FACTORS AFFECTING ADOPTION OF HOME GARDEN FARMING AMONG DISADVANTAGED GROUP (DAG) OF JHAPA DISTRICT

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ABSTRACT

Home garden provides fruits and vegetables to the household with direct access to important nutrients that may not be readily available or within their economic reach. Therefore, home gardening would be a good means to improve household food security. The study was conducted in the Dharampur, Dangibari and Dhaijan area of Jhapa to assess the factors affecting adoption of home garden farming among disadvantaged group of people. Altogether 120 respondents (40 respondents from each places mentioned above) were randomly chosen for study. The study showed that the home garden contribution on annual household income was 19.23% and livestock component was identified as most profitable component as it contributes 50.92% of home garden incomes followed by vegetable component (25.02%). It was found that the mean annual income from home garden was NRs 37697.24 in practitioner household and was significant (P=0.05). The study revealed that age of household head, years of schooling were negatively related to home garden adoption, whereas trainings, exposure, number of species were positively related to home gardens adoption. In regard to the problems related with production, respondents ranked unavailability of quality seedling or sapling (64.2%) as major problem followed by limited cultivable land (57.5%). Home garden was sustainable approach as it relies on low external input use system and better institutional linkage, socio economic empowerment of women and disadvantaged groups made it further sustainable. This necessitates diversifying home garden approach so as to cover social and economic dimension of household resources for sustainable development and to support in livelihood system.

Keywords: Factors, Income, Home garden, Problems, Sustainable

INTRODUCTION

Nepalese agriculture is subsistence based and furthermore, farms are getting smaller and subsistence farm families are on the rise. Nationally, 47 percent of the land owning households owned only 15 percent of the land with an average size of less than 0.5 ha, whereas the top 5 percent owned nearly 37 percent of land. Most of the disadvantaged families are landless in Nepal. A recent rough estimate by WFP stated that the minimum amount of land required for households self-sufficiency is approximately 0.54 ha (OCHA, 2008). Despite decades of planned efforts for development of agriculture, food insecurity and malnutrition has emerged as national concern. The World Food Summit in 1996 has defined food security as the situation when all people at all times have access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. One of the major reasons underlying food insecurity is low agricultural productivity and lack of purchasing power of people to buy required amount of food.

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Malnutrition is a serious public health problem. It retards child growth, increases the risk and duration of illness, reduces work output, and slows social and mental development. Malnutrition among women of reproductive age increases the risk of mortality during pregnancy and delivery and puts their newborn children at risk of long-term deficiencies. Improving nutritional status, including micronutrient status, can lead to increased productivity, increased child survival and growth, and reduced maternal morbidity and mortality.

Three types of interventions are commonly employed to improve micronutrient status, namely: capsule and tablet supplementation, fortification of commonly consumed foods, and diet diversification. Diet diversification is arguably the most sustainable and affordable strategy to improve nutrition for the majority of the population particularly the poor. For poor households, vegetables and fruits are often the only source of micronutrients in the family diet. Home garden, traditional land use system around a homestead, where several species of plants are grown along with livestock and maintained by household members and their products are primarily intended for the family consumption (HKI, 2001; Mictchell and Hanstad, 2004). Home garden provides fruits and vegetables to the household with direct access to important nutrients that may not be readily available or within their economic reach. Therefore, home gardening would be a good means to improve household food security. Equally important, home gardening has been shown to be a source of additional income, because the household can sell a portion of the garden's produce. Studies suggest that this additional income is generally utilized to purchase supplementary food items, further increasing the diversification of the family's diet. Home gardening is especially important in overcoming seasonal availability of foods and promoting household self-sufficiency (Shrestha *et al.*, 2004).

Home gardening activities are centered on women and it can also increase the income of women, which may result in the better use of household resources and improved caring practices and empowerment. This empowerment of women also addresses a priority area of poverty alleviation and provides important socio-economic returns through lower health and welfare costs, lower fertility, and lower maternal and infant mortality rates. Thus, the simultaneous impact of home gardening programs in terms of giving women a voice and promoting their full participation in domestic life can make an important contribution to the overall development of communities.

The home garden, literally known in Nepali as *Ghar Bagaincha*, refers to the traditional land use system around a homestead, where several species of plants are grown along with livestock and maintained by household members and their products are primarily intended for the family consumption (Shrestha *et al.,* 2002). In Nepal, 72% of households have home gardens of an area 2-11% of the total land holdings (Gautam *et al.*, 2004). Because of their small size, the government as well as development programs never identified home gardens as an important unit of food production and it thereby remains neglected from research and development although it is important contributors to the food security and livelihoods of farming communities particularly women and disadvantage groups in Nepal.

MATERIALS AND METHODS

The study was conducted in the Dharampur, Dangibari and Dhaijan area (the then three VDCs) of Jhapa, which currently lie in Shivasatashi municipality, Barhadashi rural municipality and Mechinagar municipality, respectively. Study was done to assess the factors affecting adoption of home garden farming among disadvantaged group of people of Jhapa district of Nepal. Both descriptive and analytical survey design was used for this study. Altogether 120 respondents (40 respondents from each places mentioned above) were randomly chosen. Descriptive statistics and also the regression model was adopted to assess the factors affecting adoption of home garden in study district.

ECONOMETRIC MODEL

Following econometric model i.e., Logit Regression Model was adopted to assess the factors affecting adoption of home garden.

LOGIT REGRESSION MODEL

In the logit model, suppose Yi be the binary response of the farmers and take only two possible values; Y = 1, if farmer practiced different stronger adaptation strategies and Y = 0, if practicing few (poor) adaptation strategies. Suppose x was the vector of several explanatory variables affecting to practice different adaptation strategies and β, a vector of slope parameters, which measures the changes in x on the probability of the farmers to practice stronger adaptation strategies. The probability of binary response was defined as follows:

If Yi = 1; P (Yi = 1) = Pi

Yi = 0; P (Yi = 0) = 1-Pi

Where, Pi = E(Y = 1/x) represents the conditional mean of Y given certain values of X.

The logit transformation of the probability of the practicing stronger adaptation strategies by farmers were represented as follows (Gujrati, 2003).

$$Li = \ln \left[\frac{Pi}{1-Pi} \right] = zi = \alpha + \sum_{i=1}^{n} \beta i \, xi + \epsilon i$$

Where Yi = a binary dependent variable (1, if farmers practicing stronger adaptation practices, 0 otherwise), xi includes the vector of explanatory variables used in the model, βi = parameters to be estimated, €I = error term of the model, exp (e) = base of the natural logarithms, Li = Logit and $\left[\frac{Pi}{1-Pi} \right]$ = odd ratios.

Thus, the binary logit regression model may be expressed as;

Yi = f (βi xi) = f (Age of household head, caste of the ethnicity, marital status, years of schooling, total owned land, home garden income, total plant species under home garden, registration in DADO, frequency of training received)

$Z = \alpha + \sum \beta i \, xi + \epsilon i$

MODEL SPECIFICATION

The logit model specified in this study to analyze factors affecting the adoption of home garden approach was expressed as follows.

$Pr(1=intervention)=(b_0+b_1X_1+b_2X_2+b_3X_3+b_4X_4+b_5X_5+b_6X_6+b_7X_7+b_8X_8+b_9X_9+b_{10}X_{10})$

Where,

P(1=Intervention)= Probability of adopting home garden approach

X_1= Age of household head (Years)

X_2=Caste of the respondents (Dummy)

X_3=Marital status of the respondent (Dummy)

X_4= Years of schooling (years)

X_5= Total owned land (kattha)

X_6= Log home garden income

X_7= Total plant species (number)

X_8= Registration in DADO (Dummy)

X_9= Frequency of training received (Number)

X_{10}= Exposure visit (Dummy)

$b_1, b_2, b_3 \ldots\ldots b_{10}$ = Logit coefficient

b_0 = Regression coefficient

Table 1. Description of the variables used in the logit model

Variables	Type	Description	Value	Expected sign
Dependent variable Yi	Dummy	Farmers adopting home garden approach	1 if farmer is adopting home garden approach, 0 otherwise	
Independent variables				
X_1	Continuous	Age of household head	Year	+/-
X_2	Dummy	Caste of the respondent	1 if respondent is Brahmin/Chettri otherwise 0	+
X_3	Dummy	Marital status of the respondent	1 if respondent is married otherwise 0	+
X_4	Continuous	Years of schooling	Years	+/-
X_5	Continuous	Total owned land	Kattha	+
X_6	Log	Home garden income		+
X_7	Continuous	Total plant species	Number	+
X_8	Dummy	Registration in DADO	1 if registered in DADO, 0 otherwise	+
X_9	Continuous	Frequency of training received	Number	+
X_{10}	Dummy	Exposure visit	1 if exposure visit 0 otherwise	+

RESULTS AND DISCUSSION

LAND HOLDING CHARACTERISTICS

The mean size of land holdings of the home garden practitioners was higher in Dangibari (23.61 kattha) followed by Dharampur (10.13 kattha), whereas the mean land holding under home garden was also higher in Dangibari (2.25 kattha) followed by Dhaijan (2.12 kattha). The maximum land holding was 60 kattha whereas the minimum was found 0.5 kattha: moreover, the maximum land holdings under home garden were 8 kattha and minimum 0.2 kattha in the study area (Table 2).

Table 2. Distribution of home garden practitioner based on land holdings in the study district

Name of VDCs	Mean	St. Deviation	Maximum	Minimum
Dharampur				
Total own land (Kattha)	10.13	9.81	40	1
Home garden size (Kattha)	1.64	1.12	6.0	0.2
Dangibari				
Total own land (Kattha)	23.61	15.35	60	0.5
Home garden size (Kattha)	2.25	1.67	8.0	0.5
Dhaijan				
Total own land (Kattha)	7.15	5.54	20.0	1.0
Home garden size (Kattha)	2.06	1.08	6.0	1.0
Total				
Total own land (Kattha)	13.63	13.04	60.0	0.5
Home garden size (Kattha)	1.98	1.32	8.0	0.2

Source: Field survey, 2013. Note: 1 hectare = 30 Kattha

From this study it was evident that average home garden size was 14.52 % of average total land holdings which is slightly higher than the findings of Gautam *et al.*, 2004 i.e. 72% of households have home gardens of an area 2-11% of the total land holdings and smaller than the findings, it occupies 20% of the total arable land (Jensen, 1993). The variation in such result may due to differential socioeconomic character.

CONTRIBUTION OF HOME GARDEN AND ITS COMPONENTS ON ANNUAL HOUSEHOLD INCOME

As different components are integrated on home garden, its profitability in terms of income generation is worthwhile to be noted. In this perspectives attempt was made to identify the most profitable component. From the study it was evident that the home garden contribution on annual household income was 19.23% and livestock component was identified as most profitable component as it contributes 50.92% of home garden incomes followed by vegetable component (25.02%) (Table 3).

Table 3. Contribution of home garden and its component on household income and home garden income

Particulars	Annual income (NRs)						
	Household	Home garden	Vegetable	Fruit	Livestock	Poultry	Other
Mean	196025.56	37697.20	9434.44	2846.60	19197.70	2672.22	3546.10
St. Dev.	141182.24	35082.10	10737.80	5553.40	24927.40	5257.50	13682.10
Percentage contribution		19.23#	25.02##	7.55##	50.92##	7.08##	9.40##

Source: Field survey, 2013

Home garden contribution on annual household income

Component contribution on home garden annual income

HOME GARDEN AND ITS PRODUCTION

Home garden had its positive impact on food security by making direct access to the diverse diets. In this perspective, attempt was made to analyze the production of different components under home garden. For this production of vegetables, fruit, livestock, poultry and total number of edible plant species were compared between home garden practitioner and non-practitioner. Study revealed that all the components average productions were higher in project intervention household. Among the components, vegetable production 9.98 kg/week, fruit production 3.11 kg/week and total number of edible plant species (25.5) was found higher and statistically significant at 5% level of significance and 1% level of significance respectively as compared to that of non-practitioner households. Whereas, per week production of livestock, poultry and other were found higher as compared to non-practitioner households but were not found statistically significant (Table 4).

Table 4. Production of different components (kg/week) in home garden

Particulars	HGP (n=90)	Non practitioner (n=30)	t-value	Mean Difference
Vegetable production (kg/week)	9.98	5.01	0.04	4.97**
Fruit production (kg/week)	3.11	1.90	0.05	1.27**
Livestock production (kg/week)	3.28	1.55	0.16	1.73
Poultry production(kg/week)	1.07	0.31	0.12	0.75
Other production (kg/week)	0.83	0.0	0.80	0.83
Edible plant species	25.5	13.0	5.09	12.5***

Source: Field survey, 2013

*** Significant at 1% level, ** significant at 5 % level

The study findings reveled that home garden was effective for availing the diverse diets which was in line with the findings that home gardening has contributed to food security by making direct access to a diversity of nutritionally rich foods (Akosa, 2011).

HOME GARDEN AND ITS CONTRIBUTION ON HOUSEHOLD INCOME

The total annual household income; income from home garden and income from home garden components were analyzed in home garden practitioner and non-practitioner household and mean was compared.

The total household income was found higher in home garden practitioner compared to the non-practitioner household but it was not statistically significant. It was found that the mean annual income from home garden was NRs 37697.24 in practitioner household and significant (P=0.05). Among the home garden components, the annual income was found highest in livestock component (NRs. 19197.77) followed by vegetable component (NRs. 9434.44). The annual income from home garden components such as vegetables, fruits and livestock components were found significant and higher in practitioner household whereas annual income from poultry and other component was not significant and higher in non-practitioner household (Table 5).

Table 5. Annual household incomes from different sources

Annual HH income	Home garden practitioner (n=90)	Non practitioner (n=30)	Mean Difference	t-value
Total HH income (NRs.)	196025.56	168873.33	27152.22	0.987
Home garden annual income (NRs)	37697.24	19463.34	18233.91**	2.593
Annual home garden income from vegetable (NRs)	9434.44	2723.33	6711.11***	3.375
Annual home garden income from fruit (NRs)	2846.66	1166.66	12297.77*	1.631
Annual home garden income from livestock (NRs)	19197.77	6900.0	12297.77***	2.660
Annual home garden income from poultry component (NRs)	2672.22	3033.33	-361.11	-0.289
Income from other component (NRs)	3546.13	5640.0	-2093.86	-0.550

Source: Field survey, 2013

*** Significant at 1% level, ** significant at 5 % level, * significant at 10%

Study revealed that home gardens adoption had positively contributed to income generation which is similar to the findings of Calvet *et al.* 2012 and Vassey, 1985 that is home garden contribute to income generation, improved livelihoods, and household economic welfare as well as promoting entrepreneurship and rural development.

EXPENDITURE OF HOUSEHOLD ON DIFFERENT COMPONENTS

Economic capability i.e. purchasing power of farmers is another aspect which has direct impact on household food security. So, in this perspective attempt had been made to assess whether home garden approach helps to improve purchasing power by saving of expenditure on food items in the study area. Study revealed that among home garden practitioner and non-practitioner households, home garden helps in reducing expense on vegetable, fruits and animal protein. Further, it was found that the expense on animal protein was found highest in both home garden practitioner and non-practitioner. The expense on vegetables components, fruit components and animal protein among the household was found significant at 10 %, 5% and 10% level of significance, respectively (Table 6). It may be due to the fact that the home garden practitioner grows more seasonal vegetable, fruits in scientific way that helps to meet the family requirement.

Table 6. Expenditure pattern of household on different components

Particulars	Home garden practitioner (n=90)	Non practitioner (n=30)	Mean difference	t-value
Expenditure on vegetable (NRs/week)	208.22	380.0	-171.78*	-5.49
Expenditure on fruits (NRs/week)	182.33	248.33	-66.0**	-2.21
Expenditure on animal protein (NRs/week)	407.39	498.67	-91.27*	-1.75

Source: Field survey, 2013

** Significant at 5 % level, * significant at 10%

Study revealed that home garden intervention helps on saving expenditure on food bill thereby contributed to household food security which is similar to the findings of Akosa, 2011 i.e., home garden helps to attain food security by increased purchasing power from savings on food bills.

SUFFICIENCY OF HOME GARDEN PRODUCTS ON HOUSEHOLD REQUIREMENT

Home gardens, with their intensive and multiple uses, provide a safety net for households when food is scarce. To analyze duration of food supply by home garden, duration of time was categorized as year-round, 9-12 months, 6-9 months, 3-6 months and 0-3 months. On study, 85.6% home garden practitioner responded that a vegetable produced under home garden was sufficient for more than 6 months. Furthermore, 71.1% and 48.9 % respondent agreed that fruit produced under home garden and animal protein derived from home garden is sufficient for only 0-3 months.

Table 7. Sufficiency of home garden components on household requirement

Components	Sufficiency				
	Year round	9-12 months	6-9 months	3-6 months	0-3 months
Vegetable	23(25.6)	27(30.0)	27(30.0)	11(12.2)	2(2.2)
Fruit	2(2.2)	6(6.7)	9(10.0)	9(10.0)	60(71.1)
Animal protein requirement	6(6.7)	7(7.8)	19(21.1)	14(15.6)	44(48.9)

Source Field survey, 2013, Figures in the parenthesis indicate percentage

From the study it was found that home garden plays important role on year round supply of food particularly vegetables which is consistent with the finding of (Budowski, 1990; Eibl *et al.*, 2000). According to Budowski, 1990 and Eibl *et al*. 2000 home gardens are very important for supplying the household with food products year-round.

FACTORS AFFECTING THE LEVEL OF HOME GARDEN APPROACH ADOPTION

To identify the factor that influence the level of home garden approach adoption, logit regression model was used. Farmers in the study area were likely to adopt the practice at different level. The adoption level was studied as the home garden practitioner and non-practitioner.

The Wald test (LR chi 2) for the model indicated that the model have the good explanatory power at the 1% level. The pseudo-R^2 was 0.8699. For the interpretation of the model, the marginal effects were driven from the regression coefficients, calculated from partial derivates as marginal probability. The interpretation is shown in the table 8 (Details of analysis in Appendix 1).

Table 8. Logit regression model of adoption of home garden approach

Variable	Coefficients	P>|z|	Standard error	dy/dx[b]	S.E[b]
Age of household head (years)	-0.209	0.135	0.139	-0.00004	0.00014
Caste of the respondent (Dummy)	4.311*	0.088	2.52	0.00135	0.00447
Marital status of the respondent (Dummy)	1.135	-0.11	11.648	-0.00015	0.00086
Years of schooling (years)	-0.967**	0.052	0.499	-0.00018	0.00062
Total owned land (97atha)	-0.0152	0.817	-0.065	-0.000003	0.00002
Home garden income (ln)	1.348*	0.066	0.733	0.00257	0.00089
Total plant species (number)	0.417**	0.041	0.205	0.000079	0.00026
Registration in DADO (Dummy)	4.726*	0.076	2.66	0.007325	0.01999
Frequency of training received (number)	0.965**	0.065	0.523	0.00018	0.00066
Exposure visit (Dummy)	4.654*	0.075	2.610	0.00088	0.00292
Constant	-16.63	0.296	15.92		
Summary statistics					
Number of observation (N)	120				
LR $chi^2(10)$	117.41***				
Prob > chi2	0.0000				
Log likelihood	-8.7768692				
Pseudo R^2	0.8699				

*** significant at P= 0.01; ** Significant at P= 0.05; * significant at P>0.1

[b] Marginal change in probability (marginal effects after Logit) evaluated at the sample means

Logit regression showed that among the variables seven variables were found statistically significant for the level of adoption of the home garden. Those variables were caste of the respondent (dummy), years of schooling, home garden income, total plant species, registration in DADO, frequency of training received, and exposure visit (Table 8). Others variables like age of household head, marital status of the respondent, total owned land were found statistically non-significant.

The study revealed that age of household head is negatively related and not significant to home garden adoption. But the caste or ethnicity (dummy) is positively significant. Keeping all the other things constant, probability of adopting the home garden by Brahmin and Chettri is increased by 0.14% and significant at 10% level.

The year of schooling is significant but negative. The coefficient values indicated that the one year increase in the years of schooling will decrease the probability of adopting the home garden approach by 0.018% and is significant at the level of 5%. A higher educated person tends to the better farming practice such as commercial farming.

Annual home garden income which is log transferred has the positive impact on the probability of adopting home garden approach. The value entered as the positive signed and significant (P>0.1). Per unit increase in the annual home garden income increases the probability of adopting home garden by 0.26%. Income will attract the farmer to adopt new technology.

The number of species in the home garden increases the probability of adopting the home garden approach. The value signifies that the one number of species increase in the home garden increased the home garden approach intervention by 0.008% and is significant in (P=0.05)

DADO helps in the intervention and adoption of the practices. The value indicated that the group registered in the DADO (dummy) have positive role in adopting the home garden approach. Study indicated that the probability of adopting home garden will increase by 0.73% if the group is registered in DADO, which is significant at 10% level.

The study revealed that the frequency of training received on home garden increase by number 1, probability of adoption of home garden approach would increase by 0.018% which was positively significant (P=0.10) and exposure and visit has the positive relationship on the adoption of home garden approach. Exposure (dummy) helps in adopting the home garden approach by 0.8% which was positively significant (P>0.10).

PERCEPTION AND PROBLEMS OF HOME GARDEN

PERCEPTION OF HOME GARDEN PRACTITIONER TOWARDS HOME GARDEN

In the study area, home garden approach had been adopting for more than 3 years and respondents have their own perception regarding home garden. In this study attempt was made to analyze perception of respondents towards home garden. Thus, various statements were identified through focus group discussion and administered to home garden practitioner. Study revealed that in all statements regarding different perspective of home garden positive responses had been reported but their degree of agreement was varied differently (Table 9).

Table 9. Perception of home garden practitioner toward home garden

Statements	Frequency		
	Strongly agree	Agree	Neutral
Home garden have significant contribution to HH economy	38(42.2)	51(56.7)	1(1.1)
Product grown on own garden is more environmentally safe, healthier and tastier than that brought from store	53(58.9)	37(41.1)	0(0.0)
Diverse HG can contribute to healthy environment and human being can benefit from it	23(25.6)	66(73.3)	1(1.1)
HG can improve family member physical and mental health	33(36.7)	56(62.2)	1(1.1)
HG is possible at low investment	31(34.4)	57(63.3)	2(2.2)
HG not only effective on biodiversity conservation but also on family nutrition and Socio-economic empowerment	18(20.0)	68(75.6)	4(4.4)
Home garden is more important to become self-sufficiency rather than increase in income	15(16.7)	69(76.7)	6(6.7)
Integration of income generating activity in HG is profitable	34(37.8)	53(58.9)	3(3.3)

Source: Field survey, 2013

Figures in parenthesis indicate percentage

PROBLEMS FACED BY HOME GARDEN PRACTITIONER

Although home garden is effective for ensuring family nutrition, socio economic empowerment, respondents had perceived and ranked many problems which had been identified during focus group discussions. Problems identified were categorized under three sub-sections namely problems related with production, marketing and others. Under problems related with production, respondents ranked unavailability of quality seedling or sapling (64.2%) as major problem followed by limited cultivable land (57.5%) and so on.

Table 10. Problems faced by home garden practitioner in study area

Problems	Frequency	Rank
Problems related to production		
Unavailability of quality seed and seedlings	76(64.2)	I
Labor intensive	31(25.8)	IV
Limited cultivable land	69(57.5)	II
High incidence of insect pest	58(48.3)	III
Problems related to marketing		
Lack of collective market	73(60.8)	III
Lack of proper linkage	80(66.7)	I
Low volume of production	71(59.2)	IV
Lack of awareness	78(65.0)	II
Other problems		
Low income	66(55.0)	I
Less sustainable	19(15.8)	IV
Unequal access	37(30.8)	II
Tedious management	20(16.7)	III

Source: Field survey, 2013

Figures in parenthesis indicate percentage

It was learnt that respondents ranked first for unavailability of quality seedlings followed by limited cultivable land, high incidence of insect pest and labor-intensive production problem related to production. Accordingly, lack of proper linkage, awareness followed by lack of collective marketing was ranked as marketing related problems. Not only these problems low income, unequal access and tedious management along with sustainability issues were identified as other problem.

CONCLUSION

Home gardening activities are centered on women and it can also increase the income of women, which may result in the better use of household resources and improved caring practices and empowerment. This empowerment of women also addresses a priority area of poverty alleviation and provides important socio-economic returns through lower health and welfare costs, lower fertility, and lower maternal and infant mortality rates. The study showed the evident that the home garden contribution on annual household income was 19.23% and livestock component was identified as most profitable component as it contributes 50.92% of home garden incomes followed by vegetable component (25.02%). Home garden had its positive impact on food security by making direct access to the diverse diets. Home garden has been effective for availing the diverse diets. Home gardens adoption positively contributes to income generation. Home garden helps in reducing expense on vegetable, fruits and animal protein. Home gardens, with their intensive and multiple uses, provide a safety net for households when food is scarce. Vegetable produced under home garden plays important role in ensuring food security as it ensures protein to be sufficient for more than 6 months. Age of household age, years of schooling were negatively affecting the adoption of home gardens whereas number of species in home garden, frequency of

training, exposure visits have positive role in increasing the adoption of home gardens. Under problems related with production, unavailability of quality seedling or sapling (64.2%) as major problem followed by limited cultivable land (57.5%) were the major problems faced.

ACKNOWLEDGMENTS

Authors are indebted to LiBIRD Nepal for providing partial financial support to undertake this research. The technical supports received from the officials of LiBIRD, Pokhara are highly acknowledged.

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