CORRELATES OF ADOPTION OF VEGETABLE BY TRIBAL FARMERS OF KEONJHAR DISTRICT OF ODISHA

Bibhu Santosh Behera

Ph.D Research Scholar, Dept. of Extension Education, College of Agriculture (OUAT), Bhubaneswar-751003, Odisha
E-mail: b.behera88@gmail.com

ABSTRACT

The present study entitled “Correlates of adoption of vegetables by tribal farmers of Keonjhar district of Odisha” was undertaken with a view to find out the socio-economic profile of tribal vegetable farmers; to find out the relationship between the socio-economic characteristics of the respondents with the vegetable adoption and rejection. Further an attempt was made to identify the constraints that hinder the vegetable adoption by the tribal farmers. Accordingly Suggestions were collected from field level & formulation of suitable strategies for comprehensive study in near future. The number of respondents of the study was 145 tribal vegetable farmers of Keonjhar district. The data collected through a pre-tested structured interview schedule with employment of appropriate statistical measures for analysis and interpretation of the data. The major findings of the study from the socio-economic profile were majority of the tribal farmers belonged to young age category (44.82 percent). Most of the respondents were illiterate (51.72 percent), having big & joint family (57.24 percent and 60 percent respectively), and less social participation (74.48 percent). Being traditional, most of the respondents were localite in nature (56.55 percent). Out of the sample only 18.62 percent farmers had vegetable trading as second livelihood option. The education land holding size, family size, outward orientation, housing pattern, occupation, social participation, ownership right, holding size, savings status and annual income are significantly correlated with adoption behaviour at 5 percent level of significance but age, family type, credit status have not significantly correlated with adoption behaviour. Out of all vegetables chilli placed 1st Rank followed by tomato & okra. Out of the sample 51.48 percent were using local varieties of vegetables due to their culture & trait; 54.48 percent were using chemicals for seedling & root dip treatment. Due to illiteracy, most of the farmers were following broadcasting method (53.80 percent) in seed sowing and most of them using their own way (46.89 percent) in seed rate innovations by neglecting scientific methods. Out of the sample 48.25 percent farmers were maintaining plant to plant distance in planting. In fertilizer innovation 40 percent farmers using nitrogen as major fertilizer by using 55.89 percent green manure and 44.11 percent were using FYM. From farm mechanization point of view they were adopting both hand operated & machine operated equipments. From all total 54.48 percent farmers were using rose cane for watering and 67.58 percent were using hand sprayer. A total of 33.10 percent respondents were using IPM & IDM packages due to influence of government/NGOs. Vermi-Compost and Amrit Pani, a typical ITK was adopted by 19.31 percent of the respondents. A total of 14.48 percent of respondents had rejected stubble burning in field preparation and rejection of Guamal variety of pumpkin (44.82 percent), VNR seed of okra (33.79 percent) and BT brinjal variety (57.24 percent) in varietal adoption, seed treatment by captain (17.24 percent), line sowing (33.79 percent), row to row planting in cole crops (40 percent), flood irrigation in root crops, chilly and leafy vegetables (28.96 percent), wooden plough as implement (29.66 percent), hand weeding (11.72 percent) in intercultural operation, plucking of fully matured vegetables (15.86 percent), traditional preservation (32.41 percent) in post harvest technology, use of endosulfan & DDT (86.20 percent), and use of pheromone traps & tricho cards (40 percent) perceived as final. Discontinuance was found in seed treatment by Gammaxene & Danadar (86.89 percent) & in variety Namdhari seed (hybrid) of bittergourd (32.41 percent). The respondents were of view that ignorance & negligence by govt. (42.25 percent) were main social constraints, Severe weed infestation (86.89 percent), more disease & pest attack (82.06 percent), in sufficient skill (31.72 percent) were main technological constraints. Poor
quality seed (29.65 percent), unreasonable seed price (20 percent), unavailable of required fertilizer (17.24 percent) were main constraints of input supply. No support price for vegetable crop input (26.20 percent), insufficient credit facility (21.37 percent), lack of easy disposal of produce (16.55 percent) were main economical & policy support constraints. Insufficient training (21.37 percent), no exposure visits (17.24 percent) and lack of information (15.86 percent) in advisory service were constraints, harassment in payment (20 percent), lack of storage facility (46.89 percent), lack of processing industries (31.03 percent), lack of transport facilities (22.06 percent) were main miscellaneous constraints, inadequate govt. support & guidance (46.89 percent) was organizational constraint.

Key Words:
Adoption, Correlation, Discontinuance, Rejection, Constraints, Strategy, Socio-Economic status, FYM, NGO, IPM, IDM, ITK, BT
INTRODUCTION

Vegetable cultivation is a part of Horticultural science. In scientific word it is termed as “Olericulture”. In global context “India” placed 2nd position after China in vegetable cultivation. (Both in area and production). But we are proud to know that our country placed 1st position in cauliflower, 2nd in onion, 3rd in cabbage and 4th in potato respectively in the world. As per the recommendation made by Indian Council for Medical Research (ICMR), the use of vegetables per day is 280 gm. But now days we avail less than equal to 100 gm due to poor production and adoption pattern of vegetable production in India. After getting conscious on the vegetable demand now farming people giving more emphasis on vegetable crops in order to meet the need of consumers, “Odisha” placed a respectable position in vegetable cultivation. But due to some irreparable conditions like (lack of input supply in proper time, lack of idea on package of practices, lack of marketing and processing industry facilities and lack of financing lack of storage facility) Farming people have low adoption pattern for vegetable cultivation. In Odisha out of 30 districts Keonjhar is one of the progressing tribal districts to conquer over the rank in vegetable cultivation due to cool temperate condition and vegetable forcing areas in the bank of the Baitarani River. Apart from these “Kudumi” tribes (Mahanta families) have a greater effort on vegetable cultivation actively. In Keonjhar district Swampatana, Saharpada, Anandapur, Ghatagaon, Hatadihi; Telkoi blocks have remarkable vegetable production due to “Gola” and “Chasa” families. In this district mainly cabbage, cauliflower, pumpkin, cucumber, pointed gourd, bitter gourd, parwal, onion and potato are cultivated. Here the researcher wants to study the details of adoption pattern of vegetable growers and compare them for further study and improvement with justified suggestions for their livelihood prosperity.
OBJECTIVES OF STUDY

1) To study the socio-economic characters of tribal vegetable farmers.

2) To identify the vegetable innovations adopted by the tribal vegetable farmers during last ten years and reasons for adoption and diffusion.

3) To identify the vegetable innovations rejected /discontinued by the tribal vegetable farmers during last ten years and the reasons for rejection or discontinuance.

4) To list out the opinion of tribal vegetable farmers on social,economic ,and management constraints and their suggestions .

5) To suggest suitable strategies for the effective adoption of vegetable technology by the tribal vegetable farmers of Keonjhar district of Odisha.

Expected Outcomes:-

1. Vegetable Cultivation by tribal’s in terms of negative behavior: Discontinuance; Rejection; Disagreement; Conflict; Dissonance; Confusion and reason for reinvention can be explained under the process of Technology Socialization.

2. The status of predictors of tribal vegetable farming can be rationalized and can be attuned to expedite the Process of technology socialization.

3. Some models of tribal vegetable farming will be evolved, which will be helpful for policy maker to standardize the process of Technology Socialization in the realm of rural development.

Limitation of the Study

The study suffers from the following limitations.
1. Though all possible precautions were taken to make the study precise, meaningful and reliable yet because of limited time and resources at the disposal of the investigator for which only limited respondents were included. This has been serious handicap in generalizing the findings. As it is a “Tribal Vegetable Cultivation” project and operated a long distance from the Headquarter the time and money did not permit this study of a large sample.

2. The findings of study are based on the ability of the recall and on the verbal opinion expressed by the respondents. Hence objectivity of the study is related to their ability to recall and also to their honesty in furnishing the required information.

3. The entire investigation is based on individuals perception and expressed opinion of the respondent under study.

4. Though utmost efforts were made to make best use of standardized tools and techniques of data collection, yet accuracy may not be guaranteed.

Research Methodology With Reference to Locale and Setting

Selection of problems

Selection, delineation and conceptualization of the research problem are the most important consideration in behavioral research. Good investigation gives priority on the formation of clear, realistic and unambiguous problem. Therefore delineation of problem is more important and essential than finding out solutions.
Therefore the present situation calls for an analysis of facts for the affinity of the farmers towards vegetable cultivation as it is one of the vegetable growing districts with less irrigation facilities. Hence the research study entitled “Correlates of Adoption of vegetables by Tribal farmers of Keonjhar District of Odisha” has been selected for the purpose of investigation.

Research design

The present research project was formulated on the basis of ex-post facto. Accordingly, specific objects were set to provide the basis of inquiry. In the light of objectives, the scope of study was oriented and due techniques of investigation were followed; tools used and pattern of statistical analysis decided. Then the study was outlined from observation levels up to interpretation of observation, giving correct operational definitions of concept used. The study was then carried out in the light of objectives set and within the frame work of selected outlines.

Plan of work

The researcher has made all attempts to make a detail survey of all related aspects of the study before actual investigation. A good number of interaction sessions were organized through seminars, focused group discussion workshops, meetings at the institutional level as well visit to the proposal areas of investigation in the depth discussion with the farmers and field level functionaries. In spite of time constraints as being a part course curriculum, all adequate attention was made to make the study as realistic as possible.

Location of the study
The study was undertaken in Keonjhar district of Odisha. The district comprises of blocks spread over sub-divisions. The district was selected purposively because of its potentialities in vegetable cultivation in Tribal Areas. Number of vegetables including off-season vegetables like tomato, cauliflower, cabbage in Kharif season as well as exotic vegetables broccoli, celery etc. It can be presumed that better response could be obtained for arriving at conclusion for recommending to the state Govt. for intensive vegetable cultivation in the district. Therefore Keonjhar district was selected purposively in the due course of investigation.

**Sampling Procedures**

The districts as well as blocks were selected purposively where as random sampling technique was followed for selection of Gram Panchayats, villages and respondents. The sampling procedure includes selection of district, block, villages and respondents’ which are detailed herewith.

**Selection of District**

Keonjhar district was purposively selected for the investigation. The district comes under north central plate ingrossimatic zone comprising of farming situations. The district is dominated by the tribal people. Horticulture is one of the important enterprises for the livelihood of the people of the people. Vegetable cultivation is the ages of old practice of farmers. The farmers have also affinity to grow vegetables for commercial people. The district Keonjhar was there have been selected purposively for getting better response for the purpose of investigation.

**Result and Discussion**
CORRELATION OF SOCIO-ECONOMIC VARIABLE WITH ADOPTION BEHAVIOUR

Socio-economic variable and adoption behaviour of any technology is a function of multiple factors of economic, socio-psychological and communication variables. The variables directly or indirectly influence the individual with regarding to their adoption behaviour. Attempt was made in the study to assess the relationships of some selected variables in the knowledge level of the respondents on various on various aspect of vegetable cultivation under study. The responses obtained on these aspects were analyzed by assigning score to individual respondents on each variable following the developed by Trivedy (1973). Zero order co-efficient of correlation analysis was made with the hypothesis. The results of the analysis are presented in the table 6.2.24.

Table 6.2.24 : Correlation of socio-economic variable on adoption behaviour.

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Variables</th>
<th>Correlation co-efficient (r)</th>
<th>‘t’ Value@0.05=1.976</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Age(X1)</td>
<td>0.138</td>
<td>NS</td>
</tr>
<tr>
<td>2.</td>
<td>Education(X2)</td>
<td>0.594</td>
<td>**</td>
</tr>
<tr>
<td>3.</td>
<td>Family Type (X3)</td>
<td>0.123</td>
<td>NS</td>
</tr>
<tr>
<td>4.</td>
<td>Family size(X4)</td>
<td>0.431</td>
<td>**</td>
</tr>
<tr>
<td>5.</td>
<td>Outward Orientation(X5)</td>
<td>0.489</td>
<td>**</td>
</tr>
<tr>
<td>6.</td>
<td>Housing Pattern (X6)</td>
<td>0.563</td>
<td>**</td>
</tr>
<tr>
<td>7.</td>
<td>Occupation (X7)</td>
<td>0.427</td>
<td>**</td>
</tr>
<tr>
<td>8.</td>
<td>Social participation (X8)</td>
<td>0.579</td>
<td>**</td>
</tr>
<tr>
<td>9.</td>
<td>Ownership Right (X9)</td>
<td>0.549</td>
<td>**</td>
</tr>
<tr>
<td>10.</td>
<td>Holding Size(X10)</td>
<td>0.519</td>
<td>**</td>
</tr>
<tr>
<td>11.</td>
<td>Average annual income(X11)</td>
<td>0.421</td>
<td>**</td>
</tr>
<tr>
<td>12.</td>
<td>Credit Status</td>
<td>0.131</td>
<td>NS</td>
</tr>
<tr>
<td>13.</td>
<td>Savings Status</td>
<td>0.493</td>
<td>**</td>
</tr>
</tbody>
</table>

**=Significant at 5 percent level of significance.

N.S- Non-significant

The findings present in the table-6.2.24 revealed that education, land holding size,family size, outward orientation, Housing Pattern, occupation, social participation, ownership right, holding size, savings status and annual income are significantly correlated with adoption behaviour at 5 percent level of significance but age, family type, credit status have not significantly correlated with adoption behaviour. For 145 respondents, at (n-2) degree of freedom “t” value is 1.976. From the table we may find that calculated “t” values were higher than 1.976. It proved that a high order co-relation exists & significant values were occurs due to 5 percent level of significance.
Fig. 45 Empirical model for the study of adoption behaviour of vegetable farmers

Independent variables

X1-AGE, X2- EDUCATION , X3-FAMILY TYPE , X4-FAMILY SIZE, X5-OUTWRD ORIENITTION, X6- HOUSING PATTERN, X7 -OCCUPATION, X8- SOCIAL PARTICIPATION, X9-OWNERSHIP RIGHT, X10- HOLDING SIZE, X11-AVERAGE ANNUAL INCOME,X12- CREDIT STATUS, X13-SAVINGS STATUS

Conclusion

In this age of management, the winner that who comes out with maximum output making the most rational use of available resources. All categories of farmers irrespective of holding size, caste, age and educational background are growing vegetables. But they did not have contact with different sources of information and confined to localized sources only. They have also good understanding about the important practices of vegetable cultivation. Growing to local varieties and less using micronutrient in vegetable crops perhaps the main reason on for getting fewer yields.

Farmers as a whole without discrepancy as regarded to age, education, economic status at least need to have a positive bent of mind towards modern methods of agricultural practices .In order to achieve something one should have clear and concrete purpose behind so as to get more income ,as in case of vegetable cultivation . Better knowledge excellent
skill and positive attitude are pre requisite for bringing behavioral changes of farmers from traditional to modern approaches in vegetable cultivation. The constraints as mentioned in the earlier section are not that right but can be easily addressed through awareness camps, training exposure, providing credit support to cultivators and creating a proper market for their produce through preservation and value addition technique.

The study although concludes that these are good practices of vegetable cultivation in Keonjhar district. They require community organizations, team work, and leader to lead them and enable them to take decision with risk learning capacity. They also required sufficient training and demonstrations to develop their knowledge and skill competency, credit facilities, incentives and minimum support price easy disposal of produce needs due consideration. If all these things are provided to the vegetable growers then there will be definitely increases in area, production and productivity of vegetables in Keonjhar district. The district can contribute significantly for the vegetable requirement of the state as well as increase the economic status of tribal dominated farmers.

The study therefore concluded that within limited resource specific time period and much academic mobility and financial constraints, definitely unfolded some significant areas in the field of vegetable cultivation which can be critically analyzed and suitable streamlined by the planner, policymakers, scientist besides the cultivator. For a economically sound, resource rich, materially stranger and cheerful and happy farming community.

Figure: Conceptual Framework Correlates of Adoption of Vegetables by Tribal Farmers

- Age, education, family size, type, social participation, outward orientation
- Income
- Housing pattern
Case Studies on Tribal Vegetable Farmers
Case Study of Tribal Vegetable Farmer

The Garden of Padma Lochan Naik

Padma Lochan Naik lives in a village named Baliaposi at Patna Block of Keonjhar district of Orissa. Baliaposi is a village of Gonds, one of the tribes in Orissa. The farming in Baliaposi as well as in Keonjhar depends on rain. Pradan has implemented a project on improving nutrition through home gardening in six villages of this block with support from ICEF land & livelihood project collaboration with P.I.A. PRADAN(NGO) in 2007 ~ 08.

Padma has 600 square feet of area in his home stead which he used to grow a few varieties of vegetables only in rainy season. He has a wife and two children. In winter and summer months the family used to buy vegetables from the market once in a week. The meager earning of Rs 30/- as daily wage prevented them from buying vegetables regularly. The one drumstick plant in the homestead has been the only source of some form of greens for the family.

He along with three other farmers from his village had volunteered to be trial farmers to evolve solutions to be able to grow vegetables for at least eight months in a year from the present three months for household consumption. He had cited the lack of water, seeds and fence as underlying reasons for not being able to grow vegetables in rest of the months of the year.

PRADAN team has facilitated the first phase of four days training on nutrition garden in March 07 in the project villages. The emphasis was given on varieties of such vegetables and fruits for cultivation in a nutrition garden which are traditional, can tolerate water stress, germinate easily, require less care, whose crop might be harvested over a longer period of time and seeds can be conserved for next season. The participants were also trained on improving soil fertility and disease & pest management techniques to reduce their dependence on market for inputs.

The villagers learned during the training programme:

- To make vermicompost
- To make liquid Manure
- To plant circle garden

IJOAR© 2014
http://www.ijoar.org
To make compost pit

Padma made his own compost pit and pots of liquid manure to improve microbial activity in soil and botanical pesticide to control pests. He built 3 raised beds with an east ~ west direction of 100 square feet each and three circle gardens of 1 meter diameter. He along with others were provided with vegetable seeds by PRADAN collected from farmers. He has grown brinjal, bullet chilly, pumpkin, ridge gourd, cow pea, ivy gourd and cluster beans etc. in Kharif / rainy. He has also planted five papaya saplings in his home stead. A grown papaya plant yields fruits for 4 years at a stretch.

Thus the variety of vegetables grown in his nutrition garden increased from three – brinjal, ivy gourd and chilly to seven the rainy season & in summer Pumpkin, tomato. Unlike previous years he has conserved seeds of these vegetables. In August the second phase of training was facilitated with an objective to learn from the experience of the rainy season and plan for the winter season.

He found liquid manure to be very useful and easy to prepare without any expenses. So, he decided to prepare this in a cycle of five earthen pots of 20 liters each once in every 10 days for the winter vegetable crops. The four farmers of this village had prepared a common nursery in the fourth week of September to grow seedlings of tomato, chilly and brinjal saplings.

He planted two varieties of chilly, brinjal, tomato, marigold flowers and basil alongside the vegetable beds. He has grown other vegetables green peas, French beans, okra, spinach, coriander, cow pea and bunching onion etc. in the inner space of the beds. Marigold and basil play an important role as pest repellent.

He was helped to document the amount of his money, time, value of farm yard manure, water invested and crop loss due to disease & pest attack per 100 square feet of bed and the net output in terms of vegetable yield, income earned out of selling, amount consumed at household level / values, amount of vegetables shared with others and seeds harvested.
He is very happy to see his garden having vegetables grown even during winter and his family had vegetables almost every day from November to Mid February. He has shared his experience along with his calculation of input & output with other farmers from his village. The farmers have requested him to share his seeds with them as well as help them to learn the nutrition gardening.

Padma has also begun working to raise a productive live fence around his garden. The live fence has multipurpose bush, shrubs, climbers seasonal, annual and semi perennial plants etc. The live fence once grown provides fruits, vegetables, biomass for compost as well as security of the nutrition garden.

This project has intensively worked with 38 farmers. However, at the end of the year there were 96 farmers involved in nutrition gardening and sharing seeds amongst themselves. There were at least seventy farmers who were growing vegetables regularly for eight months in a year even in 2008. The process is farmer led.

BIBLIOGRAPHY


Das, J. (2002); Keynote address: Socio- Economic perspectives of Detribalisation in North Orissa, conducted by Department of Tribal Studies, North Orissa University, Baripada.


About the Author:- Biography

Bibhu Santosh Behera is presently acting as Ph.D Research Scholar, Dept.of Extension Education,Odisha University of Agriculture & Technology, Bhubaneswar of State Odisha in India. Mr.Behera worked in various capacities in the Agriculture and Development Sector handeled various Projects under Govt.Of Odisha & Leading Non-profit Organization. Being a Member(Associate Fellow) of Indian Social Science Academy(ISSA) ,he has attended many seminars/symposiums of National level being organized by ICAR,UGC,OUAT & others line Dept.He has published abstracts/articles at national level seminars & international journals in India. His future plan to complete Doctorate & Post doctoral Fellow Programme from International /National Institution in India & Abroad. Being an optimistic & social Activist to make reformation in Agriculture, rural And Developmental sector. Presently he has been awarded FESW award 2014 From ESW Society India. He has headed UNEP SCP Clearing Programme, for his contribution to Phailine Disaster, Children and Youth MGCY work, he has been awarded Honorary Doctorate From,LADC,USA i.e. h.c. Ph.D(Social Work). This article is pure and thesis work done by the Scholar. It has been published in NAAS rated journal and Journal of Extension Education of SOEE,OUAT Bhubaneswar. This topic is highly appreciated from University, Govt. And From Padmashree Tulasi Munda, Social Activist, Director SCSTRI, Govt.of Odisha, IMAGE, Orissa, DA & FP Govt. Of Odisha, Directorate of Horticulture. So this thesis work may publish in every high rated research and extension journals after prior permission from the author.