which involve the

future course of actions to be taken and allocation of resources to achieve the intended goal. With this premise the above study was undertaken with following specific objectives,

To elicit the constraints as perceived by the paddy growers in adoption of improved paddy cultivation practices

To suggest the future strategies to overcome the constraints in adoption of improved paddy cultivation practices

Materials and Methods

Ex-post-facto research design was used in the present investigation. South Gujarat comprises of seven sister districts, out of these Navsari and Surat districts were selected following purposive sampling method, as these Navsari (3600 kg/ha. Anonymous, 2014a) and Surat (3650 kg/ha. Anonymous, 2014b) districts have highest productivity among all the seven districts of South Gujarat region. Both the study area are blessed with suitable climate and other natural resources for cultivation of paddy. Following simple ransom sampling procedure two taluka from each selected districts, five villages from each taluka and 10 respondent paddy growers from each selected village were selected making a total of 100 respondents.

To know the constraints faced by the farmers in adoption of improved/recommended cultivation practices of paddy, they were asked to state the problems and were recorded accordingly. Obtained problems were expressed in terms of frequency and percentage. Respondents were asked to provide suggestion against the constraints and obtained suggestions were expressed in terms of frequency and percentage. The opinion of technical experts on constraints and suggestions offered by the respondent paddy growers was screen out separately and

triangulation method was used to propose the strategy to overcome major constraints on priority basis.

Results and Discussion

Socio-economic profile of the respondents

Socio-economic status of the respondents is an important and integral part of any social science research. The profile study reveals that, half of the respondents (50.00 %) belonged to middle age category, majority of the respondents (58.00 %) had education up to the secondary level of education, 90.00 percent respondents were having medium (6 to 15 years) to high level (Above 15 years) of farming experience, 54.00 percent of them had medium (2 to 5 Acres) land holding, with 61.00 percent belonging to low income category (Rs. 50,001/- to 1,00,000 /-), more than 70.00 percent respondents belonged to medium categories in following variables, material possession (70.00 %), mass media exposure (73.00 %), risk orientation (80.00 %), social participation (77.00 %). 55.00 percent, 53.00 percent and 44.00 percent of respondents belonged to medium categories of scientific orientation, extension contact and extension participation, respectively.

Constraints as perceived by the paddy growers in adoption of improved paddy cultivation practices

Constraints refer to hindrance or obstruction or problems faced by paddy growers in adoption of improved/recommended paddy cultivation practices.

The data presented in table 1 indicates that the 98.00 per cent of the respondent paddy growers reported the constraint “Labour problem” and ranked at first position, followed by the constraint “High cost of inputs” and “Lower market price of produce”,

which was faced by 91.00 and 88.00 per cent respondent paddy growers and ranked at second and third position, respectively.

Furthermore, the constraint “Inadequate supply of quality inputs in time”, “Lack of effective marketing system”, “Complicated procedure to obtain crop loan”, “Price fluctuation”, “Inadequate irrigation facility”, “Non availability of technical knowledge” and “Less number of demonstrations” were faced by 76.00 per cent, 74.00 per cent, 69.00 per cent, 67.00 per cent, 57.00 per cent, 55.00 per cent and 46.00 per cent of the respondent paddy growers and therefore ranked at fourth, fifth, sixth, seventh, eighth, ninth and tenth position, respectively.

Suggestions expressed by the paddy growers to counteract the constraints in adoption of improved paddy cultivation practices

Suggestions are the probable solution or ways or opinions to overcome the constraints as expressed by the paddy growers.

The data presented in table 2 indicates that the 82.00 per cent of the respondent paddy growers expressed the suggestion “Provide financial support for purchasing of farm machinery” and ranked at first position, followed by the suggestions “Generic agriculture stores should be formed where quality inputs are sold at higher subsidized price” and “Provide storage facility for harnessing advantage of hedging”, which was faced by 80.00 and 78.00 per cent respondent paddy growers and ranked at second and third position, respectively.

Furthermore, the suggestions “Form a system for supply chain for timely availability of inputs”, “Provide adequate marketing information”, “Provide adequate information regarding crop loans”, “Provide marketing

management information”, “Canal should be made in unreach areas”, “Organize extension activates at village level” and “Conduct demonstrations in different panchayat in rotation” were faced by 64.00 per cent, 62.00 per cent, 60.00 per cent, 58.00 per cent, 56.00 per cent, 51.00 per cent and 43.00 per cent of the respondent paddy growers and therefore ranked at fourth, fifth, sixth, seventh, eighth, ninth and tenth position, respectively.

Table 3 indicates the major constraints, suggestions, experts' opinion, the proposed strategy and the executing agency.

Strategies to overcome the constraints in adoption of improved paddy cultivation practices

The proposed strategy based on the constraints and experts suggestions are as follows,

To resolve the labour problem farmers should collectively help each other with their available resources by forming Commodity Interest Group (CIG) under Agricultural technology Management Agency (ATMA), the CIG formation and collective utilization of resources should be executed by ATMA.

Table.1 Distribution of respondents according to constraints faced by them in the adoption of improved paddy cultivation practices

(n=100)

Sr.	Constraints	Frequency	Percentage	Rank
1.	Labour problem	98	98.00	I
2.	High cost of inputs	91	91.00	II
3.	Lower market price of produce	88	88.00	III
4.	Inadequate supply of quality inputs in time	76	76.00	IV
5.	Lack of effective marketing information	74	74.00	V
6.	Lack of information regarding crop loans	69	69.00	VI
7.	Price fluctuation	67	67.00	VII
8.	Inadequate irrigation facility	57	57.00	VIII
9.	Non availability of technical knowledge	55	55.00	IX
10.	Less number of demonstrations	46	46.00	X

Table.2 Distribution of respondents according the ranked suggestions

(n=100)

Sr.	Suggestions	F	%	Rank
1.	Provide financial support for purchasing of farm machinery	82	82.00	I
2.	Generic agriculture stores should be formed where quality inputs are sold at higher subsidized price	80	80.00	II
3.	Provide storage facility for harnessing advantage of hoarding	78	78.00	III
4.	Form a system for supply chain for timely availability of inputs	64	64.00	IV
5.	Provide adequate marketing information	62	62.00	V
6.	Provide adequate information regarding crop loans	60	60.00	VI
7.	Provide marketing management information	58	58.00	VII
8.	Canal should be made in unreach areas	56	56.00	VIII
9.	Organize extension activates at village level	51	51.00	IX
10.	Conduct demonstrations in different panchayat in rotation	43	43.00	X

F-Frequency and % - Percentage

Table.3 Proposed strategy to overcome the constraints

Sr.	Constraints	Suggestion from paddy growers	Options of Experts	Proposed strategy based on triangulation	Who will execute
1	2	3	4	5	6
1.	Labor problem	Provide financial support for purchasing of farm machinery	Farmers should collectively help each other with their available resources	Form the Commodity Interest Group under ATMA	ATMA
2.	High cost of inputs	Generic agriculture stores should be formed where quality inputs are sold at higher subsidized price	ATIC should be approach	Approach the ATIC, Navsari	ATIC, NAU Navsari
3.	Lower market price of produce	Provide storage facility for harnessing advantage of hoarding	Use APMC warehouse	Approach APMC in the district	APMC
4.	Inadequate supply of quality inputs in time	Form a system for supply chain for timely availability of inputs	Planning should be made in advance	Approach the ATIC, Navsari	ATIC, NAU Navsari
5.	Lack of effective marketing information	Provide adequate marketing information	Contact KVK for ICT initiative in marketing	Approach nearby KVK	KVK, Navsari NAU
6.	Lack of information regarding crop loans	Provide adequate information regarding crop loans	Contact RRB, Cooperative banks	Approach nearby RRB	RRB and Cooperative banks

To reduce high cost of inputs Agricultural Technology Information Centre (ATIC) should be approached for purchase of low cost inputs, the supply of low cost inputs should be made available by ATIC.

To avoid lower market price of produce the advantage of hedging can be taken by storing the produce in Agriculture Produce Marketing Corporation (APMC) warehouses, sufficient

and safe storage facility must be provided by the district APMC.

To avoid inadequate supply of quality inputs in time approach ATIC for planning the input purchase well in advance and the ATIC should make available quality and adequate quantity inputs in time to farmers.

To harness market information farmers can make use of ICT initiatives of Krishi Vigyan

Kendra (KVK) by approaching nearby KVK.

To get complete information regarding crop loans farmers are advised to approach Regional Rural Bank (RRB) and the RRBs; must provide all possible assistance to farmers in easy access to crop loans.

From the aforementioned findings it can be concluded that majority of the respondent paddy growers reported the constraint "Labour problem" followed by the constraint "High cost of inputs" and "Lower market price of produce", on contrary to constraints the suggestions were "Provide financial support for purchasing of farm machinery" followed by the suggestions "Generic agriculture stores should be formed where quality inputs are sold at higher subsidized price" and "Provide storage facility for harnessing advantage of hedging". The proposed strategies must be implemented effectively by the implementing agencies for counteracting the constraints faced by the paddy growers in adoption of improved paddy cultivation practices.

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