

**ADOPTION OF INTEGRATED HOMESTEAD FARMING TECHNOLOGIES  
BY THE RURAL WOMEN OF RANGPUR DINAZPUR RURAL  
SERVICE**

**Abstract**

The purpose of the study was to investigate the adoption of integrated homestead farming technologies by the rural women in Rangpur Dinazpur Rural Service (RDRS), problem confrontation during adoption of integrated homestead farming technologies and explore the relationships with selected characteristics of the rural women. Four Upazilas, namely, Lalmonirhat Sadar, Aditmari, Kaligonj and Hatibanda under Lalmonirhat district, were selected for this study. Among the RDRS beneficiaries 250 rural women under RDRS constituted the population for this study. Out of these 250 rural women, 100 (i.e. 40% of the total population) rural women were as the sample for the study. The findings revealed that the highest proportion (71%) of rural women had high, 21% medium and 8% had low integrated homestead farming technologies. The findings also showed that the age of rural women had significant negative correlation with their adoption of integrated homestead farming technologies. Rest of the selected characteristics of rural women, namely, education, family size, annual income from field crop, annual income from homestead, contact with extension media, cosmopolitaness, innovativeness and aspiration in farming had significant positive relationships with their adoption of integrated homestead farming technologies. Problem confronted by rural women under RDRS was measured through a scale containing 12 statements on the problems based on adoption of integrated homestead farming technologies. In respect of problem confrontation, the findings revealed that the highest proportion (51%) of rural women had medium; 24% had high and 25% had low problem confrontation during adoption of integrated homestead farming technologies.

**Key Words:** Adoption, Homestead Farming, RDRS, Rural Women

## **Introduction**

In Bangladesh women constitute nearly half of the total population and majority of them live in rural areas. About 51.5% of the huge population of Bangladesh is female (BBS, 2015). About 85 percent of her population lives in rural areas and 75 percent of her working population are engaged in agriculture (BBS, 2012).

In Bangladesh, women hardly participate in agricultural activities outside their homes (Hossain, 2002; Abdullah and Zeidenstein, 1982). About half (49%) of population of Bangladesh is women among them 45.6 percent are associated with the farming activities (Agricultural Diary, 2012). Currently, women in Bangladesh have an anchoring role in the management of their families as well as equal participation in different economic activities like crop production, post harvest activities, poultry rearing, management of livestock and fisheries, pisciculture and miscellaneous income generating activities (Nessa et al., 2004). Especially in the rural areas resource poor households' women's participation in income generating activities is high because these households have higher number of family members in compare to lower number of capable male earning members (Al-Amin et al., 2004).

However, recent labor force survey conducted by the Bureau of Statistics (BBS, 2006) showed rapidly increasing participation of women in economic activities. Women's involvement in homestead agriculture started from the time immemorial. They were pioneers in plant domestication and planned agriculture (Child, 1971).

Homestead is the center of all agricultural production activities in rural Bangladesh. Homestead is the dwelling places as well as production unit of vegetables, fruits, fuel, timber, livestock and fisheries in an integrated manner. Homestead refers to home and adjoining land occupied by a family for the purpose like small scale agricultural production. Homestead agriculture includes backyard gardening, livestock rearing, poultry rearing, fish culture etc. Due to shortage of agricultural land integrated

homestead farming may be a good strategy for survival and existence of the client system because of secured supply of food and petty cash. According to Bangladesh Census of Agriculture and Livestock 1983-84, there were about 12.7 million rural households. Homestead constitutes about 5% of the total cultivated area of 8.4 million hectares. The size of individual homestead ranges on average between 0.004 to 0.08 hectares (Solaiman, 1988).

Women are the key operators of household activities. Their involvement in homestead farming activities have started from time immemorial. They were pioneers in plant domestication and planned agriculture (Childe, 1971). Women played significant role in the allied fields including crop production, livestock production, horticulture post-harvest operations, agro-social forestry and fisheries (FSRDP, 1990). The activities of women are mainly restricted within the household more particularly in taking care of children and other family members, preparing and serving food to members of the household and maintaining houses. In addition, the rural women do some production activities including agricultural and non-agricultural works within the homestead (Halim and McCarthy 1985).

This can help them to develop their socioeconomic development. As far as professional extension efforts are concerned the women were neglected in the past. Now a days the rural women being approached by different govt. and non-govt. agencies. The RDRS is trying to reach rural women directly with homestead farming technology through small contingent of extension workers. On the other hand there is a need to find out working areas for intensifying their participation in agricultural production. In a country like Bangladesh, more involvement of women in agriculture particularly integrated homestead farming becomes mandatory to combat over all food shortage, malnutrition and also to develop the socioeconomic condition of the rural women. Considering the above facts and findings, the investigator became interested to find out the relationship between adaption of integrated homestead farming technologies with the selected characteristics of rural women in RDRS.

### **Background of the RDRS**

RDRS is committed to the economic and social advancement of the poor and powerless. Because of the subordinate relations of women to men, women have different, usually greater needs which have to address. RDRS recognizes that patriarchal systems of control are the source of women's subjugation and need to be transformed for long-term goals to be sustainable. Training sessions on the need for positive incentive for women and the importance of women in the development process are on-going with staff who are being encouraged to change their negative attitudes towards women, as both beneficiaries and colleagues, to reject and fight against subordination and subjugation of women at RDRS working area.

### **Statement of the problem**

RDRS is an NGO and mostly works with landless women, the disadvantaged class of rural society. A substantial proportion of such women constitute the main target group of RDRS activities. Many sectarian programmes like poultry, livestock, fisheries, social forestry, sericulture, vegetable cultivation, health care, population education, family planning etc, are being conducted by RDRS for the rural women in order to boost up their living status.

Bangladesh is an agriculture based country, but the agricultural land of Bangladesh is decreasing at the rate of 1% per year (BBS, 2013). It is a burning question for Bangladesh. The per capita agricultural land of Bangladesh is only 0.8 hectare as a situation homestead is the unique piece of land for dwelling as well as the production unit of agricultural and non-agricultural commodities. Homestead is the place from where comes a sustainable amount of family nutrition and income. Integrated farming is an age long practice in the homestead area but not in a planned way. It is said that women perform most of the household activities. In addition to their regular non-agricultural activities, rural women are also involved in many agricultural (production) activities by following integrated homestead. Are they really adopting integrated farming technology, what is the extent of their adoption of integrated homestead farming? Is adoption of integrated homestead farming technologies related by their characteristics? What problems they are facing to adopt in integrated homestead farming technologies? So a number of questions are there. The present study was thus undertaken to get answer of the above mentioned questions. It was assumed that an

assessment of women's involvement in integrated homestead farming could be helpful to formulate policy and programmes for the socioeconomic development of the rural women and enhancing overall homestead production.

### **Specific objectives of the study**

For finding proper direction to the study, the following specific objectives were formulated.

1. To determine and describe the personal, economic, social and psychological characteristics of the rural women. The characteristics are as follows:
  - a. Age
  - b. Education
  - c. Family Size
  - d. Homestead area
  - e. Annual income from field crop
  - f. Annual income from homestead
  - g. Tenure of association with RDRS
  - h. Contact with extension media
  - i. Cosmopolitaness
  - j. Innovativeness
  - k. Aspiration
2. To explore relationship between the selected characteristics of rural women and their adoption of integrated homestead farming technologies.
3. To examine the adoption of integrated homestead farming technologies by the rural women.
4. To identify the extent of problems faced by the rural women in adopting integrated homestead farming technologies.

### **Scope and limitations of the study**

The route of women has been changing fast due to economic pressure as well as survival. The study was undertaken to have an understanding of different integrated homestead farming technologies used by the rural women in RDRS and to explore the relationships with some selected characteristics of the respondents. The rural women

play a vital role in the nation building process. Findings for the study are expected to be useful to the extension planners, policy makers in designing extension strategy for rural women.

## **Methodology**

### **Locale of the study**

Four upazilas, namely Lalmonirhat sadar, Aditmari, Kaliganj and Hatibandha of Lalmonirhat district were selected as the locale of study where RDRS programmes are concentrated. The physical, social and cultural heritage of people of this area are similar in many cases with other northern areas of the country. The study area has well accessibility through inter district high way and railway line. In this study area RDRS has organized the rural women to change their socioeconomic status by many arm activities.

### **Population and sampling of the study**

Beneficiaries of RDRS of the four selected upazila were considered as the population of the study. Among the RDRS beneficiaries 250 rural women under RDRS constituted the population for this study. Out of the population a total number of 100 (40% of the population) rural women were as the sample for the study. Thus 100 rural women constituted the sample for this study.

### **Research design**

The research design was both descriptive and analytical in nature. It was arranged accordingly to describe the nature of use integrated homestead farming technologies of RDRS women group and to find out the factors influencing their use of integrated homestead farming technology.

### **Instrument of data collection**

In order to collect relevant information, an interview schedule was carefully designed in English keeping the objectives of the study in view. It contained (both open and closed from questions). The questions were arranged systematically. To make good rapport and easy communication the questionnaire were converted into Bengali before data collection.

### Pre-testing of the interview schedule

The interview schedule was pre-tested with 15 respondents and then final shape was given to the interview schedule with the experience of pre-test. The pre-testing facilitated the researcher to examine the suitability of different questions and status of the instrument in general. The final version of the instrument was revised on the basis of the pretest.

### Selection of variables

In scientific research selection and measurement of variables constitute an important task. The hypothesis of a research constructed properly contains at least two important elements i.e. “dependent variable” and “independent variable”. A dependent variable is that factor which appears, disappears or varies the independent variables. An independent variable is that factor which is manipulated by the experimenter in his attempts to certain its relationships to an observed phenomenon.

Independent variables	Dependent variables
Age Education Family size Size of homestead Annual income from field crop Annual income from homestead Tenure of association with RDRS Contact with extension media Cosmopolitaness Innovativeness Aspiration in farming	Adoption of integrated homestead farming technologies.

Figure 1: The conceptual frame work of the study.

### Problem confrontation

Problem confrontation was measured using closed from questions in the interview schedule. The women were asked to give their opinion on 12 selected problems, which

were identified during pretesting of the questionnaire along with their extent of confrontation using integrated homestead farming technologies. A three point scale was used for computing the problem confrontation score. The weights assigned were 0 for “not at all”, 1 for “low” and 2 for “high”. The weights of responses of all the problems were added together to obtain the problem confrontation score, thus the problem confrontation score of the respondents could range from 0 to 24 where zero indicating no problem and 24 indicating highest problem.

### Measurement of the dependent variable

#### Extent of adoption of integrated homestead farming technology

Extent of adoption of integrated homestead farming technology was measured using closed form of questionnaire of the interview schedule. The women were asked to give their opinion on 28 selected farming technologies. A four point likert scale was used for computing the extent of adoption integrated homestead farming technology score. Weights of response against the applicable ones of the 28 technologies were assigned in the following way.

Extant of adoption of integrated homestead farming technology	Scoring system
Not at all	0
Low	1
Medium	2
High	3

The weights of responses of homestead farming technologies they adopted were added together to obtain the extent of use integrated homestead farming technology score of the respondents could range from 0 to 84. Zero indicating no use and 84 indicating highly used.

For a better understanding regarding the particular integrated homestead farming technologies used by the rural women, technology adoption index (TAI) was computed. TAI was calculated by multiplying the frequency counts of extent of use technologies with its corresponding weights such as 3 for high, 2 for medium 1 for low and 0 for not at all. By adding all the values of each cell together, the score of TAI was calculated.



The TAI could range from 0 to 300, 0 indicating not at all while 300 indicating high use of integrated homestead farming technologies.

### **Collection of data**

Data were collected by the researcher himself during 11 August to 9 September, 2001. To get valid pertinent information the researcher made all possible efforts to explain the objectives of the study to the respondents. Interviews were conducted with the respondents in their homes. While starting interview with any respondent, the researcher took all possible care to establish rapport with her so that she did not feel hesitate to furnish proper response to the questions and statements in the schedule. The questions were clearly explained wherever any respondent felt difficulty in understanding properly.

### **Compilation of data**

After completion of field survey data from the interview schedule were compiled, tabulated and analyzed according to the objectives of the study. In this process, all the responses in the interview schedule were given numerical coded values. Local units were converted into standard units. The response to the question in the interview schedules was transferred to a master sheet to facilitate tabulation. Tabulations and cross tabulations were done on the basis of categories developed by the investigator himself.

### **Data analysis procedure**

The data collected for the study were coded and tabulated for the purpose of analysis. Qualitative data were converted to quantitative data by mean of study scaling wherever necessary. The analysis was performed using statistical treatment with SPSS computer package as described below.

Descriptive analysis such as range, frequency, number and percentages, mean, standard deviation rank order was used. Pearson's product moment correlation coefficient (r) was used in order to explore the relationship between the concerned variables. Throughout the study five percent (0.05) level of probability with an accompanying 95 percent confidence level was used as a basis of rejecting the null hypotheses.

### **Results and Discussion**

The study investigated the use of integrated homestead farming technologies for their socioeconomic development. In accordance with the objectives of the study, presentation of this chapter has been made in four sections. The first section deals with the selected characteristics of the rural women who used integrated homestead farming technologies for their socioeconomic development. Extent of use of integrated homestead farming technologies has been discussed in second section. Use of integrated homestead farming technologies and the selected characteristics of the rural women has been discussed in the third section. Finally, in the fourth section, the problems faced by the rural women in use of integrated homestead farming technologies have been discussed.

### **Selected characteristics of the rural women under RDRS**

Man possesses various interrelated and constitutional characteristics and this forms his/her personality. It was therefore hypothesized that the characteristics of the rural women under RDRS would have influenced their use and extent of use integrated homestead farming technologies. In fact human behaviour regarding certain aspect is very complex. It was not possible to consider all the characteristics were selected to explore relationship with their use of integrated homestead farming technologies. A summary profile of the characteristics of rural women under RDRS in given in given in Table 1.

**Table 1. Characteristics profile of the rural women under RDRS**

Characteristics	Scoring method	Possible score	Observed score	Mean	SD
1. Age	No. of years	-	20-65	34.52	9.40
2. Education	Years of schooling	-	0.5-9	2.80	2.40
3. Family size	Number	-	2-11	5.54	1.91
4. Size of homestead	Area in hectare	-	0.023-7.28	0.159	0.121
5. Annual income from field crop	Rated score	-	1-9	4.44	1.64
6. Annual income from homestead	Rated score	-	7-20	12.48	3.04
7. Tenure of association with RDRS	Computed score	-	1-40	8.57	6.20

8. Contact with extension media	Rating score	0-57	20-38	28-42	3.17
9. Cosmopolitaness	Rating score	0-18	3-15	7.46	2.85
10. Innovativeness	Rating score	-	24-57	38.21	6.48
11. Aspiration in farming	Rating score	0-28	17-26	22.50	2.18
12. Adoption of integrated homestead farming technology	Rating score	0-84	32-60	46.65	5.41

### Age

Age of the rural women ranged from 20 to 65 years with a mean of 34.52 years with a standard deviation of 9.40. The highest proportions (49%) of the rural women were middle aged. The remaining 35% of the women belonged to the young aged category and 16% belonged to the old aged category.

### Education

The level of education of the respondent women ranged from 1 to 9 years of schooling having an average of 2.8 with a standard deviation of 2.40. Twenty five percent of the respondents could sign their name only, but they could not read or write anything, while 60% of the respondents had primary and 15% had above primary level of education respectively.

### Family size

The family size of the rural women ranged from 2 to 11 with an average of 5.54 and standard deviation of 1.91. The highest proportion (60%) of the rural women had medium families consisting of (5 to 8) members each, while 32% of the rural women had small family size and 8% had large families.

### Homestead size

Among the respondents, the smallest homestead size was found 0.0232 hectare and the largest 0.728 hectare. Average homestead size was 0.159 hectare with a standard deviation of 0.121. The large proportion (95%) of the respondents women belonged to the large homestead size category compared to 3% having medium and 2% having small homestead size.

### **Annual income from field crop**

Annual income from field crop of the respondents ranged from a score of 1 to 9 with an average of 4.44 and standard deviation of 1.64. The majority proportion (56%) of rural women belonged to medium income group, 34% of the respondents had low income and only 10% had high income from field crop.

### **Annual income from homestead**

Annual income from homestead of the rural women score ranged from 7 to 20 with an average of 12.48 and standard deviation of 3.40. More than fifty percent (55%) of the respondents belonged to medium income from homestead, while 29% had low income and only 16% had high income from homestead.

### **Tenure of association with RDRS**

The tenure of association with RDRS of the respondents with RDRS development activities ranged from 1 to 40 score with an average of 8.57 and the standard deviation of 6.20. Twenty eight percent of the respondents had low length of tenure with RDRS, while majority of the respondents (52%) had medium length of tenure and (20%) of them had long length of involvement with RDRS.

### **Contact with extension media of the rural women**

Contact with extension media score of the rural women ranged from 20 to 38 with an average of 28.42 and standard deviation of 3.27. The largest proportion (74%) of the respondents had medium contact with extension media. 2% of the respondent had low and 24% had high contact with extension media. Therefore, most of the rural women had substantial contact with extension media.

### **Cosmopolitaness**

The cosmopolitaness score of the rural women ranged from 3 to 13, the mean being 7.26 and standard deviation was 2.15. The highest proportion (70%) of the respondents had medium, 22% had low and only 8% had high cosmopolitaness.

### **Innovativeness**

Observed innovativeness score of the respondents ranged from 24 to 57. The mean score being 38.21 and standard deviation was 6.84. Innovativeness of the rural women

had fallen in less, moderate and high categories by their percentage of 15, 53 and 32 respectively. Majority percent of the rural women (53%) were moderately innovative.

### Aspiration in farming

The aspiration score of the rural women varied from 17 to 26. The average was 22.50 with a standard deviation of 2.18. The highest proportion of the rural women (50%) had high aspiration, 43 percent medium and 7 percent had low aspiration. Aspiration makes a man innovative and hard working to acquire knowledge.

### Adoption of integrated homestead farming technologies

For a better understanding regarding the particular integrated homestead technologies adopted by the rural women a technology adoption index (TAI) was computed. The (TAI) was calculated by multiplying the frequency of each of the cell of the extent of use technologies with its corresponding weights such as 3 for high, 2 for medium, 1 for low and 0 for not at all. By adding all the values of each cell together the score of TAI was calculated. TAI could range from 0 to 300, 0 indicating not at all adoption, while 300 indicating highest adoption of integrated homestead farming technologies. The computed TAI regarding the adoption of technologies on individual aspects of different technologies are shown in the Table 2.

Table 2. Technology adoption index (TAI) regarding use of integrated homestead farming technologies

Sl. No.	Technologies	Extent of adoption				TAI	Rank order
		High	Medium	Low	Not at all		
1.	Cultivation of modern variety of vegetable	12	60	18	10	174	12
2.	Cripper cultivation in hut roof	90	10	0	0	290	2
3.	Multiple cropping	100	0	0	0	300	1
4.	Use of chemical fertilizer	10	15	60	15	120	18
5.	Use of compost	100	0	0	0	300	1
6.	Use of pesticide	25	35	10	30	155	14
7.	Integrated pest management	30	20	15	35	145	15
8.	Use of homestead pesticide	25	10	15	50	110	19
9.	Cultivation of fast growing	70	20	10	0	260	6

	forest tree						
10.	Cultivation of spice and condiments in shady place	85	10	2	3	277	3
11.	Raise seedling in the nursery	55	10	20	15	205	10
12.	Production of vegetable seed	43	25	10	12	189	11
13.	Vegetative propagation of plant	9	6	10	75	49	22
14.	Rearing developed variety poultry	3	7	5	85	28	25
15.	Pigeon rearing	24	19	17	40	127	16
16.	Vaccination of poultry bird	58	30	2	10	236	8
17.	Rearing of developed cattle breed	5	14	16	65	59	21
18.	Artificial insemination in live stock	15	29	21	35	124	17
19.	Use urea molasses block for beef fattening	8	3	14	75	44	23
20.	Goat fattening	78	14	8	0	270	5
21.	Sometimes apply lime in the pond	67	13	15	5	242	7
22.	Apply supplementary feed of fish	80	13	7	0	273	4
23.	Production of fodder on the bank of pond	14	10	15	61	77	20
24.	Poly culture of fish	100	0	0	0	300	1
25.	Cultivating of fast growing fruits on the ponds bank	33	22	15	20	158	13
26.	Food processing for sell	5	0	15	80	30	24
27.	Use of developed chula	2	0	8	90	14	26
28.	Use of tradel pump (Dheki machine)	65	10	15	10	230	9

Technology use index of rural women on 28 technologies ranged from 30 to 300. Use of compost (300), multiple cropping (300), Poly culture of fish (300) were the top in rank order combined. Cripser cultivation in hut roof (290), cultivation of spice and conditions (277), apply supplementary feed of fish (273), goat rearing (270), cultivating of fast growing forest tree (260), **sometimes** apply lime in the pond (242) were the 2 to 7 technologies in rank order. Three technologies namely use of tradel pump (**230**), vaccination of poultry bird (236), **raise seedling** in nursery (205) **had TAI over 200**. Four technologies namely, production of vegetables seed (189), cultivation of modern variety vegetables (174), cultivation of fast growing fruit tree on ponds bank (158), use of pesticide (155) **had TAI over 150**. Five technology namely IPM (145) pigeon rearing

(127), artificial insemination in livestock (124), use of chemical fertilizer (120), use of homemade pesticide (110) had TAI over 100. There were other eight technologies with TAI under 100.

### **Relationship between the characteristics of the rural women and their use of integrated homestead farming technologies**

In this section relationship between fourteen independent variables i.e. selected characteristics of the rural women viz. age, education, family size, homestead area, annual income from field crop, annual income from homestead, tenure of association with RDRS, contact with extension media, cosmopolitaness, innovativeness, aspiration in farming and adoption of integrated homestead farming technologies.

**Table 3. Correlation coefficient between independent and dependent variables**

<b>Independent variables</b>	<b>Dependent variable</b>
1. Age	-0.204*
2. Education	0.267**
3. Family size	0.101 <sup>ns</sup>
4. Homestead size	0.018 <sup>ns</sup>
5. Annual income from field crop	0.352**
6. Annual income from homestead	0.317**
7. Tenure of association with RDRS	0.073ns
8. Contact with extension media	0.466**
9. Cosmopolitaness	0.228*
10. Innovativeness	0.199*
11. Aspiration in farming	0.225*

\*=Significant at.05 level of probability, \*\*=Significant at.01 level of probability, ns=Not significant; Table value of 'r' with 100-2=98 degrees of freedom at 0.05 level=±0.196 and at 0.01 level=±0.254.

### **Problems faced by the rural women in adoption of integrated homestead farming technologies**

The purpose of this section was to have an understanding on the problems faced by the rural women in implementing integrated homestead farming technologies. The rural women were asked to mention the specific problems concerned by them. The responses

were recorded by tally mark against each. Then the problems of the rural women are listed below according to importance in table 4.

Table 4. Problem faced by the rural women related to the adoption of integrated homestead farming technologies

Sl. No.	Problems	Number of citation			Computed Score	Rank order
		High	Medium	Low		
1.	Lack of good breed of poultry	70	18	12	158	1
2.	The pond become dry in the dry season	58	12	30	128	2
3.	Disease control problem of domestic animals	43	14	43	100	3
4.	Lack of veterinary medicine	33	22	45	88	4
5.	Lack of cash	29	26	45	84	5
6.	Lack of semen in proper time for artificial insemination	24	19	57	67	6
7.	Low market price of products	20	23	57	63	7
8.	Marketing problems of products	25	8	67	58	8
9.	Lack of quality seed and seedlings	14	25	61	53	9
10.	Lack of fodder	16	19	65	51	10
11.	Lack of advice in proper time	16	15	69	47	11
12.	Social problem	9	11	80	29	12

1. “Lack of good breed of poultry” ranked 1<sup>st</sup> with the computed score of 70 rural women faced high, 18 medium and 12 low against the problems. Traditional developed poultry breeds are very susceptible to diseases and climate. The mortality rate of this breed is very high. Maximum of the rural women were economically damaged due to rear this poultry breed. Probably due to this reason rural women faced problem in this respect.

2. “The pond become dry in the dry season” ranked 2<sup>nd</sup> with the computed score of 58 high, 12 medium and 30 low against the problem. The soil texture of the study areas is sandy loam to sandy which water retention capacity is low. Probably due to this reason rural women faced problem in this respect. It is a natural problem.



3. “Social problem” ranked 12<sup>th</sup> with the computed score against the problem. 9 of the respondents faced high, 15 faced medium and 80 faced low against the problem. Fundamentalism, prestige and prejudice are the cause of this problem. Probably due to this, the rural women faced problem in this respect.

## **Conclusion**

Rural women of the study areas are adopting homestead farming technologies and the extent of adoption of integrated homestead farming technologies is high which is encouraging. In fact, these activities related with integrated homestead farming technologies are mostly performed by women in our country and have rightly been reflected in the present study. Of course, their extent of adoption of technologies in different items under integrated homestead farming technologies varied depending on the nature of the technology, availability of inputs, technical know-how and also due to other characteristics of the rural women. So, there is a need for strengthening extension services by GOS and NGOS to ensure a continuous flow of information and technical know-how to the rural women for enhancing their skills and knowledge in the respective areas.

Age of the rural women had negative significant relationship with their use of integrated homestead farming technologies. It means that with the increase of age of the rural women, there would be decrease in the use of integrated homestead farming technologies. Future programme may consider age of the rural women while selecting target group.

Majority of the respondents had primary level of education and education had a significant positive relationship with integrated homestead farming technologies. The highest percent of the respondents had large land holdings. So there is an urgent need to take initiatives by GOS and NGOS to boost up educational programmes to increase production and this increase income, through proper utilization of their large holdings.

Annual income from field crop, annual income from homestead, contact with extension media, cosmopolitaness, **innovativeness and aspiration** had significantly positive

relationship with the adoption of integrated homestead farming technologies. It implies that the characteristics of the rural women have profound influence of their adoption of the integrated homestead farming technology. All these characteristics are supportive to a great extent to motivate the women which are also related with the change in education, knowledge and their income. In the present study, it was found that highest percentage of the respondents had medium level of extension contact, cosmopolitaness and innovativeness that have been ultimately reflected in their extent of adoption of integrated homestead farming technologies.

It was observed that 71% of the rural women were utilizing integrated homestead farming technologies to a higher extent. It is thus necessary to strengthen extension services to motivate rural women for utilizing more new technologies related to productive activities.

### **Recommendations**

Based on the findings and conclusions of the study, the following recommendations are presented below:

1. Extensive development programmes should be designed and implemented by GOS and NGOs considering homestead as production unit and women as the key operator.
2. Education of the rural women showed significant relationship with their use of integrated homestead farming technologies. It is therefore recommended that various GOs and NGOs engaged in rural development activities need to take steps for wider literacy programme in order to accelerate use of new technologies by the rural women.
3. Necessary inputs such as HYV seeds/seedling, hybrid poultry birds, quality feed, chemical fertilizers, insecticides, quality fingerlings need to be made available to the respondents at right time and at fair prices.
4. The success of homestead farming depends on skilled labour. Short-term training programme on modern techniques should be provided to make them aware of modern technologies and techniques of production. More scope and opportunity of work for the women should be created.

5. Veterinary services should be ensured for rearing poultry birds and livestock as they can play vital roles for their improvement on a sustainable way.
6. To ensure proper prices for homestead products, marketing support should be ensured.
7. Due to social systems and religion, rural women are reluctant to come in contact with male extension worker. So more women workers and be engaged for effective and successful implementation of the development activities.
8. In order to implement homestead development, programmes an integrated approach should be strengthened involving private and public sector agencies.

### **Recommendations for future studies**

1. The present study was carried in a small area of particular district. Similar studies should be conducted in other parts of the country, which could be helpful for effective policy formulation.
2. Women's further studies may be conducted in this connection.
3. In the present study, only use of integrated farming technologies was studied but production potential of these technologies was not considered. There might be a relationship between productivity of particular technologies with the extent use of the technologies and that should be considered in future studies. Furthermore, documentation of present production potential of different homestead agriculture enterprises might be help to design future research strategy.
4. Relationships of twelve characteristics of the rural women with their use of integrated homestead forming technologies have been investigated in this study. Further research should be conducted to explore the relationship of other characteristics of the rural women with their use of integrated homestead farming technologies.
5. There are so many problems in use of integrated homestead farming technologies among the rural women. More research should be conducted to find out the problems and suggested solutions of the problems from different stakeholders.

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