

## Information Sources and Technology Adoption by Farmers : An Empirical Study in Mohanpur Block, West Tripura

Chandan Kumar Panda

Assistant Professor of Agricultural Extension, Department of Agricultural Extension, College of Agriculture,  
Tripura, Lembucherra- 799 210, India

*Corresponding author e-mail : dr.ckpanda@gmail.com*

### ABSTRACT

*The present study was conducted at Kamalghat Gram Panchayat area of Mohanpur R D Block in West Tripura district during July, 2012 to December, 2012 with the following objectives (i) to study the socio-economic profile of the farmers, (ii) to find out the interrelationship amongst the predicted and predictor variables and (iii) to suggest some measures for better farm technology adoption.*

*It might be concluded from the study that age of the respondents i.e. farmers were well distributed; most of them belonged to Scheduled Caste families; nuclear family type was in rising trend; most of the houses was kacha; till now farming remain the livelihood of least educated people; average land holding of the respondents was 0.62 ha; crop husbandry and animal husbandry were predominant pattern of livelihood. It was also noted that sources of information had strategic effect on adoption of farm technology; socio-economic factors were interrelated and family size and family types had more impact on others socio-personal variables/factors outcome. The farm technologies adoption in agriculture and allied sectors were predictive by socio-personal variables, but more contribution expected to be from gross annual income and sources of information.*

**Key words :** *Socio-economical factors, Farm technology, Adoption, Farmers*

Technology transfer and development is since mankind discovered things that they did not know before (Finlayson, 1995). Technology is facilitating major improvement in agriculture productivity (Koppel, 1978). Technology is a design for instrumental action that reduced the uncertainty in the cause and effect relationships involved in achieving a desired outcome (Rogers, 1983). Transfer and adoption of new technologies is most popular written and controversial topics in developing agriculture, and farmers seek ways of adopting new technologies (Nell, et al. 1998). Adoption of technologies are related to farm size, and asset specificity (Reimund, et al., 1981), education, extension contact and size of land holdings (Rajeev et al. 2006, Singh et al. 2010), education and economic conditions (Thyagarajan and Vasanthakumar, 2000), family size, membership in social institutions, rate of participation in extension activities and number of extension contacts had effect over technology adoption (Niyaki and Allahyari, 2010), caste, education, category of farmer, family type, family size, size of holding, material possession, social participation, production orientation, market orientation, risk orientation, mass media exposure, personal cosmopolite and personal localite (Roy, et al., 2013). Factors that trigger adoption of new technologies comprise progressive, young and educated male farmers. Factors limited adoption of technology included conservative old men, and weak belief on ensure high yield of new technology. Though farmers have positive perception of technology, they faced problems in technology application due to lack of capital, lack the direction from the government and extension, lack of compensation policy in insure of yield (Ngoc Chi and Yamada, 2002).

### **Objectives of the study :**

- (i) To study the socio-economic profile of farmers,
- (ii) To find out the interrelationship amongst the predicted and predictor variables
- (iii) To suggest some measures for better farm technology adoption.

### METHODOLOGY

The study was carried out at Kamalghat Gram Panchayat area of Mohanpur Block in West Tripura district during July, 2012 to December, 2012. West Tripura district had 16 Blocks and Mohanpur block was selected purposively for the study. From the Mohanpur block, Kamalghat Gram Panchyat was selected and from it, two adjacent villages were purposively selected and these are Santipara and Lakhansinghmura. From each village 60 respondents were selected randomly. Total numbers of respondents were 120. The interview schedule was framed to obtain relevant information commensurate with objectives of the study. The scheduled was pretested over 20 non-respondents farmers and pertinent changes were made. Although questionnaire were prepared in English, but during interview it was translated to Bengali. The variables were Age ( $X_1$ ), Education level ( $X_2$ ), Occupation ( $X_3$ ), Family Size ( $X_4$ ), Family type ( $X_5$ ), House type ( $X_6$ ), Land holding ( $X_7$ ), Number of animals ( $X_8$ ), Gross annual income ( $X_9$ ), Technologies adopted ( $X_{10}$ ) and Sources of information ( $X_{11}$ ). The statistical tools used were mean, percentage, ranking, Pearson's correlation coefficient, multiple regression and path analysis. For analysis of data Statistical Package for the Social Sciences (SPSS)-PC was employed.

It was noted from the Table 1 that, 30.83 per cent farmers belonged to the age of more than 55 years and

## RESULTS AND DISCUSSION

## I. Socio-economic profile of the farmers

**Table 1**  
**Frequency, mean and standard deviation of socio - personal characteristics of farmers**

(N=120)

Characteristics	Group	Frequency	Percentage	Cumulative Percentage	Mean	Std. Deviation
<b>Age group (in Year)</b>	>25 to ≤ 35	25	20.83	20.83	47.47	12.16
	> 35 to ≤ 45	36	30.00	50.83		
	> 45 to ≤ 55	22	18.34	69.17		
	> 55	37	30.83	100.00		
<b>Category of respondents</b>	General	9	7.50	7.50		
	Scheduled Caste	96	80.00	87.50		
	Scheduled Tribe	10	8.33	95.83		
	Other Backward Class	5	4.17	100.00		
<b>Family size group</b>	≥ 3	16	13.33	13.33	4.75	1.40
	>3 to ≤ 5	65	54.17	67.50		
	>5 to ≤ 8	34	28.33	95.83		
	>8	5	4.17	100		
<b>Family type</b>	Joint Family	58	48.33	48.33	1.48	0.51
	Nuclear Family	62	51.67	100		
<b>House type</b>	Kacha	84	70.00	70.00	1.35	0.61
	Pucca	10	8.33	78.33		
	Mixed	26	21.67	100		
<b>Education level</b>	Upto 5 <sup>th</sup> Standard	48	40.00	40.00	7.78	3.67
	Upto 8 <sup>th</sup> Standard	28	23.33	63.33		
	Upto 10 <sup>th</sup> Standard	21	17.50	80.83		
	Upto 10+2 standard	15	12.50	93.33		
	Graduation & above	08	6.67	100.00		
<b>Range of land holding (In hectare)</b>	≥ 0.5	68	56.67	56.67	.62	0.41
	>0.5 to ≤ 1	40	33.33	90.00		
	> 1 to ≤ 2	08	6.67	96.67		
	= 2 to ≤ 3	04	3.33	100.00		
<b>Types of livelihood (Occupation)</b>	Only Agriculture	24	20.00	20.00	1.26	0.54
	Agriculture & Fisheries	16	13.33	33.33		
	Agriculture, Fisheries & Animal Husbandry	20	16.67	50.00		
	Agriculture & Animal Husbandry	30	25.00	75.00		
	Agriculture & Daily Labour	11	9.17	84.17		
	Only Daily labour	04	3.33	87.50		
	Agriculture & Service	10	8.33	95.83		
	Agriculture & Business	05	4.17	100.00		
	<b>Number of animals</b>					
<b>gross annual income</b>					74242.56	43190.74

Source: Primary data collected from Kamalghat Gram Panchayat area

least percentage i.e. 18.34 per cent was noted for the age group of 45 to 55 years. It was observed from the above Table that 80 per cent respondents belonged to Scheduled Caste category. However 7.50 and 8.33 per cent farmers belonged to general and Scheduled Tribe category respectively. It was noted from the above Table that 54.17 per cent farmers had the family members in between 3 to 5, whereas 28.33 and 13.33 per cent respondents had family members in the group of 5 to 8 and within 3, respectively. Least representative was note for 4.17 per cent respondents having more than 8 members. The above Table cited that 48.33 and 51.67 per cent respondents had joint family and nuclear family respectively. It was noted that maximum farmers had kacha house and it was 70 per cent and pucca house was occupied by 8.33 per cent respondents. The above Table cited that 40 per cent respondents had educational level upto 5th standard however 6.67 per cent respondents were graduate or above. Only 12.50 per cent respondents had educational level upto Higher Secondary level. It was

noted that 56.67 per cent respondents had land holding within 0.5 ha, followed by 33.33 per cent farmers had land holding within 0.5 ha to 1.0 ha. And least percentage representation was noted for the land holding 2 ha to 3 ha and it was 3.33 per cent. It was also observed that for 20 per cent respondents agriculture was sole option of livelihood. Whereas Agriculture and Animal Husbandry as livelihood for 25 per cent respondents, but more diversified farming i.e. Agriculture, Fisheries and Animal Husbandry as livelihood for 16.67 per cent farmers. Least percentage representation of respondents to the livelihood as agriculture and business, and it was 4.17 per cent.

From the above Table it was noted that mean age of the respondents were 47.47 with the SD of 12.16 whereas the mean of level educational was 7.78 which implies that most of them were 8<sup>th</sup> standard passed or around of it, with the SD of 3.67. The mean family size i.e. number of family members per family was 4.75 with the SD of 1.40. The mean land holding was 0.62 ha with SD of 0.41. The average gross annual income

**Table 2**  
**Paradigm of farm technology adoption by the respondents**  
(N=120)

Types of technologies	Frequency	Percentage
Soil testing	21	17.50
Use of quality seeds	87	72.50
Seed treatment	68	56.67
Seed bed management	92	76.67
Line sowing	102	85.00
Fertilizer management	84	70.00
Biological control	11	9.17
Mechanical control	40	33.33
Cultural control	51	42.50
Chemical control	110	91.67
Intercultural operation	117	97.50
Timely harvesting	118	98.33
Proper storage	81	67.50

*Source : Primary data collected from Kamalghat Gram Panchayat area*

was Rs.74242.56 with the SD of 43190.74.

It was noted from the Table 2 that technologies viz. timely harvesting, intercultural operation had more

adoption by the farmers, followed by chemical control and line sowing with 91.67 and 85.00 per cent representation. Lesser adopted technologies were

**Table 3**  
**Distribution of respondents according to their sources of information and extend of using these sources**  
(N=120)

Sources of information	Most often	Often	Sometimes	Rarely	Never
Radio	08 (6.67%)	16 (13.33%)	22 (18.33%)	36 (30.00%)	38 (31.67%)
TV	44 (36.67%)	26 (21.67%)	30 (25.00%)	14 (11.67%)	6 (05.00%)
Newspaper	28 (23.33%)	12 (10.00%)	36 (30.00%)	20 (16.67%)	24 (20.00%)
Printed materials like leaflets, folders, bulletins	04 (03.33%)	10 (8.33%)	40 (33.33%)	32 (26.67%)	34 (28.34%)

Govt. Extension officials	8 (06.67%)	16 (13.33%)	62 (51.67%)	18 (15.00%)	16 (13.33%)
Block office	24 (20.00%)	30 (25.00%)	40 (33.33%)	16 (13.33%)	10 (08.33%)
Panchayat office	10 (08.33%)	38 (31.67%)	44 (36.67%)	22 (18.33%)	6 (05.00%)
Meeting in village	4 (03.33%)	38 (31.67%)	42 (35.00%)	26 (21.67%)	10 (08.33%)
Neighbour	60 (50.00%)	38 (31.67%)	16 (13.33%)	04 (03.33%)	02 (01.67%)
Dealer (Pesticide, fertilizer)	18 (15.00%)	40 (33.33%)	30 (25.00%)	20 (16.67%)	12 (10.00%)
Company representative	0	06 (05.00%)	30 (25.00%)	42 (35.00%)	42 (35.00%)
Village fair	0	12 (10.00%)	40 (33.33%)	38 (31.67%)	30 (25.00%)

Number in the parenthesis of the cells is percentage .

**Source :** Primary data collected from Kamalghat Gram Panchayat area

biological control and soil testing.

It was evident from Table 3 that TV was most often source of information to the farmers followed by Newspaper, Block Office and Dealers. It was

astonished to observe that the radio, the most cheapest mass media had very limited contribution as information source to the farmers and printed matter had also similar trend along with company

**Table 4**  
**Ranking of sources of information to the respondents**  
**(N=120)**

Sources of information	Total Value	Rank
Radio	160	VIII
Television (TV)	328	II
Newspaper	240	VI
Printed materials like leaflets, folders, bulletins	158	IX
Govt. Extension officials	222	VII
Block office	282	III
Panchayat office	264	V
Meeting in village	240	VI
Neighbour	390	I
Dealer(Pesticide, fertilizer)	272	IV
Company Representative	120	XI
Village fair	154	X

**Source :** Primary data collected from Kamalghat Gram Panchayat area

representatives.

From the Table 4 it was interesting to note that, neighbor and TV were the major sources of information to the farmers and got ranking I and II respectively. However, Block office, Dealer(Pesticide and fertilizer) and Panchayat Office were also important sources of information to the farmers with lesser magnitude and got the ranks III, IV and V, respectively. Whereas the contribution of Company representatives, the Village fairs and printed material were limited extend and got ranks XI, X and IX respectively.

From the Table 5 it was observed that the variable X1 (Age) is positively correlated with the variables X4 (Family size), X5 (Family type), X6 (House type), X7

(Land holding), X8 (Number of Animals) and X11 (Sources of information), and negatively correlated with the variables X2 (Education level), X3 (Occupation) , X9 (Gross annual income) and X10 (Farm Technologies Adoption). Out of these relations, it was observed that variable age was positively and significantly correlated at 0.01 level with family size and family type and this might be indicative that as age of the respondents increased family size would increase with the marriage of their off-springs. However the negative and significant correlation postulated that as the age of the respondents increased, the chances of acquiring formal education decreased. The variable X2 is positively and significantly related

**II. Interrelationship amongst the predicted and predictor variables**

**Table - 5**

**Matrix of socio - economical variables**

Variables	X <sub>1</sub>	X <sub>2</sub>	X <sub>3</sub>	X <sub>4</sub>	X <sub>5</sub>	X <sub>6</sub>	X <sub>7</sub>	X <sub>8</sub>	X <sub>9</sub>	X <sub>10</sub>	X <sub>11</sub>
Age (X <sub>1</sub> )	1										
Education level (X <sub>2</sub> )	-.420**	1									
Occupation(X <sub>3</sub> )	-.052	.265*	1								
Family Size(X <sub>4</sub> )	.555**	-.431**	-.044	1							
Family Type(X <sub>5</sub> )	.375**	-.245	.200	.632**	1						
House Type(X <sub>6</sub> )	.010	.263*	.276*	-.135	-.064	1					
Land holding(X <sub>7</sub> )	.065	.090	-.030	.090	.121	.269*	1				
Number of Animals(X <sub>8</sub> )	.101	-.262*	-.219	.104	-.175	-.046	.278*	1			
Gross annual income(X <sub>9</sub> )	-.087	.382**	.275*	-.179	-.075	-.058	.269*	-.084	1		
Farm Technologies Adoption(X <sub>10</sub> )	-.047	.078	.278*	-.005	-.086	.150	.267*	.044	.031	1	
Sources of information (X <sub>11</sub> )	.152	.081	-.068	-.096	-.172	.163	.268*	.199	.017	.353**	1

at 0.05 level with the variables X3 and X6; it implies that people with higher education as when select agriculture as livelihood with positive thinking; and respondents with higher education preferred to make better house. The variable X2 was also negatively and significantly correlated with the variables X4 and X8, it implied that respondents with higher educational level followed small family norms and reared less number of animals with high return. The variable X3 was positively and significantly correlated with variable X6, X9 and X10, it might indicate that person with diversified livelihood options had good type of house, more gross annual income and more number of farm technologies adoption. Family type (X5) and family size (X4) had significant relation. Respondents with

more Land holding (X7) might have good House type (X6) and possibly that's why variable X6 was positively and significantly related with the variable X7. The variable X7 was positively significantly correlated with the variables X8, X9, X10 and X11 and it might be pinpointing that landholding or size of land had influenced over number of animals to be remained, gross annual income, number of farm technologies adoption and interest for sources for information. Variable X10 was positively and significantly correlated with variable X7 and X11 at 0.05 and 0.01 level, it implied that respondent having more land holding and with more information sources led to more number of farm technology adoption.

**Table 6**

**Regression analysis of socio-economical variables showing their ability to explaining other variables when it was dependent variable.**

Dependent Variable	Predictors: (Constant)	Model Summary				Rank
		R	R Square	Adjusted R Square	Std. Error of the Estimate	
X <sub>1</sub>	X <sub>11</sub> , X <sub>9</sub> , X <sub>6</sub> , X <sub>5</sub> , X <sub>8</sub> , X <sub>10</sub> , X <sub>7</sub> , X <sub>2</sub> , X <sub>3</sub> , X <sub>4</sub>	0.655	0.428	0.312	10.08405	III
X <sub>2</sub>	X <sub>11</sub> , X <sub>9</sub> , X <sub>6</sub> , X <sub>1</sub> , X <sub>8</sub> , X <sub>10</sub> , X <sub>7</sub> , X <sub>3</sub> , X <sub>5</sub> , X <sub>4</sub>	0.625	0.391	0.267	3.14201	IV
X <sub>3</sub>	X <sub>11</sub> , X <sub>9</sub> , X <sub>6</sub> , X <sub>1</sub> , X <sub>8</sub> , X <sub>10</sub> , X <sub>7</sub> , X <sub>5</sub> , X <sub>2</sub> , X <sub>4</sub>	0.576	0.332	0.195	0.49180	V
X <sub>4</sub>	X <sub>11</sub> , X <sub>9</sub> , X <sub>6</sub> , X <sub>1</sub> , X <sub>8</sub> , X <sub>10</sub> , X <sub>7</sub> , X <sub>3</sub> , X <sub>5</sub> , X <sub>2</sub>	0.767	0.588	0.504	0.98386	I
X <sub>5</sub>	X <sub>11</sub> , X <sub>9</sub> , X <sub>6</sub> , X <sub>1</sub> , X <sub>8</sub> , X <sub>10</sub> , X <sub>7</sub> , X <sub>3</sub> , X <sub>2</sub> , X <sub>4</sub>	0.736	0.541	0.448	0.37450	II
X <sub>6</sub>	X <sub>11</sub> , X <sub>9</sub> , X <sub>1</sub> , X <sub>7</sub> , X <sub>3</sub> , X <sub>8</sub> , X <sub>10</sub> , X <sub>5</sub> , X <sub>2</sub> , X <sub>4</sub>	0.499	0.249	0.096	0.57604	IX
X <sub>7</sub>	X <sub>11</sub> , X <sub>9</sub> , X <sub>6</sub> , X <sub>1</sub> , X <sub>8</sub> , X <sub>10</sub> , X <sub>5</sub> , X <sub>3</sub> , X <sub>2</sub> , X <sub>4</sub>	0.511	0.261	0.110	0.38594	VIII
X <sub>8</sub>	X <sub>11</sub> , X <sub>9</sub> , X <sub>6</sub> , X <sub>1</sub> , X <sub>7</sub> , X <sub>10</sub> , X <sub>3</sub> , X <sub>5</sub> , X <sub>2</sub> , X <sub>4</sub>	0.536	0.288	0.142	3.02089	VII
X <sub>9</sub>	X <sub>11</sub> , X <sub>3</sub> , X <sub>4</sub> , X <sub>7</sub> , X <sub>8</sub> , X <sub>6</sub> , X <sub>10</sub> , X <sub>2</sub> , X <sub>1</sub> , X <sub>5</sub>	0.349	0.122	-0.058	44419.90195	XI
X <sub>10</sub>	X <sub>11</sub> , X <sub>9</sub> , X <sub>6</sub> , X <sub>1</sub> , X <sub>8</sub> , X <sub>7</sub> , X <sub>3</sub> , X <sub>5</sub> , X <sub>2</sub> , X <sub>4</sub>	0.484	0.234	0.078	1.65161	X
X <sub>11</sub>	X <sub>10</sub> , X <sub>4</sub> , X <sub>8</sub> , X <sub>9</sub> , X <sub>6</sub> , X <sub>7</sub> , X <sub>3</sub> , X <sub>1</sub> , X <sub>2</sub> , X <sub>5</sub>	0.538	0.289	0.144	5.97651	VI



From Table 6 it was interesting to note that as when family size (X4) was dependent variable, the R Square value was 0.588, i.e. about 59 per cent variation was explained and it was highest and got rank I, it was Possibly, as farming with more number of components need more family members for proper management and putting human labour. This finding was further substantiated by the variable family type (X5) as dependent variable with 49 per cent variation explanation and got rank II. Whereas it was surprising to note that as when the variable Gross annual income (X9) dependent variable, only 12 per cent variation was too explained, it might be due to the farming not remain remunerative as price of hard inputs were in escalating trend.

Path Analysis was conducted with IBM SPSS Amos 21 software. The Analysis Properties included were – estimation with maximum likelihood; regarding bias property, it was unbiased; regarding output, the

properties included in analysis were minimization history, standardized estimates, squared multiple correlation, sample moments, indirect, direct and total effects, factor score weights and covariance of estimate; and random permutation was followed.

Observed, endogenous variables were X10, X1, X2, X3, X4, X5, X7, X9 and X11; and unobserved, exogenous variables were E1,E2,E3,E4,E5,E6,E7,E8 and E9. It was indicative from Table 7 that when X1 goes up by 1 standard deviation, X10 goes down by 0.167 standard deviations and when X3 goes up by 1 standard deviation, X10 goes up by 0.301 standard deviations. From Table 7, it was concluded that positive deviations were note for the variables Occupation (X3), Family Size (X4), Land holding (X7) and Sources of information (X11); and negative deviations were noted for the variables Age (X1), Education level (X2), Family Type (X5) and Gross annual income (X9).

The standardized total (direct and indirect) effect of X1 on X10 is -.085. That is, due to both direct (unmediated) and indirect (mediated) effects of X1 on X10, when X1 goes up by 1 standard deviation, X10 goes down by 0.085 standard deviations. The standardized direct (unmediated) effect of X1 on X10 is -.167. That is, due to the direct (unmediated) effect of X1 on X10, when X1 goes up by 1 standard deviation, X10 goes down by 0.167 standard deviations. This is in addition to any indirect (mediated) effect that X1 may have on X10. The standardized indirect (mediated) effect of X1 on X10 is .082. That is, due to the indirect (mediated) effect of X1 on X10, when X1 goes up by 1 standard deviation, X10 goes up by 0.082 standard deviations. This is in addition to any direct (unmediated) effect that X1 may have on X10. From this it might be inferred that although age had negative effect over dependent variable i.e. technologies

**Table - 7**  
**Standardized regression weights**

Variables	Estimate
X <sub>11</sub> <--- X <sub>1</sub>	0.222
X <sub>11</sub> <--- X <sub>2</sub>	0.173
X <sub>9</sub> <--- X <sub>5</sub>	-0.026
X <sub>9</sub> <--- X <sub>4</sub>	-0.153
X <sub>9</sub> <--- X <sub>3</sub>	0.234
X <sub>10</sub> <--- X <sub>1</sub>	-0.167
X <sub>10</sub> <--- X <sub>2</sub>	-0.057
X <sub>10</sub> <--- X <sub>3</sub>	0.301
X <sub>10</sub> <--- X <sub>4</sub>	0.211
X <sub>10</sub> <--- X <sub>5</sub>	-0.174
X <sub>10</sub> <--- X <sub>7</sub>	0.063
X <sub>10</sub> <--- X <sub>9</sub>	-0.026
X <sub>10</sub> <--- X <sub>11</sub>	0.371

**Table 8**  
**Independent variables and their standardized Total Effects, Direct Effects and Indirect Effects over dependent variable i.e. Farm Technologies Adoption(X10)**

Variables	r-value	Standardized Total Effects	Standardized Direct Effects	Standardized Indirect Effects
X <sub>1</sub>	-0.047	-0.085	-0.167	0.082
X <sub>2</sub>	0.078	0.006	-0.058	0.064
X <sub>3</sub>	0.278*	0.295	0.301	-0.006
X <sub>4</sub>	-0.005	0.215	0.211	0.004
X <sub>5</sub>	-0.086	-0.174	-0.175	0.001
X <sub>7</sub>	0.267*	0.063	0.063	0.000
X <sub>9</sub>	0.031	-0.026	-0.026	0.000
X <sub>11</sub>	0.353**	0.371	0.371	0.000

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

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

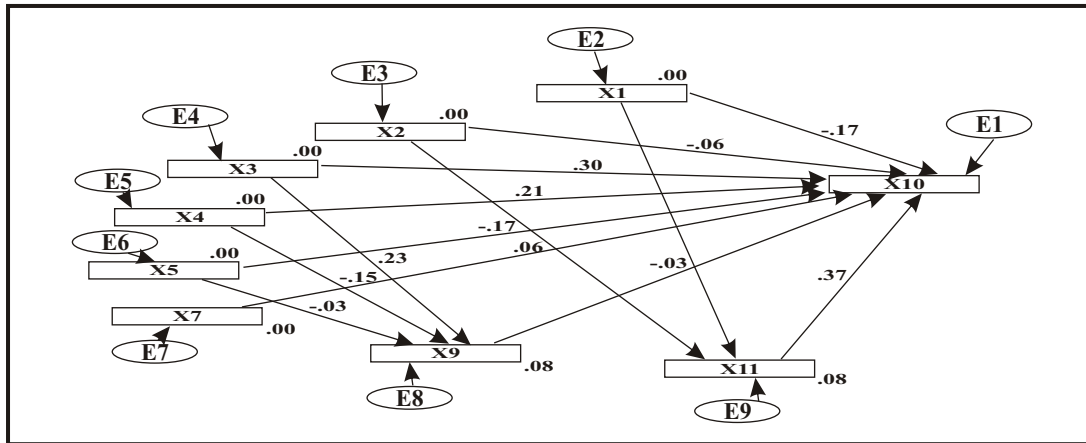


Figure-1: Path diagram after standardized estimates showing relationships of variables

adoption, but some hidden variables might be there those had positive manoeuvring effect as Standardized Indirect Effects was positive (.082) however as consequence of superseding of negative direct effect (-.167) the Standardized Total Effects were negative. It was further observed that for variable Education level (X2) the Standardized Indirect Effects (.064) had superseded the negative Standardized Direct Effects (-.058) , as consequence Standardized Total Effects (.006) , was positive. From the Table 8, it was again interesting to note that the variables Land holding (X7), Gross annual income (X9) and Sources of information (X11) had not indirect effects to dependent variable i.e. Farm Technologies Adoption (X10) through the standardized direct effects, rather Standardized Direct Effects was equal to Standardized Total Effects for these variables i.e. X7, X9 and X11. The implication of this result might be there were no hidden variables those would interfere on outcome of dependent variable i.e. Farm Technologies Adoption (X10). The path diagram show the model and inter relationship of the variables (Figure-1).

**CONCLUSION**

From the study it can be concluded that

1. The extent of acceptance of farming as livelihood to the young generation is limited.
2. Till now agriculture remains the livelihood of least formally educated people’s choice.
3. Mixed farming and diversified farming is always complementary to each other components or insure each other. The presence of this type of farming is low here and it may be due to number of reasons and this give scope for more in depth study to find out the constraints.
4. The nuclear family is inclined in trend and it may lead to further land fragmentation and attenuation the chances of farm mechanization.
5. Most of the houses of the farmers were kacha with tin roof. The roof of the houses were covered by tin as the rainfall is high of the state along with other north east India states.

6. The land holding of the farmers were in most cases below 0.5 ha and it might be due to the less plain land for crop cultivation along with rising population.
7. The adoption of more promising and cost effective technologies for agriculture and allied sectors were low amongst the farmers viz. soil testing, use of quality seeds, seed treatment, seed bed management, fertilizer management, biological control, mechanical control, cultural control and proper storage. It was not the failure of farmers rather it was the failure of extension system for reaching the farmers. It implies that rejuvenation of extension system become more imperative.
8. The sources of information had strategic effect on adoption of technology and it was observed from the study that the relationship was positive and significant. Now, it is the responsibility of extension system to support more number of choices of sources of information for better media mix for convincing to the farmers.
9. The socio-economic factors were interrelated and it was coraoborated by matrix of these factors. The farmers with more number of components in their mixed farming had more income. The formal education and income were positively associated. Landholding had positive effect over animal herd, gross annual income, technologies adoption and sources of information to the farmers.
10. It might be concluded that family size and family type had more impact on others socio-personal variables/factors outcome.

**Recommendations**

Based on the results of the study, the following recommendations are suggested for escalating relevant technologies adoption amongst the farmers, in return for more gross family income-

1. Strengthening both public and private extension system in general and agricultural extension and allied sectors in particular.
2. Intensive hands on training programmes should be emphasized through proper assessment of training

- needs for different target groups.
3. Training of extension personnel with changing paradigm of social and market context with factors of socio-economics.
  4. Promoting Broad Base Extension system.
  5. Farmers scientific orientation and scientific insight are found to be important factors in determining the adoption of improved technologies. Emphasis should be given in developing scientific mind and attitude to the adoption of these technologies.
  6. Price protection for farmers and market reforming in favour of sustainable agriculture.
  7. Bringing more number of farmers under crop insurance coverage along with Kisan Credit Card.
  8. Adequate and timely supply of quality inputs to farmers.
  9. High priority to rural electrification.
  10. High priority to development of animal husbandry, poultry, dairy and aqua culture.

Paper received on : October 14, 2014

Accepted on : December 07, 2014

## REFERENCES

1. Finlayson (1995). Transferring technology in developing countries. In "The world of Farm Management: An intervention exchange". Proceedings of Tenth International Farm Management Congress at the University of Reading, 10-15 July 1995. Edited by PT Doward, Reading: University of Reading.
2. Koppel, B. (1978). Agricultural Change and Social Structure: A Longitudinal Analysis. *Philippine sociological review*, 26, 57-73.
3. Nell, W. T., Schalkwyk van, H. D., Sanden, J. H., Schwalbach, L. & Bester C. J. (1998). Adoption of Veterinary Surgeon Service by Sheep and Goat Farmers in Qwaqwa. *Agrekon*, 37 (4):418-434.
4. Ngoc Chi, T.T. & Yamada, R. (2002). Factors affecting farmers' adoption of technologies in farming system: A case study in OMon district, Can Tho province, Mekong Delta. *Omonrice* 10: 94-100
5. Niyaki, S.A.N & Allahyari, M.S. (2010). Socio-personal characteristics on the adoption of rice fish culture system in North of Iran. *African J. of Agricultural Res.*, 5(24): 3470-3476.
6. Rajeev, B.N., Venkatappa, R. & Gokulraj, M.P. (2006). Adoption level of CSR hybrids by the sericulturists of Kolar District of Karnataka. *J. of Exten. Educ.*, 18 (3 and 4) : 3857-3861.
7. Reimund, D. A., Martin J. R. and More, C. V. (1981). Structural Change in Agriculture: The Experience for Broiler, Fed Cattle, and Processing Vegetables. Washington, D.C., U.S. Department of Agriculture, Economics and Statistics Service, *Technical Bulletin No. 1648*.
8. Rogers, E.M. (1983). Diffusion of innovations. New York : The Free Press. *A Division of Macmillan Publishing Co. Inc. & London: Collier Macmillan Publishers*.
9. Roy, Deepa, Bandyopadhyay, A. K. & Ghosh, A. (2013), Identification of Technological Gap In Pineapple Cultivation In Some Selected Areas of West Bengal. *International J. of Science, Environment and Technology*, 2 (3) : 442 – 448.
10. Singh, B.K., Rajesh, E.S., Yadav, V.P.S. & Singh, D. K. (2010). Adoption of commercial cut flower production technology in Meerut. *Indian J. of Exten. Educ.*, 10 (1) : 50-53.
11. Thyagarajan, S. & Vasanthakumar, J. (2000). Characteristics of rice farmers and adoption pattern of recommended rice technologies. *Indian J. of Exten. Educ.*, 36 (1 and 2) : 48-52.