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**Case Study**

# Assessment of Home Garden: A Case of Purkot VDC, Tanahun District

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## Abstract

Growing different crop species in combination with mushroom, honey bee, livestock around homestead is an ancient practice of home gardening where marginal land, labour, limited capital with simple tools and technology are used. A survey was conducted in Purkot VDC of Tanahun district in April 2015 with the purpose of assessing the status and annual income of home garden. Data was collected through purposive method by using structured questionnaire at four wards of the VDC. The economic return was assessed through calculating the local retail value of the product without considering cost associated with it. The average annual income of home garden was NRs. 33528.65 from average 377.78 $m^2$ (0.76 Ropani) home garden, derived from cultivation of vegetables, fruits, legumes, medicinal & aromatic plants and cereals. About 65 % household involved in multistoried gardening with the objective of home consumption (66.7 %). Home garden of study area was truly vegetable based (100 %). Income of home garden was determined by objectives of gardening, education level of respondents and type of species grown. The key problem of home garden was insufficient water (81.2 % of cases), incidence of disease insect/pest (66.7 % of cases), weather and climatic impact (56.2 %), animal trespass (41.7 %) and labour insufficiency in gardening (31.2 %).

**Keywords:** Determinants; Food and nutrition; Home garden; Income; Problems

## Introduction

Food production near to the dwelling area because of convenience and security is an ancient art that provides variety of supplemental food items such as vegetable, fruit, fodder trees/multipurpose trees, medicinal and aromatic plants, plantation crops, mushroom, honey bee, poultry/piggery along with small ruminants (Kumar and Nair 2004; Pudasaini and Manandhar, 2014). Home garden comprises small, mixed and multistoried system which utilizes mostly marginal land, labour, limited capital and simple tools and technology (Mitchell and Hanstad, 2004) for food production mainly for domestic consumption (Kumar and Nair, 2004) and extra income generation through surplus selling. According to home garden Baseline Survey of LI-BIRD (2004), about 72 % of Nepalese household are directly or indirectly engaged with some sort of home garden practice (Shrestha et. al., 2009). Home gardening is practiced by majority of farmers in Purkot Village Development Committee (VDC), lying in

subtropical climate since the beginning of home garden project in Nepal under the funding of Swiss Agency for Development and Cooperation (SDC) and working organization LI-BIRD, Pokhara (LI-BIRD, 2010). The household grow different species in their home garden with the input (diversity kit) provided by LI-BIRD, Pokhara and some logistic support from Community Seed Bank, Purkot, Tanahun.

LI-BIRD is implementing home garden programme in Purkot VDC since its early phase of home garden project. Though it has objective of improving household nutrition through diversification of agrobiodiversity species, the type of utilization status of the home garden product at individual level is not focused. Home gardening in the study area is not found successful as it aimed to be. Which could be due to various socioeconomic and technical factors which are considered as determinants of home garden, are not studied in the previous research works.

Assessment of home garden provides the figure about the status of utilization and management of home garden species and its products as well as determinants and problem faced by households in home gardening. Home garden is taken as a possible and widely adopted remedy to alleviate hunger and malnutrition (Galhena *et al*., 2013). It also helps in the supplemental household income money earned after selling surplus, can be utilized in saving or for buying some other food items and investment in other services such as education, health etc. The entire study is focused on the assessment of utilization and management aspect along with its determinants and problem faced by household involved in home garden.

## Materials and Methods

This study was conducted in Purkot VDC of Tanahun district. Which is one of the project site of LI-BIRD, Pokhara. In order to assess home garden of study area four wards were selected purposively from Purkot VDC. Survey research design was used in order to conduct this study. Household interview was taken to collect primary data and secondary data from previous research works, books, web browsing, District Agriculture Development Office, Tanahun and Community Seed Bank, Tanahun. A total of 48 household were selected purposively from ward no. 1, 4, 5 and 9. The general information and other required validation of data were obtained through Key Informant Survey (KIS) and focus group discussion (FDG) through participating different stakeholders. Quantitative method was involved in a household survey to which structured questionnaire administrated to the selected household. A simple diversity kit (containing mini seed kit of 5/6 vegetable species) was also made available to the sampled households. The survey was carried out in April 2015. The data obtained after survey were validated as per need and coding was done with numeric value. Excel 2013 for the data entry and SPSS V20.0 was used for the statistical analysis. Data was analyzed with descriptive statistics.

The average crop return obtained from home garden was calculated in monetary term with considering the retail price of the product at that locality excluding all the cost associated with it. Annual income of most common home garden species such as vegetables, fruits, Medicinal and Aromatic Plants (MAPs), legumes and cereal/maize were done.

## Results and Discussion

***Home garden characteristics***

Table 1 depicts the average size of home garden was 377.78 $m^2$ (0.76 Ropani[1]) per household, whereas the average size of Nepalese home garden found by LI-BIRD is 600 $m^2$ (LI-BIRD, 2010). The actual area of home garden is not universal i.e. it varies with different determinants such as caste, skill/knowledge of gardening, use and availability of tools and technology, education etc. According to Gautam *et. al.* (2008), the area of home garden varied from 2-11% of total household land available. About 63 % of household in studied area uses only family labour for gardening purpose using simple tools and technology. Majority of household (about 73 %) used their indigenous knowledge and skill which was transferred from their ancestors in gardening, rather than any training or exposure/visit.

**Table 1:** Size of home garden in Purkot VDC in 2015

| Size of home garden | Frequency (percentage) of household |
|---|---|
| Small (<0.5 Ropani) | 24 (50.00) |
| Medium (0.5-1 Ropani) | 20 (41.67) |
| Large (>1 Ropani) | 4 (8.33) |
| Average size of home garden: | 377.78 $m^2$ |
| **Total** | 100 |

Majority of household (66.7 %) had home consumption objective of home garden products (Table 2), which lined with the findings of Kumar and Nair (2004) and rest of other had partly market oriented production objective. About 65 % of household practiced gardening in multistoried system rather than single storied system (Table 2).

Fig. 1 depicts cent percent of household were engaged in vegetable cultivation, along with other, fruits (83.30 %), legumes (83.30 %), MAPs (77.10 %) and maize (50 %). The seed kit of vegetable crops provided by LI-BIRD, which

[1] Traditional land measurement system of hilly district of Nepal (1 Ropani=508$m^2$)

resulted in vegetable-based home garden. Result showed, more than 3/4th of total household involved in cultivation of high value species. According to Gautam *et. al.*, (2006) and Sunwar (2003) Nepalese home garden are vegetable based and accounts 30-47 % of total species composition. The average annual income from the cultivation of these species in home garden of study area was found NRs. 33528.65 (NRs. 88.75/$m^2$). The average annual income obtained from home garden found increasing with the increase in gardening area (Table 3).

**Table 2:** Production objective and nature of gardening in Purkot VDC, 2015

| Particulars | | Percent of household |
|---|---|---|
| Objectives of gardening | Fully home consumption | 66.7 |
| | Partly market oriented | 33.3 |
| Nature of home garden | Single storied | 35.4 |
| | Multistoried | 64.6 |

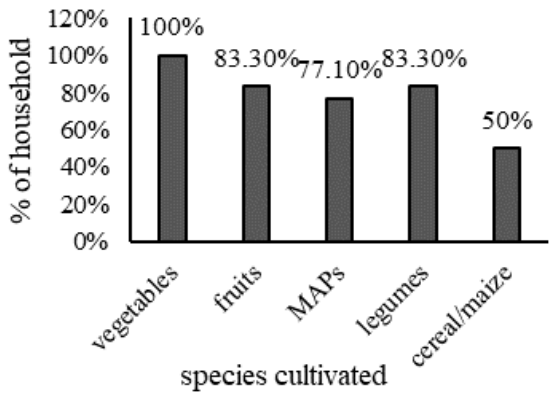


**Fig. 1:** Species Cultivated in home garden in Purkot VDC, 2015

**Table 3:** Mean annual income of home garden based on size in Purkot VDC, 2015

| Size of home garden | Mean annual income (NRs.) |
|---|---|
| Small (<0.5 Ropani) | 24870.00 |
| Medium (0.5-1 Ropani) | 39127.07 |
| Large (>1 Ropani) | 57488.40 |

***Determinants of Home Gardening***

The average income obtained from home garden varied with the objectives of gardening and education level of respondent. Higher income (NRs. 43569.88) was obtained from home garden with partly market oriented objective than from home consumption (NRs. 28508.03) purpose. Similarly, higher income was obtained from the household having secondary level of education (NRs. 37,947.21) while least was obtained from the illiterate household (NRs. 27,912.92) (Table 4).

**Table 4**: Determinants of home garden income in Purkot VDC, 2015

| Particulars | | Income of home garden (NRs.) |
|---|---|---|
| Objectives of gardening | Fully home consumption | 28508.03 |
| | Partly market oriented | 43569.88 |
| Level of education of respondents | Illiterate | 27912.92 |
| | Primary | 35606.99 |
| | Secondary | 37947.21 |
| | Higher secondary | 30907.38 |

The Fig. 2 depicts vegetable species among all other species, contribute highest share (65.21 %) in income, as we know Nepalese home garden are vegetable based (Gautam, *et. al.*, (2006) and Sunwar, (2003)), while least was obtained from the cereal i.e. maize (5.19 %). High market value and fair pricing of vegetables leads to highest share in home garden income.

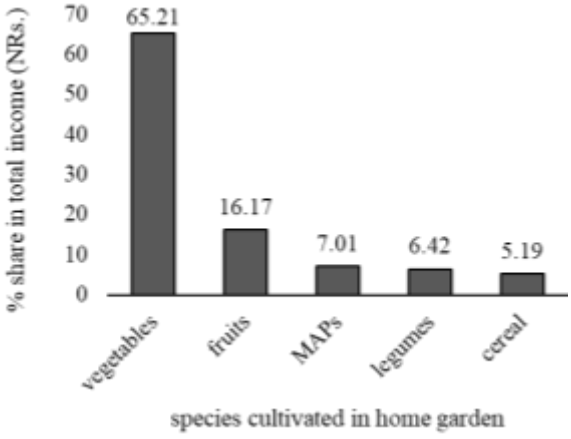


**Fig. 2:** Contribution of species cultivated in home garden income in Purkot VDC, 2015

***Problem/Constraints of Home Garden***

Insufficient amount of irrigation water was the major (81.2 % of cases) problem of home garden of study area followed by incidence of disease insect/pest (66.7 % of cases), weather and climatic hazards (56.2 %), animal trespass (41.7 %), labour insufficiency (31.2 %). Other includes seed unavailability, insufficient support from different agencies, gardening tools, thief, inappropriate plot. Lack of proper irrigation facility, inaccessibility of technical

manpower in crop protection, open grazing system and labour migration might be the root cause for above mentioned problems in the study area. This result also supported by the findings of Marsh (1998) and Pandey et. al. (2007).

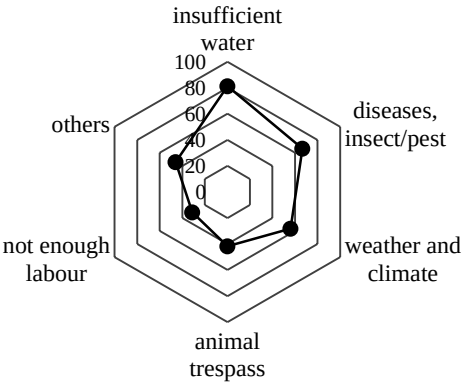


**Fig.** 3: Problems of home garden in Purkot VDC, 2015

## Conclusion

The average size of home garden was 377.78 $m^2$ per household. Household of studied area mainly use their traditional knowledge in gardening in a multistoried system and produce various items mainly for home consumption. Home garden of studied area was mainly vegetable based. The average annual income of home garden was NRs. 33528.65 without considering costs associated with it. Greater species diversity was found in home garden of upper caste community in comparison to lower caste community. The income varied with different factors such as production objectives, education level of respondent and species cultivated. The major problem of home garden was insufficient irrigation water due to which cultivation of different gardening species were limited to small parcel of land.

## Author's Contribution

A.D. Jnawali designed the research plan and performed experimental works. Both authors collected the required data. A.D. Jnawali analysed the data and prepared the manuscript. S. Marahatta critical revised and finalized the manuscript. Final form of manuscript was approved by both authors.

## Conflict of Interest

The authors declare that there is no conflict of interest with present publication.

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