

# The Impact of Home Gardening On Household Food Security: A Study of Urban and Rural Households in India

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## Abstract

*In local food systems and family farming all over the world, backyard gardens are crucial. Weakness and chronic disease are frequent issues, particularly in rural areas. Children's development is hampered, sickness risk and duration are increased, work productivity is decreased, and social and mental progress is slowed. Lack of healthful diet among women of reproductive age raises the danger of mortality when working and traveling, as well as the possibility of long-term deficiencies in their newborn children. Working to enhance general health, including micronutrient status, can raise productivity, improve child development and endurance, and reduce maternal death and desperation. The most efficient configuration to deal with this issue is seen to be the kitchen nursery. Ranch families' year-round access to fresh, organic vegetables from their kitchen gardens satisfies their nutritional demands. Kitchen garden strengthening of women not only addresses the need for destitution mitigation but also offers significant financial gains due to lower costs for health care and government assistance, lower wealth, and lower rates of maternal and newborn infant mortality. As a result, the combined impacts of home gardening initiatives on giving women a voice and increasing their level of involvement in domestic life can greatly aid networks in moving forward.*

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**Keywords:** *Home Gardening, Household, Food Security, Urban, Rural Households, India*

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## **1. Introduction**

The vast majority of people in our countries live in appalling daily conditions because they are hungry and eager. A sizable portion of the populace still struggles with food insecurity. The current emphasis is on creating a healthy eating practice and increasing future and quality by locating food components that can prevent illness and promote wellbeing. In order to ensure food and nutritional security for a sizeable number of people in Asia, where the usual food supply is cereal-heavy, it is widely thought that debates regarding food security should also take into account fundamental health security. The inability of the impoverished to acquire a variety of dietary ingredients is one of the main causes of hunger. Low purchasing power, ignorance, big family numbers, a lack of hygiene, uncleanliness, and failure to consume are additional major causes of hunger. The infrequent consumption of defensive foods like milk, veggies, heartbeats, and organic products leads to a multitude of health issues.

Food security and a wide variety of healthful foods are two of the most crucial issues on which a non-industrial country should concentrate. In the diet of low-income families, vegetables and natural products are typically the main sources of micronutrients. The basis of Kitchen Nurseries in rural areas is simple because to the simple availability to space and the present involvement of ranch families in farming activities. Kitchen gardening is one of the most traditional methods of supplying the globe with food. Leafy vegetables grown on homesteads provide households with rapid access to essential supplements that may not be readily available or affordable otherwise. People who live in rural areas need to be aware of the significance of vegetables in human diets. In this method, increasing the food security of the home would be accomplished through kitchen gardening. So, the current review's objective was to ascertain how kitchen gardening affected rural households' capacity to uphold a balanced diet. Specialized help was offered, which was crucial when new gardening methods like increasing the number of kinds or growing vegetables all year round were being created. One of the main push areas in rural Bulandshahr, according to Kirtimani et al. (2016), is the need for preparation in relation to home food security through kitchen gardens. Conventional steps of preparation are expected to fill the preparation gap.

Preparation and other gathering operations can show a range of assortments, crossings, or other crucial nursery techniques like live fence, soil fertilization, employment of biopesticides, all-year creation, etc. around a primary exhibition nursery. Women-specific exercises in kitchen gardening can also enhance pay, which may lead to better use of domestic resources, improved caregiving techniques, and a strengthening of women's. This empowerment of women also meets the need to reduce poverty by boosting fertility, decreasing maternal and newborn death rates, decreasing health care and government aid expenses, and generating significant financial rewards. Thus, home gardening programs' dual effects of empowering women and increasing their level of involvement in household life can greatly enhance networks.

## **2. Literature Review**

Home gardening is shown by Kumar and Nair (2004) as the most experienced form of land usage alongside moving development, and they define it as "cozy, multi-story blends of different trees and yields, sometimes in relationship with homegrown creatures, around homesteads."

Hanstad and Jennifer (2004). We describe home-gardens as a small piece of land adjacent to the home that has a high plant diversity, is used exclusively or primarily for growing vegetables, and was primarily created by family work. The creation of a home garden is mostly for individual use and only advantageous to diverse family sources of use.

Home gardening boosts everyone in the household's dietary diversity, particularly women and children, according to research by Deppenbusch et al. (2021). There is still a dearth of observational data supporting the link to health, though. For a number of contexts in South Asia, Latin America, and Africa, these outcomes have been established. These studies also emphasize the contribution that backyard gardening makes to enhancing the food environment by enhancing access to and acceptance of nutrient-dense foods, particularly vegetables. Additionally, home gardening boosts food power by enabling constant access to wholesome food, especially when a scarcity is imminent.

Galhena et al. (2013) underline that households with limited resources, such as land and money, may benefit more from home gardening than those with greater resources, especially if they are unable to afford the cost of pricey healthy meals (like creature comforts) to meet their dietary demands.

More than 120 species were found in enormous, extensive home gardens, according to Godbole's (1998) surveys of konyak home gardens in northern Nagaland. In addition, numerous vegetable, natural product, and species of wood and kindling were also planted.

According to Shrivastava and Heiren (2005), home nurseries usually serve as places where particular sought-after plants that are taken from nearby forests are grown. They also include vegetables for human use. The most adaptable local plant resource is bamboo, followed by betel nut palms, restorative plants, tubers, greenery, etc.

Home gardens are significant providers of feed, fuel, medicines, species, materials, and revenue in many nations throughout the world, claim Galluzzi et al. (2010). They are crucial for in-situ protection if different plant heredity sources are present.

To learn more about the patterns of plant use and species variety across households, Milow et al. (2013) focused on the home gardens in Pahang, Malaysia. There were 93 different plant species total in 13 backyard gardens.

According to Goswami et al. (2011), home nurseries serve as in-situ protection for a variety of species. Out of 217 species, 70 species were plants, 17 plants for healing, and 40 species were ornamental. Rests were merely accidental, too. As a result, gardens should contain a wide range of both wild and domesticated species.

294 plant species were discovered by Saikia et al. (2012), 260 of which had a major economic impact. The remaining species were weeds and grasses. The great majority of the home nursery has bushes, trees, and spice layers.

Pamungkas and Hakim (2013), who identified 101 ethno-restorative species from Tambakrejo town, Sumbermanjing Wetan, Malang, discovered that commonly used plants, particularly those

in home gardens, actually function as a part of the social legacy of the area, for monetary reasons as well as for day-to-day activities.

### **3. Home Gardening**

Pekarangan is the word for home gardens in India. Kitchen, mixed, yard, patio, compound, or homestead gardens might all be included in the writing as examples of house gardens. "Home nursery" is a term used by Soemarwoto et al. to emphasize the connection between the house and the nursery. A home nursery serves as both a habitation and a unit of creation for the residents. It is unquestionably a natural environment where cooperation between people, plants, animals, soil, and water takes place.

In order to promote dietary variety and household food security, home gardens have been employed all over the world as a significant extra food source. Home gardening is the most established model for agricultural formation and the most beneficial kind of rural development, according to Niez. Home gardening has traditionally been a crucial component of local food production and family farming. The framework for resource creation that distinctly distinguished the birth of modern horticulture began on the tiny plots adjacent to the residences. Home gardening can be carried out as a community garden, a group nursery, or a private nursery.

Home gardens—both neighborhood and privately run ones—have evolved in several nations as a result of a period of food scarcity. For instance, community gardens were promoted in the US following World War II to supply homes with seasonal green vegetables.

A considerable reduction in the subsistence security of city people was avoided by using urban horticulture to lessen the effects of economic hardship and fundamental change. During the country's economic crises and political polarization, Cubans developed their own gardens to combat food poverty. However, as Birky and Tempest have argued, home gardening and local gardening have been responding to a number of causes, including (i) natural development and urban supportability, (ii) a greater emphasis on the arrangements of neighborhood foods and sound, and (iii) a greater emphasis on local area progress. Home and local gardening is viewed as

a crucial strategy to further strengthen food security during the Coronavirus pandemic because it can also improve actual employment, tranquillity, and social connection.

Home gardens have a few qualities and offer a range of advantages to people, families, and networks. They have a few traits, including (I) a high plant diversity, (II) creation that supplements family usage and pay, (III) small plots, and (IV) low barriers to passage in any case, for low-paying households. They can also be located nearby residences. A home nursery, in Bog's opinion, is a production framework that low-income people may use to their advantage since it makes use of locally accessible materials, conventional procedures for minimizing infection and irritation, and native growth methods. The advantages of backyard gardening in terms of society, commerce, and the environment were discussed by Galhena et al. Home gardening, according to Landon-Path, who is referenced by Galhena et al., offers a variety of noteworthy advantages, including (I) enhanced nutrition, (II) higher food security, (III) better pay and rural business, (IV) a decreased risk of disappointment, and (V) environmental advantages.

Despite sharing some characteristics, each nursery may have a different design, function, layout, and aesthetic based on the location, the resources that are accessible in the home, and the preferences, abilities, and responsibilities of the family members. Soemarwoto et al. claim that social and environmental elements play a significant role in the growth of the home nursery. Decisions concerning home gardening activities are primarily made by women and are impacted by household pay age, daily demands, and market influences from upstream to downstream subsystems. The abundance of women who participate in home gardens and other social and restorative activities is largely due to two significant factors: the close proximity of home gardens to households and their inventiveness. The household's financial status dictated the nursery's layout, potential for expansion, and plant choices.

Home gardens increase access to food sources from unusual plants and animals, which consistently meet the nutritional and energy needs of homes. In addition, household gardens offer kindling, cereals, spices, medications, and tastes. According to a groundbreaking study conducted there at the start of the 1930s and reported by Galhena et al., households in Indonesia

obtained 14% of their protein and 18% of their caloric consumption from home gardens. Maxwell found that 81% of households engaged in urban farming did so to improve their access to food. Urban farming considerably enhances food security and nutrition for underprivileged households in Sub-Saharan Africa. Furthermore, urban farming enhances kids' nutritional status.

Home food gardening might be supported or disrupted by a few factors. They include horticulture skills, area and daylight accessibility, residence security, time accessibility, annoyance and illness occurrence. Insufficient supplies of quality seeds, a lack of establishing materials, and a lack of funding have also been listed as barriers to home gardening. Galhena et al. recognized a number of requirements after looking at a big number of distributions, such as restricted access to horticulture data sources, no access to water, poor soil ripeness, constrained marketing options, and a lack of data and warning administrations.

#### **4. Food Security**

Since the concept of food security is widely accepted, there has been a search for an accurate and reliable measurement. The suggested markers and lists include anthropometric clues such as caloric intake, nutritional variety, neediness, and emotional indicators. Wineman supported quantity, quality, and soundness, while Coates advocated food sufficiency, supplement adequacy, social agreeability, wellbeing, conviction, and security. Other well-known food security indicators include the Dietary Variety Score (DDS), the Food Insecurity Experience Scale (FIES), the Household Food Insecurity Access Scale (HFIAS), and the Household Food Security Overview Module. (HFSSM). The multi-layered structure of food security, which cannot be quickly detected by a single metric, is what principally contributes to this multitude of indicators. Due to its multiple levels (households, regions, common, public, and global) and time considerations, the computation of food security is likewise more complicated.

Food security comprises four components, according to the standards set by the World Food Summit in 1996: availability, accessibility, usage, and stability. These four elements need to be present in order to attain food security. Food availability is determined by the production and supply of food, food access is determined by income level, and food consumption is determined

by subsistence or food variety. The other three support points' stability throughout time is governed by solidity.

Food accessibility highlights the stockpiling aspect and makes a reference to actual accessibility. Accessibility denotes the availability of enough food, whether it originates from home farming, imports, supermarkets, gifts, or wild foods. Food access means having access to truly available food, proving that households need sufficient finances to buy food for a balanced diet. For better food access, it might be important to have successful business, pay, safety nets, and market access. Changing circumstances and shocks brought on by unemployment, reliance, price rises, income decreases, and uncertain economic and political conditions may have an impact on access to food.

Food consumption aids in ensuring that households get enough nutrients and energy. Individuals' intake of energy and supplements is influenced by a number of variables, including the amount of supplements in the meal, dietary variety, food readiness, intra-household food distribution, and individuals' real energy and supplement absorption. The status of a person's health is determined by their intake of enough nutrients and energy, as well as by their superior organic utilization.

Soundness manages the temporary aspect of food security while considering the three areas of support's helplessness. Issues with strength include both short-term and long-term instability. Transient flimsiness could be brought on by sporadic and transient upheavals and could lead to severe food insecurity. Insufficient long-term access to food may generate medium- to long-term instability and contribute to ongoing food insecurity. Security may be the most difficult aspect to evaluate because it eventually merges with other factors.

## **5. Materials and Methods**

In Western Uttar Pradesh's rural areas, particularly Muzaffarnagar, Baghpat, Bulandshahr, and Gautam Budh Nagar, this inquiry was carried out to find out more about the role that kitchen gardens play in maintaining food security. To gather information from couples and homes, the investigation used both subjective and quantitative methodologies. The selection of respondents

who resided in households was done using a distinct example. Four communities in each region were the focus of the exploration during the Kharif-Rabi and Zaid seasons in 2011 and 2013. The towns studied for the review were Sankraud, Mavikala, Firojpur, and Sunheda in Baghpat, Gijhauri, Chawli, Machkauli, and Vehlimpura in Bulandshahr, and Nanglanainsukh, Veerpura, Duryai, and Chholuski Maraiya in Gautam Budh Nagar. The ten randomly chosen households from each municipality represented a total of 160 persons. Plans and attempts were made for a range of limit-building activities, including natural vegetable creation methods, openness visits, and connections between ranchers and researchers on various topics, including vegetable-filled kitchen gardens, vegetable usage, typical vegetable utilization, and supplement commitment from garden vegetables.

In order for all of the seasonal vegetables to be grown fresh and afterwards available all year long, the communities were educated and encouraged to set up a kitchen garden in a logical and natural method. A kitchen nursery was also constructed, utilizing high-yielding types of various vegetables and few plants of nutritious natural goods, such as two guava plants, one lemon plant, and four papaya plants. The intended purpose of the nursery was to grow enough vegetables for the family. (100sq mt). The essential elements of food and nutrition education were taken into account when designing the kitchen garden. Table 3 displays the overall amount of produce generated by each nursery in both years, as well as the total amount produced by four families. Reserve funds (Rs) and fulfillment leftovers were also recorded using a pre-planned survey.

## **6. Results and Discussion**

### **6.1. Socio economic status**

According to the data in table 1, kitchen gardens are modest natural gardens that have been established for around two years in rural locations. The emphasis also suggested that one of the key elements of food-based approaches is motivating people to alter their eating and self-care habits. According to conventional wisdom, human resources played a large impact (51% of people previously had kitchen gardens, but few vegetables were being developed). The government's choice to support this development and the usual specialized work that KVK

researchers recommended both enhanced the locals' accessibility to wholesome food and their general well-being. Some ranch women noticed that they don't buy vegetables after putting up kitchen gardens, in contrast to the other half of the ranch women who bought less vegetables. The vast majority of respondents think that the kitchen garden has enhanced their nutritive diversity.

In contrast to the monoculture of the few gardens that existed prior to the traditional gardens, a great deal of variety had been achieved, as indicated by the more than 18 distinct vegetable and organic product assortments that were kept in various residences during the assessment. The most extreme individuals have replicated the nursery in their rural homes and have learned a new skill, proving that the kitchen garden categorically tends to food security and nutritious diversity and further demonstrating the crucial role of agribusiness in meeting household needs. Table 1 lists the respondents' financial characteristics that were looked at.

**Table 1:** Social and personal traits of the responders (no -160)

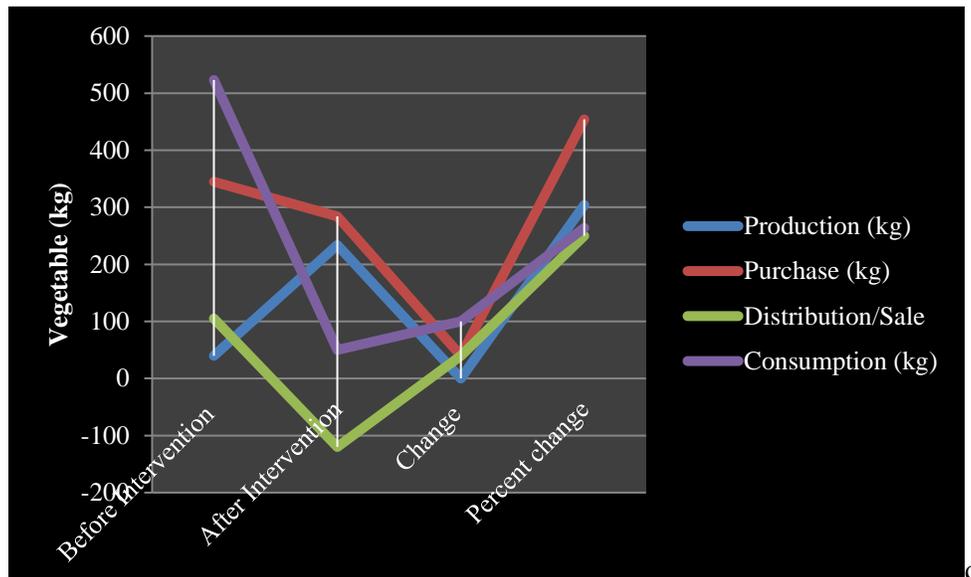
<b>Variables</b>	<b>Category</b>	<b>Number</b>	<b>Percent</b>
<b>Types of family</b>	Joint family	85	50.00
	Nuclear family	53	30.00
<b>Size of the family</b>	Small size (1-4 member)	65	25.00
	Medium size (5-7 members)	98	44.52
	Big size (>7 members)	24	8.26
<b>Annual Income (Rs)</b>	<50000	44	43.26
	50000-100000	67	36.4
	>100000	18	27.23
<b>Education</b>	Illiterate	08	3.40
	Primary	25	20.00
	Middle	202	53.4
	Graduation	25	33.4
<b>Land holding</b>	Small	37	20.00
	Medium	82	47.23
	Large	28	22.77

## 6.2. Kitchen garden intervention and evaluation

According to Table 2, the respondents had been growing 3–4 different crops, such as radish, jug gourd, brinjal, edge gourd, and okra, before the display. The Kharif, Zaid, and Rabi seasons saw the growth of 18 different species of vegetables, including jug gourd, bitter gourd, green stew, brinjal, tomato, edge gourd, okra, Lobia, spinach, coriander, cauliflower, onion, cabbage, carrot, pea, and fenugreek after the mediation. Table 2 demonstrates how the practice of kitchen gardening boosted the amount of produce produced, consumed, and distributed to friends and family. Prior to intervention, the respondents were using traditional strategies; before that, they had only been a few sporadic vegetables. In order to satisfy the criteria, they had to buy vegetables from the market. Table 2 clearly shows that the growth of vegetables at recipients increased by 523%, leading to higher consumption (264%), greater dispersion (100%), and a reduction in the acquisition of vegetables of half. Comparable outcomes were considered by (Fig. 1).

**Table 2:** The kitchen garden's intervention brought about the changes.

Particular	Production (kg)	Purchase (kg)	Distribution/Sale	Consumption (kg)
Before Intervention	40	234	00	304
After Intervention	345	284	40	454
Change	+105	-120	+40	+250
Percent change	523	50	100	264



**Figure 1:** A visual illustration of the improvements brought about by Kitchen Garden's intervention

## 7. Conclusion

Considering everything, the contribution and focus of the local community are normally essential to the success and sufficiency of any procedure. To achieve controllable, advanced gardening methods, two-way routes for information exchange are required. Building long-lasting relationships, which are essential for peaceful development, is facilitated by including employees in the production of their own distinctive piece of food. A healthy society must have a diverse diet and reliable access to food. These factors are also significant sources of strength. The kitchen nursery may be a practical motivational tool that might assist with the issue of insufficient healthy meals and avoid worker turnover by creating a sense of community among the staff. This study showed that the data that social orders gather over time has a lot of potential. All it takes is the right trigger to unlock it and use it to benefit other social orders and the country as a whole. Constantly expanding is the awareness of the kitchen garden, with the home food security as a guideline.

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