

## Original Research Article

# An Approach to Enhance Household Food Security through Kitchen Garden in Rural Areas of Auraiya District (U.P.)

Phool Kumari<sup>1\*</sup>, Anant Kumar<sup>2</sup> and Anuradha Ranjan Kumari<sup>3</sup>

<sup>1</sup>SMS (Home Science), Krishi Vigyan Kendra, Parwaha, Auraiya (UP) – 206244, India

<sup>2</sup>SMS (Ag. Extension), Krishi Vigyan Kendra, Parwaha, Auraiya (UP) – 206244, India

<sup>3</sup>SMS (Home Science) KVK (ICAR- IIVR) Deoria (UP) – 274506, India

*\*Corresponding author*

## ABSTRACT

Over half of the population suffer from chronic food insecurity. It has been projected that global food production will need to increase by 70% in order to meet the average daily caloric requirement. Among the rural community, their consumption is very low due to lack of purchasing power, ignorance and other factors including unavailability. Thus the study were planned keeping in view to Improved food security, Increased availability of food and better nutrition through food diversity and enhanced rural employment through additional or off-season production in rural areas of Auraiya district. The study was conducted 12 villages of Bhagyanagar, Sahar, Acchalda and Bidhuna block of Auraiya District. Five farm families were selected from each village. Thus the 60 farm families were selected for the study having area near the house of 150 m<sup>2</sup>. It was found that area available for kitchen garden in most of farm families in cultivated area near the house (38.33 %) followed by useless land near the house (31.67%) which were not used due to awareness. The majority of the respondents were having no knowledge about variety of seeds and Stages of irrigation (96.67 %) followed by manure and fertilizer (95.00%), Transplanting distance (78.33%) and Sowing time of vegetables seed (63.33%). It was also found that from that from 150m<sup>2</sup> (for Small Family 5 Members) of kitchen garden 100% fulfilled the requirement of vegetable in daily routine diet followed by 78.79 per cent for medium family, 7 members) and 61.29 per cent from 150m<sup>2</sup> for big family (9 members). It was also observed that after introducing kitchen garden people save money in buying vegetables and use fresh and organic vegetables so, that health problems also reduced due to use of balance dose of vegetables in daily routine diet.

## Keywords

Enhance  
Household Food  
Security through  
Kitchen Garden in  
Rural Areas

## Introduction

The vast majority of hungry and malnourished people live in our countries under sub-standard living conditions. Over half of the population suffer from chronic food insecurity. It has been projected that global food production will need to increase by 70% in order to meet the average daily caloric requirement of the world's population in 2050's. The doctrine 'Let food

be thy medicine' espoused by Hippocrates nearly 2500 years ago is receiving interest by the researchers recently. Now the focus is on the achievement of a balanced diet, and maximization of both life expectancy and quality, by identifying food ingredients that improve the capacity to resist disease and enhance health (Agte and Tarwadi, 2012). It is widely recognized that intervention on

food security should also take into account concern underlying nutritional security so as to ensure food and nutritional security to millions of people in Asia where traditional food basket is cereal dominated (Dasgupta, 2012). Lack of availability of different ingredients of food to the needy is one of the major causes of malnutrition, other factors being low purchasing power, ignorance, large family size, lack of sanitation, hygiene and inability to absorb. The intake of protective foods like pulses, vegetables, milk and fruits are very low which leads to many nutritional deficiency disorders. According to Hungama (2012) - Hunger and Malnutrition, 2012 Report- malnutrition in Indian children continues to be of higher level with 42.3% being under weight, 58.8% stunted and 11% wasted (Indumathi *et al.*, 2012). Common nutritional problems of human beings are protein energy malnutrition (PEM), micro nutrient deficiencies like vitamin A deficiency (VAD), Iron deficiency anaemia (IDA), Iodine deficiency disorder (IDD) and Vitamin B complex deficiencies (NIN, 2011). The expert committee of Indian Council of Medical Research (ICMR) recommends that every individual should consume at least 300 g vegetables and 100 g fresh fruits /day (green leaf vegetables – 50 g, other vegetables 200 g, roots and tubers - 50 g). Pregnant women should consume 100 g leaf vegetables/day.

One of the easiest ways of ensuring access to a healthy diet that contains adequate macro- and micronutrients is to produce many different kinds of foods in the Kitchen garden. This is especially important in rural areas where people have limited income-earning opportunities and poor access to markets. Kitchen gardens are also becoming an increasingly important source of food and income for poor households in peri-urban and urban areas. A well-developed Kitchen

garden has the potential, when access to land and water is not a major limitation, to supply most of the non-staple foods that a family needs every day of the year, including roots and tubers, vegetables and fruits, legumes, herbs and spices, animals and fish. Roots and tubers are rich in energy and legumes are important sources of protein, fat, iron and vitamins. Green leafy vegetables and yellow- or orange-coloured fruits provide essential vitamins and minerals, particularly folate, and vitamins A, E and C.

Hence, Kitchen garden is a realistic solution as in rural area to solve the nutritional insecurity. In addition, home gardens when properly managed provide a four-in-one solution to the food and nutrition problem by increasing household food availability, enabling greater physical, economic and social access, providing an array of nutrients, and protecting and buffering the household against food shortages. Thus the study were planned keeping in view to Improved food security, Increased availability of food and better nutrition through food diversity and enhanced rural employment through additional or off-season production in rural areas of Auraiya district.

### **Materials and Methods**

The study was conducted by close supervision of Home scientist of Krishi Vigyan Kendra, Auraiya under FLD Programme in 2014-17. To fulfil the objectives of the present study the purposive experimental study was planned. The study was conducted 12 villages of Bhagyanagar, Sahar, Acchalda and Bidhuna block of Auraiya District. 10 farm families were selected from each village. Thus the 120 farm families were selected for the study having area near the house of 100 m<sup>2</sup>, to 150 m<sup>2</sup>. The Vegetables seed and seed lings were

provided in Kharif, Rabi and Zaid seasons. Data was collected through a well-developed interview schedule to elicit information from the kitchen gardening trainees. Simple descriptive statistics was employed in order to have a summary description of the data collected. This involved the use of percentages, means and frequency distributions to describe parameters as socioeconomic characteristics.

### **Research Findings**

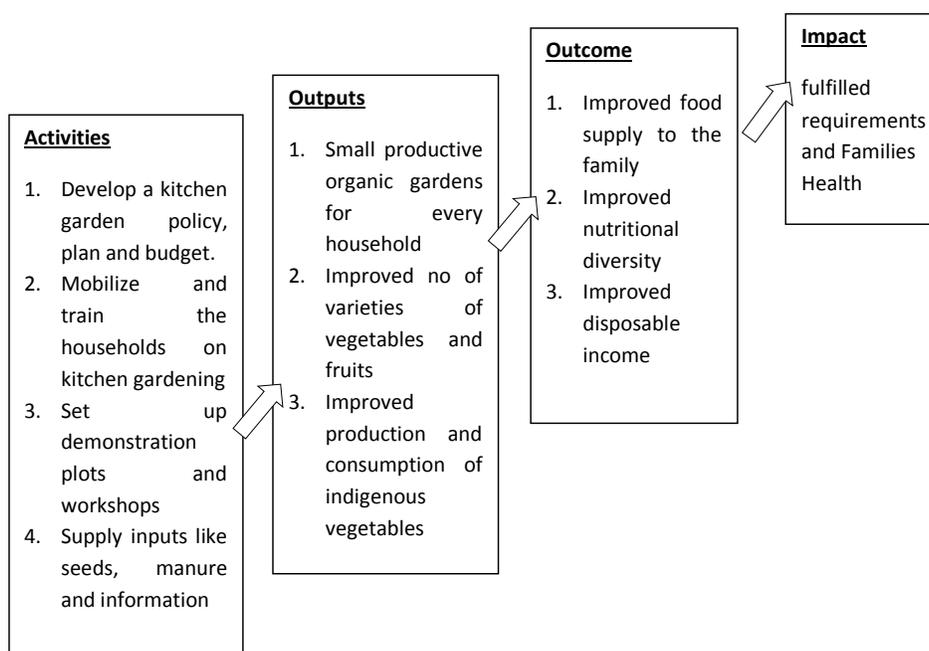
Kitchen gardens are indigenous livelihood practices, especially among women; scientific approach in provision and promotion of these livelihoods through training sessions aims to make these livelihoods sustainable. Most of the beneficiaries valued livelihood assistance. The results were especially visible in the poor households. Kitchen gardening training has benefited the target community to practice alternative livelihoods. Still, a follow up plan is needed to ensure that such techniques are practiced on a large scale with market links to assist ecological and economical development in the project area

The Table 1 also reveals that area available for kitchen garden in most of farm families in cultivated area near the house (38.33 %) followed by useless land near the house (31.67%) which were not used due to awareness, only 18.33 per cent farm family's available court yard for kitchen gardening in Auraiya district. *Tabinda Qaiser et al.*, (2013) reported that the potential land availability of kitchen gardening in court yards was 55% while cultivated around house and fields was 23% similarly existing area under fruits and vegetables was 42.86% in field followed by 38.10% was around house. It is evident from the table 2 that respondents were ranked into no knowledge, low and medium level of

their awareness regarding selected scientific technology for kitchen gardening. It was observed that cent percent farm women has no knowledge about seed rate, majority of the respondents were having no knowledge about variety of seeds and Stages of irrigation (96.67%) followed by manure and fertilizer (95.00%), Transplanting distance (78.33%) and Sowing time of vegetables seed (63.33%). Fifty per cent farm women have no knowledge about daily requirement of vegetables in daily routine diet.

Home gardens can ensure food to underprivileged and resources-poor households as they can be established and maintained within a small patch of land. Data presented in Table 3 indicated that maximum production were found in Fruits vegetables like Brinjal and Tomato followed by Pumpkin, Bottle Gourd and Green leafy vegetables.. It may be proper management of space and interest of the farm women regarding in kitchen gardening. Study also support that properly managed home gardens can improve rural people's livelihoods and quality of life and foster economic growth that can reduce poverty into the future on a sustainable basis. Table 5 depicted that from 150m<sup>2</sup> (for Small Family 5 Members) of kitchen garden 100% fulfilled the requirement of vegetable in daily routine diet followed by 78.79 per cent for medium family, 7 members) and 61.29 per cent from 150m<sup>2</sup> for big family (9 members). The *Food and Agriculture Organization* (2008) reported an average consumption per person of 3,130 kcal per day by the year 2050s based on their baseline projections. *Alexandratos* (2009) estimated a slightly lower average daily caloric availability per person of 3,047 kcal per day by the year 2050s. It was also found that average net income saved by the farm is Rs. 8606.27 per year through the kitchen garden.

**Fig.1 Conceptual Framework**



**Table.1** Distribution of respondents on the basis of availability of area for Kitchen garden

Area for Kitchen garden		No. of Respondents	Percentage
i	Court yard	11	18.33
ii	Useless land near the house	19	31.67
iii	Cultivated areas near the house	23	38.33
iv	Cultivated area near the tube well	07	11.67

**Table.2** Distribution of respondents on the basis of awareness regarding selected scientific technology before introducing Kitchen gardening

SL. No.	Selected scientific technology	Awareness level		
		No knowledge	Low	Medium
1.	Sowing time	38 (63.33)	18 (30.00)	04 (6.67)
2.	Improved varieties	58 (96.67)	02 (3.33)	00
3.	Seed rate	60 (100.00)	00	00
4.	Transplanting distance	47 (78.33)	08 (13.33)	05 (8.33)
5.	IPM	55 (91.67)	04 (6.67)	01 (1.67)
6.	Stages of irrigation	58 (96.67)	02 (3.33)	00
7.	Seed Treatment	60 (100.00)	00	00
8.	Manure and fertilizer	57 (95.00)	03 (5.00)	00
9.	Nutritious food and vegetables	33 (55.00)	21 (35.00)	06 (10.00)
10.	Requirements of vegetables in daily diet	30 (50.00)	18 (30.00)	12 (12.00)

**Table.3** Production of vegetables in Nutritional kitchen Garden in rural areas

S. No.	Name of Vegetables	Average production(Kg)	Rate (Rs./ Kg)	Total Income (Rs.)
1	Bottle gourd	51.76	20	1035.2
2	Pumpkin	55.31	20	906.2
3	Sponge Gourd	41.87	20	835.4
4	Cucumber	16.35	10	163.5
5	Bitter gourd	26.67	30	800.1
6	Lobia	26.01	20	520.2
7	Lady's finger	35.92	20	718.4
8	Sem	28.23	25	705.75
9	Radish	31.41	10	314.1
10	Gwar	14.26	10	142.6
11	Snake Gourd	7.83	20	156.6
12	Tomato	24.39	10	243.9
13	Brinjal	28.01	10	280.1
14	Couliflower	19.32	08	154.56
15	Cabbage	19.82	08	158.56
16	Broccoli	13.35	25	333.75
17	Chilli	4.52	20	90.4
18	Palak	32.95	10	329.5
19	Menthi	14.95	10	149.5
20	Corriender	10.17	15	152.55
21	Sarson Saag	10.57	10	105.7
22	Carrot	19.75	10	197.5
23	Beetroot	11.65	30	349.5
24	Pea	19.62	20	392.4
25	Kakadi	14.75	20	295.0
26	Mask Mellon	12.93	20	258.6
27	Chaolai	21.72	20	434.4
<b>Total Production</b>		<b>603.99</b>		<b>10223.97</b>



**Table.4** Evaluation of availability of vegetable for various types of Farm families through Nutritional Gardening

Estimation of availability of vegetables for various types of farm families through nutritional gardening									
Nutritional module 150m <sup>2</sup>	No. of participants	Requirements (Kg.)	Availability (Kg)	Gap (Kg)	% Requirement fulfilled	Cost of production (Rs.)	Gross Income	Net Income	C.B. Ratio
Small Family (5 Members)	23	547.5	603.99	-	More than 100	1617.70	10223.97	8606.27	1:6.3
Medium family (7 Members)	21	766.5		137.49	78.79				
Big family (9 Members)	16	985.5		318.49	61.29				

**Table.5** Details of Consumption of vegetables and income generation through Nutritional Gardening

Nutritional module 150m <sup>2</sup>	Availability (Kg)	No. of participants		Details of sold vegetables		Income (Rs.)
		Consumed	Sold	Vegetables	Rate / Kg	
Small Family (5Members)	623.99	18	2	Pumpkin	20	1950 to 3500
				Bottle gourd	20	
Medium family (7 members)		13	07	Sponge gourd	20	
				Lady's ginger	25	
Big family (9members)		19	01	Beet Root	30	
				Palak	10	
	Corriender			20		

**Table.6** Impact of kitchen gardening on rural communities

S. No.	Impact	Before OFT Programme	After OFT Programme
1.	Practice of Kitchen Gardening	07	53
2.	Type of vegetable grow	Only some leafy and fruits vegetables	All types of vegetables
3.	Grow vegetables in all season	Some people only Kharif and Rabi season	All families throughout year
4.	Time allocation for Kitchen Gardening / day	0.5	2.0
5.	Impact on livelihood	Buy costly vegetables and poor health	Saving money, improvement in physical health (fitness)
6.	Knowledge about daily intake vegetables in diet	Not aware	Have aware and used 285-300 gm / person /Day

Through the review of a number of case studies, *Mitchell and Hanstad* (2004) assert that home gardens can contribute to household economic well-being in several ways: garden products can be sold to earn additional income. *Wiersum* (2006) noted that home gardens make available a small but continuous flow of subsistence food products for the household. Also, home gardens provide the main source of staple food for people in heavily degraded and densely populated areas with limited

croplands. Table 5 reveals the impact kitchen gardening on rural communities. Economically, kitchen gardening improved the livelihood of local community after starting kitchen gardening in the targeted area. It was acknowledged that after OFT programme, all the participants were taking more interest. The practice of kitchen gardening is increase from 11.66% to 95%. It was also found that after introducing kitchen garden people save money in buying vegetables and use fresh and organic

vegetables so that health problems also reduced due to use of balance dose of vegetables in daily routine diet. The practice of kitchen gardening is increase from 53% to 87%, similarly the cultivated land were also increase after the kitchen gardening training (*Dilrukshi Hashini* 2013.)

Though India is the second largest producer of fruits and vegetables, their consumption is meagre especially among the rural population. Now-a-days people are more health conscious and good food shall be our medicine. Increased consumption of fruits and vegetables is one of the easiest and cheapest ways of enhancing health. Backyard nutrition gardening is a low cost sustainable approach for mitigating malnutrition especially in rural households.

Home gardening contributes to household food security by providing direct access to food that can be harvested, prepared and fed to family members, often on a daily basis. Even very poor, landless or near landless people can also practice gardening on small patches of homestead land, vacant lots or in containers. Gardening may be done with virtually no economic resources, using locally available planting materials, green manures, "live" fencing and indigenous methods of pest control. Thus, home gardening is a production system that fits well in family farming system.

Thus the Nutritional Kitchen Garden for awareness regarding to take adequate vegetables in daily diet to solve the nutritional problems in rural areas. The result indicated that the before introduce of refined technology of nutritional kitchen garden the farmers/ farm women were not aware and also used inadequate amount of vegetables in daily diet whereas after introducing of refined technology the production of vegetables increased as well

as consumption of vegetables in daily diet also.

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