

# Sustainable Utilization of Plant-diversity in Homestead Garden of Uttar Pradesh for Providing Nutrition Security in the Household

Chandra Sekhar Mohanty<sup>1\*</sup>, P. Pushpangadan<sup>2</sup>

<sup>1</sup>CSIR-National Botanical Research Institute, Lucknow-226 001

<sup>2</sup>Amity Institute for Herbal Biotech and Product Development, Kerala

\*Email: cs.mohanti@nbri.res.in

## Introduction

Homestead or home garden is one of the world's most ancient food production systems harboring the local agro biodiversity. Home gardens, sometimes referred to as mixed, backyard, kitchen, farmyard, rooftop, compound and homestead garden. This can be grouped into two basic categories as: "traditional garden"- those cultivated independent of any intervention and "promoted gardens"- those cultivated with intervention. Home gardens are often used to maximize the range of species and varietal diversity. The socio-economic value attached to home gardens has been reinforced by their important contribution to household food and primary healthcare security. Promotion of home garden among the local community will help in conserving the local biodiversity in a better way with an aim of providing household food security and economic benefit. The maintenance of home gardens and community gardens help to grow many crops, roots, tubers and grains. The plot of land around one's home is the only private land a family owns which can be sustainably utilized by cultivation of local and wild plants. Home gardening is one of the world's most ancient food production practices and is commonly practiced throughout the world. These gardens often vary in size, biodiversity and products and are adapted to local resources and cultural preferences.

## Need and importance of home garden from Indian perspective

Household gardening and food security is a topic that has been under-research for a long period of time. More research is needed in several fields like agriculture, ecology, nutrition and socio-economics

of home gardening. The home gardens play a valuable role in rural development. It plays an important role in contributing to the biodiversity in agro-ecosystems. Agricultural biodiversity is one of the most crucial of environmental riches and it has been eroding at an unprecedented rate in the past few decades. Much of the agricultural biodiversity that remains on farms today can be found on the semi-subsistence farms of developing countries and in the small-scale farms of developing countries and home gardens located in the marginalized areas of more developed countries. They provide daily nutritional needs for the family with following advantages:

- i. Provide more income
- ii. Increase food production
- iii. Diversify food production
- iv. Make the garden easy to care for waste recycle
- v. Beautification of premises
- vi. A stock of local wild germplasm
- vii. Make use of all area available
- viii. Food-supply in the lean seasons of the year

In rural India, various occupational and cultural groups depend on different caste segmentations for their sustenance upon the limited resources available in their surroundings. The dependency on these resource-base and constraints influence their socio-economic and cultural life. The optimal survival of the individual owes much to their prudent use of the natural resources to which they have free access. So, there is a need to include home garden systems as a component of national complementary conservation strategies.



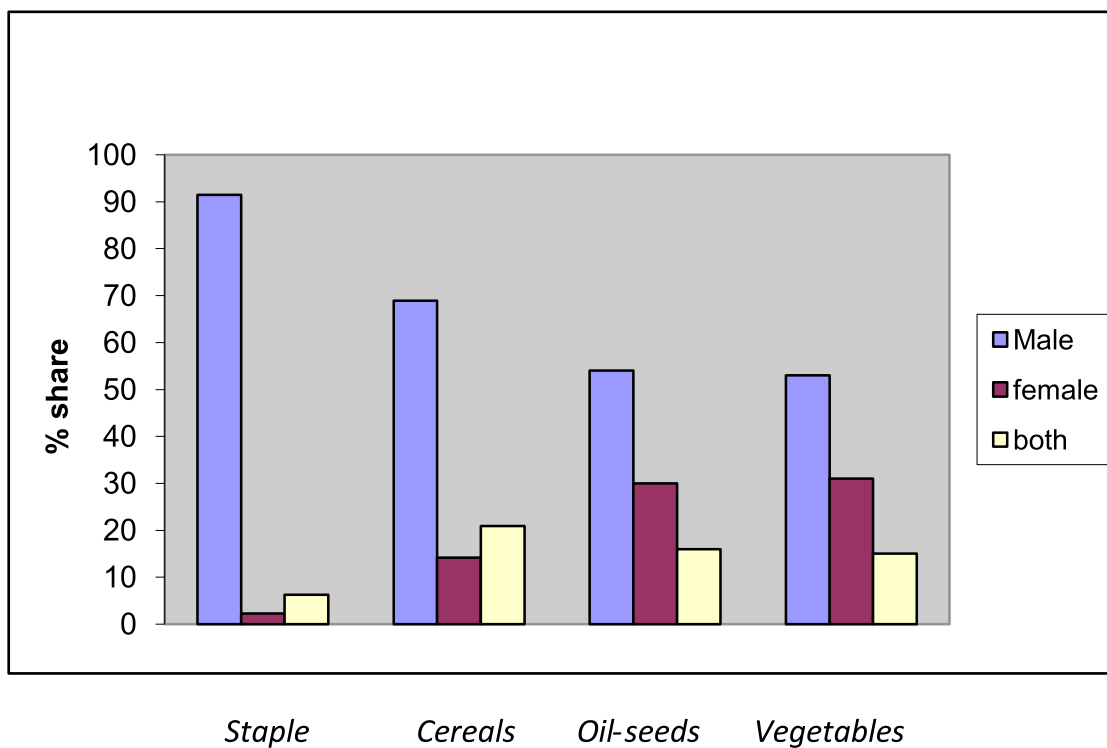


Fig. 1. Gender-analysis in decision-making of plant cultivation

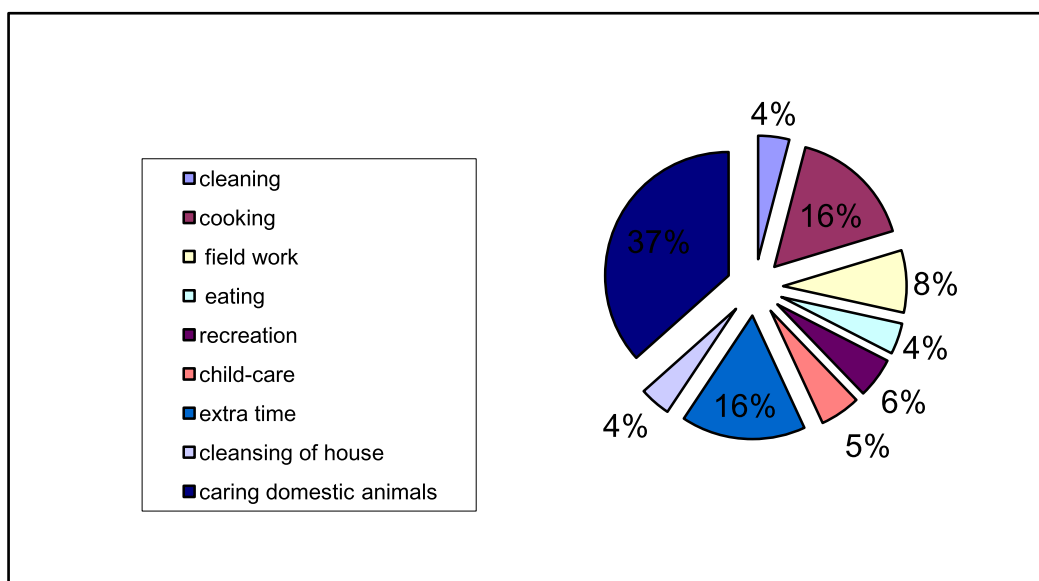


Fig. 2. Daily work-time schedule of a village woman in the studied villages

## Home garden configuration

In an ideal home garden the wastes of one type of production provide inputs for other forms of production in a cyclical relationship and is known by the widely recognized designation GPC where, G = garden P = pond and C = cattle. Types of home gardens and their variants like: soil type, sloping land, time, money and available plantlets or seed materials play a crucial role in adopting home gardening. In India, they can be classified into general categories based on primary production systems, crop composition and structure. However, home gardening is an indigenous, integrated method of home production that often combines vegetable and fruit gardening with livestock. The various types of home gardens are:

- | Home gardens with fruit trees
- | Home gardens with fish-pond and covered livestock/poultry area
- | Home gardens with vegetables
- | Home gardens with forest trees

From a conservation biology perspective, one of the limiting features of home gardens is the very small population size for any single crop or tree species, which may make them particularly subject to genetic drift. They are also subject to strong selection pressures, given their importance to and use by the household. However, the home garden systems provide in situ conservation of particular crop landraces.

## Home garden composition and structure in Uttar Pradesh

The state Uttar Pradesh comes under the fertile soil of upper Gangetic plain with various occupational and cultural groups which may appropriately be called as small-scale society which inhabit in different ecological niches. They depend mostly on various ecological niches for their sustenance upon the limited resources available in their surroundings. The shelter on environment with its resource-base and constraints influence their socio-economic and cultural life. Their optimal survival owes much to their prudent use of the natural resources to which they have free access.

## Species diversity in home garden

The concept of home gardening and intake of green vegetables are quite primitive in a typical village of North India, people used to go for planting of different climbers like: Pumpkin (*Cucurbita pepo* L.), Tinda (*Citrullus vulgaris* Schrad. Syn. *Colocynthis citrullus* (Linn.) Kuntze), Karela (*Momordica charantia* Linn.) etc. the households seldom grow any vegetables for their own consumption; rather they cultivate different seasonal vegetables for monetary-income as per the demand in the market. This is indicative of the fact that the rural housewives lack the basic knowledge about the nutrient content in the vegetables and its utility in the maintenance of a perfect body-physiology. Apart from some big fruit trees there are some plants which are planted for religious and beautification purposes as: *Ocimum sanctum* (F. Labiatae), *Azadirachta indica* (F. Meliaceae), *Hibiscus rosa-sinensis* (F. Malvaceae), *Tagetes patula* (F. Compositae), *Datura alba* (F. Solanaceae), *Calotropis procera* (F. Asclepidaceae) etc.

## Cultural importance of home gardens

Home gardens are often used to maximize the range of species and varietal diversity, while providing easy access to species of cultural importance. The cultural value attached to home gardens has been reinforced by their important contribution to household food security. The composition of home gardens is rich with basic subsistence crops such as: roots, tubers and grains. The plot of land around one's home was the only private land a family controls. The socio-economic changes in Indian agriculture have been attached to the cultural significance of the home gardens.

## Social dimension-gender analysis

The different values placed on diverse genetic resources and their environmental functions vary according to gender. The gender division of labour resources, knowledge and products reflect conflict, complementary or coincidence of men and women's interest in land use systems. Figure 1 indicates the decision-making capabilities of men and women in selection of plants and their planting pattern.



Men and women were asked to estimate the percentage of decisions made by the female or the male of the households. The data showed that, men usually takes most of the decisions relating to cultivation of cash crops like: wheat, rice, cereals, fruit trees and related cash-crops. As these plants, generate maximum monetary-return. But, the decisions of plantation of ornamentals and medicinal plants are largely in the domain of women. However, fig.2 indicates that a rural women get maximum extra-time after finishing her daily household chores and work in the field. Field-work includes: collecting fuel-wood, helping in cultivation activities like: transplanting the saplings, weeding, hoeing the land. Whereas, the household activities include cooking, cleaning the utensils, taking care of the children. So, the extra time left out by the rural housewives may sustainability be utilized.

Roots, tubers and vegetables, on the other hand, seem to be mostly in the domain of male. So, attempt had been made to train and sensitize these rural womenfolk about the cultivation of local traditional vegetables and their further consumption for health-benefits.

## References

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An analysis of the present scenario of rural India reveals that planned efforts are lacking for using the potential of women fully for rural development. The present study revealed the status of women's involvement, their capabilities and factors responsible for plant-based rural development. Lack of decision-making opportunity and low exposure to growth opportunity are some of the important socio-cultural constraints which affect the development of women in the villages.

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. Homestead production of fruits and vegetables provides the household with direct access to important nutrients that may not be readily available or within their economic reach. So, motivation to the rural womenfolk through various effective training programmes by distributing booklets, seed packets and other accessories needed to carry out horticultural operations in the field will promote the programme of home gardening.

