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Assessment of factors affecting adoption of potato production technology in Odisha

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Abstract

A study entitled "Assessment factors affecting adoption of Potato production technology" was undertaken with a view to analyze the socio-economic profile of the potato cultivators followed by assessing their adoption level and the factors affecting the adoption behaviour of the respondent. The study was conducted in Nimapada and Pipli block of Puri District, Odisha. Both Purposive and Random sampling procedure were followed for selection of district, block, gram panchayat, village and respondent. Total sample size of the respondent was 100. The findings of the study revealed that majority (65%) of the respondents were in the category of middle age group that is 36-55 years and 72 per cent had higher education level. Majority (52%) of them were small farmers and maximum (84%) farmers had medium farm power possession. Majority (55%) farmers had medium level of annual income. 75 per cent farmers had medium level of membership in different social organisation. Regarding adoption of scientific potato production technology (68%) farmers were under medium adoption level. There was maximum gap of 30.33% in case of adoption of suitable variety as observed from the study. Out of thirteen socio-economic variable age, cosmopolitness, media exposure, land holding, occupation, farm power possession, annual income, scientific aspiration as essential factors exerted much impact on adoption behaviour of the potato cultivators.

Keywords: Adoption, knowledge, crop insurance, scientific potato production technologies, training

Introduction

Potato (*Solanum tuberosum* L.) is one of the major starch tuber vegetable crops of the world. Potato is a unique crop which can supplement the food needs of the country in a substantial manner. Today, potato is the need of life or poor man's food in many countries including India. Potato production in India has made tremendous progress only with the development of new technologies in different fields of agriculture. It has been observed that the farmers are not adopting recommended practices and consequently not realizing the potential yield of potato. To understand the problems of farmers in the adoption of complete recommended farm practices, researchers as well as extension workers should come out with some concrete findings and suggestions, which can solve these problems. It has been seen that a large number of techniques and practices do not reach the farmer's fields and those carried to the farmers get considerably distorted or often adopted partially with the result farmer's does not get the potential yield. The problem of technological change is not as simple as it is commonly understood. Therefore, it is very essential that the farmers must be aware about recommended farm practices for increasing the potato production.

Research Methodology

The study was conducted in Nimapada and Pipli block of Puri District, Odisha in the year 2018-19. Both Purposive and Random sampling procedure were followed for selection of district, block, gram panchayat, village and respondent. Total sample size of the respondent was 100. The response was obtained from each individual respondent through a pre-tested structured interview schedule. The data collected was tabulated and analyzed with the use of suitable statistical tools and techniques.

Results and Discussion

The findings of the study were presented in this chapter as per the objectives outlined. The data obtained in the study were processed, analyzed statistically and presented with the help of tables systematically.

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Table 1: Socio economic profile of potato cultivator (n=100)

Socio economic variables	f	%
Age		
Young age	7	7.0
Middle age	65	65.00
Old age	28	28.00
Education		
Low	5	5.0
Medium	23	23.00
High	72	72.00
Land Holding		
Marginal	37	37.0
Small	52	52.0
Medium	7	7.0
Large	4	4.0
Annual Income		
Low	39	39.00
Medium	55	55.00
High	06	6.0
Farm power possession		
Low	09	9.0
Medium	84	84.00
High	07	7.0
Scientific Aspiration		
Low	08	8.0
Medium	83	83.00
High	09	9.0
Membership in Social Organisation		
Low	19	19.00
Medium	75	75.00
High	06	6.0

It was revealed from research that majority (65%) of the respondents were in the category of middle age group that is 36-55 years and 72 per cent had higher education level. Majority (52%) of them were small farmers and maximum (84%) farmers had medium farm power possession. Majority

(55%) farmers had medium level of annual income and 83 per cent of the respondents had medium level of scientific aspiration. 75 per cent farmers had medium level of membership in different social organisation.

Table 2: Adoption level of farmers on major areas of potato production technologies (n=100)

Sl. No.	Major areas of adoption	Fully Adopted (3)		Partially Adopted (2)		Not Adopted (1)		Mean Score	Gap%	Rank
		F	%	f	%	F	%			
1	Soil and land preparation	88	88.0	12	12.0	0	0	2.88	4.00	VI
2	Variety	9	9.0	91	91.0	0	0	2.09	30.33	I
3	Planting	11	11.0	89	89.0	0	0	2.11	29.67	II
4	Intercultural operations	80	80.0	20	20.0	0	0	2.80	6.67	V
5	Nutrient management	24	24.0	76	76.0	0	0	2.24	25.33	IV
6	Plant protection measures	92	92.0	8	8.0	0	0	2.92	2.67	VII
7	Harvesting and post harvest	23	23.0	77	77.0	0	0	2.23	25.67	III

Examining the above table, it was revealed that the respondent farmers had an adoption gap of 30.33 percent in case of use of proper potato varieties which ranked 1st, followed by a gap of 29.67 percent (2nd), 25.67 percent (3rd), 25.33 percent (4th), 6.67 percent (5th), 4.00 percent (6th) and 2.67 percent (7th) in the areas of adoption of planting, harvesting & post harvest, nutrient management, intercultural operations, soil & land preparation and plant protection

measures.

Factor analysis of adoption level of respondents

The total adoption level of the respondents is influenced by major areas of potato production technology. Hence a factor analysis was made to extract the important and mostly impacting ones that have direct relation with high intensity. The findings were presented in the following table.

Table 3: Factor analysis of adoption level of respondents

Component	Total Variance Explained					
	Initial Eigen values			Extraction sums of squared loadings		
	Total	% of variance	Cumulative%	Total	% of variance	Cumulative%
Soil and land preparation	2.713	38.756	38.756	2.713	38.756	38.756
Variety	1.533	21.898	60.654	1.533	21.898	60.654
Planting	0.901	12.867	73.521			
Intercultural operations	0.715	10.219	83.740			
Nutrient management	0.572	8.165	91.904			

Plant protection measures	0.462	6.593	98.498			
Harvesting and post harvest	0.105	1.502	100.000			
Extraction Method: Principal component analysis						

The above table revealed that two major areas of potato production technology such as: soil & land preparation and

selection of variety exerted considerable impact upon the total adoption level of the potato growers.

Table 4: Correlation study of socio-economic variables with adoption level (n=100)

Sl. No.	Variables	r-value	t-calculated	t-tabulated (df 98)
1	Age	0.091	0.905	2.627 At 0.01 level of significance 1.984 At 0.05 level of significance
2	Education	0.180	1.812	
3	Land Holding size	0.211*	2.137*	
4	Avg. annual Income	0.409**	4.437**	
5	Farm power	0.398**	4.295**	
6	Scientific Aspiration	0.545**	6.435**	
7	Membership of Social organization	0.075	0.745	
8	Media exposure	0.437**	4.809**	

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

From the above table it was observed that a good number of socio-economic variables such as: media exposure, land holding size, farm power possession, annual income and

scientific aspiration had very significant impact upon the adoption level of the respondents regarding various production related technologies.

Table 5: Multiple regression analysis of socio economic variables on adoption

Model		Coefficients ^a				
		Unstandardized coefficients		Standardized coefficients	t	Sig.
		B	S.E.	Beta		
1	(Constant)	9.521	1.669		5.704	0.000
	Age	0.787	0.300	0.298	2.626	0.010**
	Education	0.154	0.151	0.122	1.022	0.310
	Land holding size	-0.189	0.221	-0.096	-0.855	0.395
	Avg. Annual income	0.354	0.269	0.159	1.316	0.192*
	Farm power	-0.215	0.182	-0.176	-1.181	0.241
	Scientific aspiration	0.385	0.132	0.636	2.908	0.005**
	Membership of social organization	-0.038	0.082	-0.063	-0.467	0.641
Media exposure	0.017	0.059	0.048	0.290	0.773	
Model summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	0.621 ^a	0.385	0.293	1.23582		

a. Predictors: (Constant,), Age, Education, Land holding, Annual income, Farm power, Scientific aspiration, Membership of social organization, Media exposure

Among the 8 variables age, annual income and scientific aspiration had recorded significant regression impact upon adoption level of the respondents. The R² value being 0.385, it is to conclude that the conglomeration of causal factors together has attributed to 38.5 percent, so it can be concluded that the socioeconomic variables had considerable influence in accelerating adoption level of the respondents.

Recommendations

1. Government may take appropriate steps for timely supply of quality seed materials and inputs to boost potato production as well as marketing of the products.
2. There should be Minimum Support Price (MSP) for potato, so that the distress sale of potato can be eradicated.
3. More number of cold storages, godowns and ware houses are required to be constructed to increase the stock for off season sale and consumption.
4. Producer-market linkage should be established for proper flow of market information and reduce the involvement of market intermediaries.

5. Crop insurance facility should be provided to the farmers to bear the crop loss owing to climatic hazards or poor input quality.
6. Training particularly on selection of proper seed material, farm mechanisation, disease and pest management and harvesting & post harvest management should be imparted to the potato growers.
7. To minimize the communication gap between extension functionaries and farmers; demonstration, exposure visit and farm periodicals, technical bulletins should be provided along with proper supervision of their progress and timely advisory services.
8. Vocational training on value addition should be provided to the young potato growers as per their interest.

Conclusion

Potato has a great demand irrespective of the rich and poor. There is a wide gap in between present production and consumption level of potato in our state Odisha. In order to fulfil the requirement of the consumers of the state and to fetch potato producers a remunerative price, the policy makers, planners, scientists may take necessary steps to train, motivate and enhance the knowledge and adoption level of

the farmers regarding modern potato production technologies in order to bring desirable change in the potato production scenario of our state.

References

1. Ahmad Peer QJ, Dar MA, Malik HA, Kaur J. Multiple regression analysis for adoption studies of potato growers in Jammu division, Journal of Applied and Natural Science, 2014; 6(2):664-671.
2. Benal D, Patel M, Jain MP, Singh VB. Adoption of Dryland Technology, Indian Journal of Dryland Agriculture Research& Development. 2010; 25(1):111-116.
3. Khalil MI, Haque ME, Haque MZ. Adoption of BARI Recommended Potato (*Solanum tuberosum*) Varieties by the Potato Farmers of Bangladesh, The Agriculturists-A Scientific Journal of Krishi Foundation. 2013; 11(2):79-86.
4. Kumar A. Farmers' perception of the attributes of selected potato technologies, Potato Journal, Central Potato Research Institute, Simla. 2007; 34(1, 2):141-142.
5. Sharif Uddin ABM, Rahman MM, Alam MB, Kamaly MHK. Factor analysis towards perception of potato production technologies by potato growers in Bangladesh, Journal of Global Communication. 2014; 7(2):97-104.