Limitation of Agricultural Practices in North 24 Parganas District of West Bengal, India

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Abstract

Agriculture is the major source of income in rural Bengal. The present study was conducted in south-eastern part of West Bengal in India. North 24 Parganas district was selected for the study. The data were collected through personal interview with the help of pre-tested structured schedule administered on randomly selected 90 respondents during November, 2010 to January, 2011. Secondary data collected from *gram panchayat*, government departments were also used in the study. From each of the nine *gram panchayats* of Barasat-I block 10 respondents were selected randomly (total sample size 90). The data were computed and analyzed using different statistical methods like frequency distribution, percentage analysis and co-relation co-efficient. The scoring method was used following socio-economic status scale (rural) and developing schedule. From the study it was found that the capital, irrigation facility and availability of improved technology were the most important constraints in the studied block. Capital was negatively and significantly correlated with marketing, whereas irrigation facility was positively correlated with availability of improved agricultural implements.

1. Introduction

Agriculture is the backbone of rural development and also plays an important role in national economy in our country. The concept of development can be viewed as a process of realizing certain goals of values, such as improved health, improved housing, better nutrition, more communications, improved transportation, increased command over resources, etc. It is fundamentally a process of transformation that involves the whole society-economic, social, political and physical structure as well as the value system and way of life of the people (Ali and Kumar, 2010). India has varied agro-ecological conditions with very much potential for agricultural production (GoI, 2000) but something hinders the growth of this sector particularly in the study area. There is a need to understand the causes that effect the agricultural growth. The present study was an attempt towards that direction.

2. Materials and Methods

The proposed study was conducted in purposively selected North 24 Parganas district of West Bengal in India. One block (Barasat-I) was selected purposively. The block has nine *gram panchayats*. Ten respondents were selected from each village from each of the nine *gram panchayats* using simple random sampling. So the total sample size of the study was 90. A draft interview schedule for the purpose of data collection was developed incorporating the tools and techniques of measurement of different variables. It was then modified and data were collected from the respondent directly through personal interview. There were 15 independent and seven dependent variables used in the study. Besides, 11 more variables were selected as the probable constraints which were included with the interview schedule for ranking by the respondents. The data were computed and analyzed using different statistical methods like frequency distribution, percentage analysis and co-relation co-efficient. The scoring method was used following socio-economic status scale (rural) (Parek and Trivedi, 1964) and developing schedule.

3. Results and Discussion

Table 1 shows the frequency of different socio-economic variables and Table 2 shows the frequency of some major dependent variables that influence the production of agriculture in the study area.

Variables	Category	Frequency	Percentage
Table 1: General and socio-economic variables			
Age (years)	20-30	9	10
	31-40	18	20
	41-50	29	32.2
	51-60	26	28.9
	>60	8	8.9
Religion	Hindu	56	62.2
	Muslim	34	37.8
Gender	Male	73	81.1
	Female	17	18.9
Marital status	Married	76	84.4
	Unmarried	10	11.1
	Widow	4	4.4
Category	Landless	9	10
	Marginal farmer	56	62.2
	Small farmer	21	23.3
	Medium-large farmer	4	4.4
Source of income	No source of income	1	1.1
	Agriculture	37	41.1
	Animal husbandry	6	6.7
	Service	14	15.6
	Business	17	18.9
	Others	15	16.7
Income	No income (₹ 0)	1	1.1
	<₹ 5,000	53	58.9
	₹ 5,001-10,000	28	31.1
	>₹ 10,000	8	8.9
Occupation	Jobless	1	1.1
	Laborer	27	30
	Caste occupation	2	2.2
	Business	17	18.9
	Independent	17	18.9
	Cultivation	26	28.9
Caste	General	53	58.9
	OBC	18	20
	SC	12	13.3
	ST	7	7.8
Education	Illiterate	1	1.1
	Read only	5	5.6
	Primary school	13	14.4
	Middle school	32	35.6
	High school	35	38.9
	Graduate	4	4.4
Family type	Nuclear	58	64.4
	Joint	32	35.6
Family size	Up to 5	51	56.7
	>5	39	43.3
House	Hut	2	2.2
	Kutcha	8	8.9
	Mixed	39	43.3
	Pucca	32	35.6
	Mansion	9	10
Material possession	Score 1	0	0
	Score 2	7	7.8
	Score 3	60	66.7
	Score 4	22	24.4
	Score 5	1	1.1
Urban contact	Rarely	4	4.4
	Sometimes	10	11.1
	Often	39	43.3
	Most often	37	41.1

SC=Scheduled caste; ST=scheduled tribe; OBC=Other backward caste.

Note: Material possession is categorized under five groups according to their score. Bullock cart=1; bi-cycle=1; radio=1; television=1 and improved agricultural implements=2

In above rank some figures show different constraints ranked by the respondent. The constraint F_5 (capital) got the lowest rank. So it was the major constraint in the study area.

Table 1 shows that greater number of respondents belong to age group of 41-50 and 51-60 years which were 32.2% and 28.9%, respectively. The respondents of age group above 60 were least (8.9%). Among those respondents Hindus were 62.2% and 37.8% were Muslims. Most of the respondents were male (81.1%). Nearly all the respondents were married (84.4%) (Fabiyi et al., 2007), 11.1% were unmarried and 4.4% were widow. Maximum respondents were marginal land holders (62.2%), 23.3% were small farmers, 10% were landless and only 4.4% were medium-large land holders. Source of income of maximum respondents was agriculture (41.1%). 18.9, 15.6 and 6.7% of the respondents' source of income were business, service and animal husbandry, respectively. 16.7% of the respondents' source of income was other than agriculture, animal husbandry, business and service. 1.1% of the respondents had no source of income. The lower income group respondents whose income was below ₹ 5,000 was maximum (58.9%). 31.1% of the respondents belong to medium income group (₹ 5,000-10,000). Higher income group respondents were minimum than other category (8.9%). 1.1% of the respondents had no income. 30% respondents were laborer, 28.9% of the respondents' occupation was cultivation, 18.9% of the respondents' occupation was business, and 18.9% were having independent profession. Only 2.2% of the respondents'

Table 2: Frequency of some major dependent variables

Variables about	Variables	Answer		Percentage	
		Yes	No	Yes	No
Availability of input	Agricultural shop in the village	75	15	83.33	16.67
	Availability of HYV seed in the shop	78	12	86.67	13.33
	Cost of HYV seed is reasonable	68	22	75.56	24.44
	Getting HYV seed in time	47	43	52.22	47.78
	Getting HYV seed as per choice	59	31	65.56	34.44
	Getting fertilizer from the shop	61	29	67.78	32.22
	Getting insecticide or pesticide from the shop	77	13	85.56	14.44
Knowledge and use of technology	Using of tractor	39	51	43.33	56.67
	Using HYV seed	43	47	47.78	52.22
	Following the guideline for agriculture	53	37	58.89	41.11
	Visit by the extension personnel	38	52	42.22	57.78
	Advice given by the extension personnel	47	43	52.22	47.78
	Following the advice given by the extension personnel	43	47	47.78	52.22
	Testing of soil	44	46	48.89	51.11
	Visit by personnel for testing of soil	49	41	54.44	45.56
	Knowledge about deficiency of soil chemistry	44	46	48.89	51.11
	Listening about new agricultural technology	48	42	53.33	46.67
	Market in the village	70	20	77.78	22.22
	Storing of product in the storage house	16	74	17.78	82.22
	Selling the product direct to the market	31	59	34.44	65.56
	Getting right price of the product	53	37	58.89	41.11
Marketing	Selling product through middle man	47	43	52.22	47.78
	Selling product to the big retailers	52	38	57.78	42.22
	Export of product by some intermediaries	52	38	57.78	42.22
	Selling of by-product	59	31	65.56	34.44
	Selling by-product direct to the factory	51	39	56.67	43.33

HYV=High yielding variety

occupation was caste occupation. Maximum respondents belong to general caste only least of the respondents belong to ST (58.9 and 7.8%). Maximum of the respondents had completed high school (38.9%). It seems that nearly all of the respondents were literate. Maximum of the respondents belong to nuclear family (64.4%) and had up to five family members (56.7%). Maximum of the respondents had mixed or *pucca* house (43.3 and 35.6%), respectively. Only 2.2% of the respondents lived in hut. Maximum respondents (66.7%) had three materials out of five (bullock cart, cycle, radio, television and improved agricultural implements). Only 1.1% of the respondent scored five here. Most of the respondents had often (43.3%) and most often (41.1%) contact to the urban area.

From Table 2 it is found that maximum of the respondents had agricultural shop in their village (83.33%). 86.67% respondents got high yielding verity (HYV) seed from the agricultural shop. Maximum of the respondents (75.56%) opined that the cost of HYV seed was reasonable. Only 52.22% respondents got HYV seed in time. 65.56% of the respondents got HYV seed as per their choice. 67.78 and 85.56% respondents respectively got fertilizer and insecticide or pesticide from the agricultural shop. Only 43.33% respondents used tractor and HYV seeds in their fields and 47.78% used HYV seeds. 58.89% respondents followed the general guideline for agriculture. 42.22% replied that their field was visited by agricultural extension personnel and 52.22% respondents got suggestion from them. Only 48.89% respondents tested their field soil. 54.44% replied that they got offer to test their field soil by personnel who visited their field for soil testing. Only 48.89% respondents knew about their field soil chemistry. 53.33% of respondents listened about new technology related to agriculture. Maximum (77.78%) of the respondents opined that their village had a market for selling agricultural products. Few respondents stored their products in the storage house (17.78%). 34.44% respondents

sold their products direct to the market and 58.89% got right price for their products. 52.22 and 57.78% of the respondents sold their products to the big retailers and exported by some intermediaries. 65.56% answered that they sold their agricultural by-products. 56.67% of the respondents sold their agricultural by-products direct to the factory.

From Table 3 it is concluded that capital, irrigation facility and availability of improved technology was the most constraints in the studied block and least constraints was availability of improved agricultural implements. Availability of HYV seed was highly positively and significantly correlated with the availability of fertilizer, availability of information, availability of agricultural laborer and availability of improved agricultural implements. Availability of HYV seed was positively and significantly correlated with natural calamities. Availability of fertilizer was highly, positively and significantly correlated with soil fertility, availability of agricultural labor and availability of improved agricultural implements. Availability of fertilizer positively and significantly correlated with natural calamities and availability of information. Soil fertility was highly, positively and significantly correlated with the availability of improved technology and availability of improved agricultural implements. Soil fertility was positively and significantly correlated with the availability of agricultural laborer. Soil fertility was highly, negatively and significantly correlated with marketing. Availability of improved technology was highly, negatively and significantly correlated with the irrigation facility and marketing. Capital was negatively and significantly correlated with marketing. Irrigation facility was positively and significantly correlated with natural calamities and availability of improved agricultural implements. Natural calamities were highly, positively and significantly correlated with the availability of agricultural labor and availability of improved agricultural implements. Availability of information was highly, positively and significantly correlated with the availability of agricultural labor and positively and significantly correlated with the availability of improved agricultural implements. Availability of agricultural labor was highly, positively and significantly correlated with the availability of improved agricultural implements.

Figure 1 shows that capital>irrigation facility>availability of improved technology>marketing>soil fertility>availability of HYV seed>availability of fertilizer>natural calamities>availability of agricultural labor>availability of information>availability of improved agricultural implements. It seems that capital, irrigation facility and availability of improved technology were the most important constraints in the study area and least was availability of improved agricultural implements.
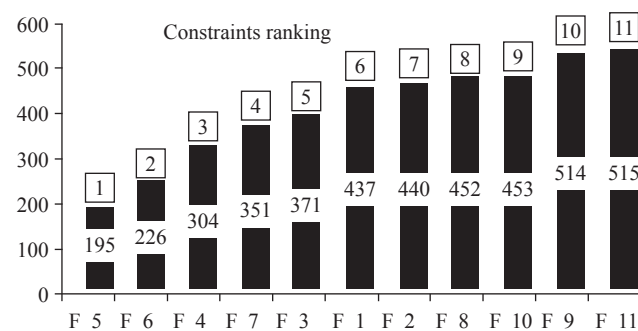

Figure 1: Constraints ranking

Table 3: Spearman's rank correlation among constraints in agriculture

	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8	F_9	F_10	F_11
F_1	1										
F_2	0.629	1									
F_3	0.132	0.297	1								
F_4	0.165	0.012	0.283	1							
F_5	-0.005	0.03	-0.037	0.034	1						
F_6	0.026	0.116	0.057	-0.29	-0.172	1					
F_7	-0.039	-0.026	-0.28	-0.381	-0.24	0.125	1				
F_8	0.269	0.248	0.071	0.001	0.045	0.24	0.08	1			
F_9	0.358	0.228	-0.049	-0.023	0.061	0.081	0.159	0.202	1		
F_10	0.497	0.396	0.25	-0.025	0.087	0.139	0.024	0.354	0.447	1	
F_11	0.464	0.414	0.296	0.076	-0.076	0.242	0.093	0.314	0.24	0.551	1

Bold coefficients are significant at 1% level of significance and bold-underlined coefficients are significant at 5% level of significance; F_1=Availability of HYV seed; F_2=Availability of fertilizer; F_3=Soil fertility; F_4=Availability of improved technology; F_5=Capital; F_6= Irrigation facility; F_7=Marketing; F_8=Natural calamities; F_9=Availability of information; F_10=Availability of agricultural labor; F_11=Availability of improved agricultural implements

4. Conclusion

Capital, irrigation facility and availability of improved technology were the most important constraints in the study area. Capital was negatively and significantly correlated with marketing and irrigation facility was positively correlated with the availability of improved agricultural implements.

5. References

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