

## **Organic Terrace Gardening, A New Vista in Bringing Back to Traditional Food System: Economic Issues**

K. P. NAVEENA AND R. T. SAHANA<sup>1</sup>

*Department of Agricultural Economics, UAS, GKVK, Bengaluru-560065*

*e-mail: [agrirose51@gmail.com](mailto:agrirose51@gmail.com) (Corresponding Author)*

### **Abstract**

*The study focuses on the importance of terrace gardening, as it provides fresh, seasonal and most importantly chemical free vegetables for daily requirement of the family needs. It also solves the problem of smelly, untouchable refuse kitchen waste into precious organic manure which serves as a free cost and environmental friendly input for sustainable organic terrace gardening. Thirty sample respondents who are practicing organic terrace gardening were selected for the study during 2016-17 in Bengaluru. The results indicated that, 31 per cent share of establishment cost was spent towards consultancy and information cost for take up terrace gardening. The net income realized to an extent of Rs. 6916 and it was interesting to note that getting chemical free food was the major motivational factor to practice terrace gardening.*

**Keywords:** Terrace gardening, sustainability, food security, establishment cost, motivational factors

### **Introduction**

Agriculture is the mainstay of the Indian economy as it is the main provider of employment and livelihood over the years. Urbanization across the globe is inevitable and universal because of the fast growing population. The world's urban population is expected to double within next 30 years leading to an increasing number of urban poor and this will be more pronounced in developing countries as they have high birth rates as well as rural migration rates. The rate of population growth will lead to an increase in urban slum areas, with high levels of unemployment, food insecurity and malnutrition (UN-HABITAT, 2006). Urban food security requires a reliable year-round supply of food. Urban consumers tend to depend on purchased food which usually comes from rural areas or is imported. Urban and peri-urban agriculture have immense potential in terms of providing food security, income, employment and at the same time improving urban environment. Unfortunately, use of improperly treated waste water, indiscriminate use of chemicals and

environmental pollution are risky for both producers and consumers. Therefore, terrace gardening is gaining momentum, increasing the availability of chemical free, fresh, healthy and affordable food for urban consumers.

Terrace gardening is a production activity where in cultivation of food crops on roofs or terraces. According to FAO reports, about 800 million people worldwide grow vegetables or fruits or raise animals in cities, producing 15 to 20 per cent of the world's food. There are many advantages of terrace garden as it reduces the distance and cost of food transportation from rural to urban areas, induce micro climate on terraces and will also arouse the interest of children and attracts them towards agriculture and gardening activities. This paper is an effort to throw light on the importance and expansion of terrace gardening in the metropolitan areas where there is no space available for the cultivation. The outcome of the study also helps the policy makers to encourage and expand the eco-friendly nature of organic terrace gardening which will surely bring back to our traditional food system.

### **Methodology**

A micro level study was undertaken to understand the concept and practices of terrace

---

<sup>1</sup>M.Sc. (Agricultural Economics), Department of Agricultural Economics, UAS, GKVK, Bengaluru-560065  
e-mail: [sahanarts2111@gmail.com](mailto:sahanarts2111@gmail.com)

gardening exclusively under organic method. Thirty sample respondents were selected by following Accidental sampling technique during the event of Oota From Your Thota (OFYT) held at Bengaluru. Data regarding socio-economic status, demographic features, area allocated for terrace gardening, popular crops grown, input management, cost and returns structure and other related information was collected through personal interview during 2016-17 using structured schedule. The information collected was tabulated and analyzed using economic tools. The technique of tabular presentation was used to workout cost and returns of terrace gardening. The initial investment on establishment of terrace gardening was amortized for 5 years, as most of the materials like pots, gunny bags, tarpaulin and gardening equipments are used for about 5 years for the gardening activity. The percentages and averages were computed to obtain meaningful results.

### Results and discussion

The respondents selected for understanding the practice of terrace gardening were mostly females (63 %), as they are more concerned about food safety, nutrition and family health (Table 1). The middle age group of people (45 years) with a medium sized family (four members) are at the forefront in practicing terrace gardening. Further, a strong network of moderate income group of people (Rs. 20000 to 50000 per month) who had completed education up to college level (70 %) were the major group in following and sustained the diversified environment of terrace garden.

Table 1: Socio-economic profile of the respondents

S. No.	Particulars	Per cent
1	Age ( Years)	45.24
2	Education level	6.66
	SSLC	23.33
	PUC	70.00
	Degree and above	
3	Gender	36.66
	Male	63.33
	Female	
4	No. of family members	4.00
5	Income/ Month	16.66
	<20000	56.66
	20000-50000	26.66
	>50000	

It was evident from Fig. 1 that a wide range of food crops can be taken up under terrace garden which would safeguard nutritional security, indigenous culture, heritage and biological diversity as well. Usually

staggered sowing is practiced to ensure year round availability of fresh produce. The prominent crops cultivated by the sample respondents under terrace garden are curry leaves and chilli (> 93 %), tomato and coriander (> 67 %). More than 40 per cent of the respondents harvested brinjal, capsicum raddish and gourds. Carrot, french bean, pumpkin, knol-khol and lemon were also on the list and got significant appreciation from the respondents (> 27 %).

The average cost incurred for the establishment of terrace garden is presented in Table 2. The findings revealed that the total establishment cost was Rs. 4682 for a dimension of 12 x 15 feet area. Out of the total cost, consultancy charges for getting information through training/ workshop accounted to as high as 31 per cent, as the consultants provides technical information to the new gardeners. Here, the importance of agriculture scientists will come into picture, where in they can take up consultancy services for the interest of needy people. The other establishment cost comprise of purchase of pots and tarpaulin (18 and 12 %, respectively), preparation of potting mixture (10 %), etc.

Table 2: Initial investment incurred for establishment of terrace garden

S. No.	Inputs	Unit	Quantity	Cost	Per cent
1	Pots	No.	28	840	17.94
2	Gunny bags	No.	14	160	3.42
3	Potting mixture (Coco peat)	Kgs	8.42	470	10.04
Gardening equipment					
1	Secateur	No.	1	340	7.26
2	Hand sprayer	No.	2	140	2.99
3	Hand rake	No.	1	72	1.54
4	Kurpi	No.	1	120	2.56
5	Compost bin	No.	2	460	9.82
6	Tarpaulin	No.	1	550	11.75
7	Stacking material	No.	15	80	1.71
8	Consultancy charges	No.	2	1450	30.97
Total cost				4682	100

The annual total cost incurred for maintenance of terrace garden was worked out to Rs. 3632 (Table 3). Out of the total cost, amortization establishment cost accounted for about 31 per cent followed by purchase of organic manure-coco peat (21 %) and jeevamrutha (10 %). Majority of the respondents used their own seeds and rarely purchased from outside sources. Seed sharing, a unique and interesting concept

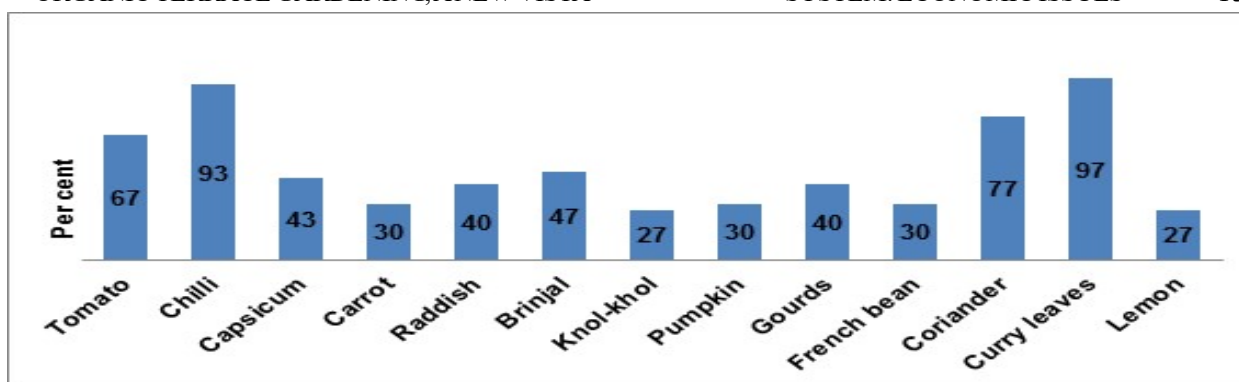


Fig.1: Percentage wise popular crops grow by sample respondents under terrace gardening

is followed, where in individuals exchange the seed material among themselves (Plate 1). Kitchen wastes like coffee or tea waste, fruits and vegetable peel and Jeevamrutha were used as manure, thus the smelly and untouchable waste was turned into precious food for the crops which is an effective recycling of urban organic waste. Cow urine, neem oil and buttermilk along with water is the common practice for control of pest and diseases.

Table 3: Cost incurred for maintenance of terrace garden (per year)

S. No.	Inputs	Cost (Rs.)	Per cent
1	Seed material	534	14.70
2	Manures		
	a) Coffee/tea waste	-	
	b) Fruits and vegetable peels	-	
	c) Coco peat	780	21.48
	d) Jeevamrutha	378	10.41
3	Organic pesticides		
	a) Cow urine	252	6.94
	b) Neem oil	225	6.19
	c) Butter milk	186	5.12
4	Training material (Twine rope)	135	3.72
5	Amortized establishment cost	1142	31.44
	Total cost	3632	100

There are wide range of vegetable crops are dominated in terrace gardens of the sample respondents (Table 4 and Plate 2). They started getting good harvests of vegetables and greens, which were used for consumption. With growing access to vegetables on a daily basis, these sample respondents stopped buying vegetables from the market, there by savings in income to an extent of Rs.879/ month. In a month, each family could harvest 7 Kgs of pumpkin, 5-6 Kgs of gourds and tomato, 3-4 Kgs of raddish and

knol-khol, 1-2 Kgs of brinjal, french bean, carrot and capsicum. The results were in conformity with the findings of Krishnan (2014) who reported that kitchen gardeners could able to harvest enough greens and vegetables their by savings in income of Rs. 2100 every month.

Table 4: Average monthly output from terrace garden of sample respondents

Crops	Quantity of harvest (Kg)	Market price of the produce (Rs.)	Income savings on buying (Rs.)
Tomato	5.42	14	76
Chilli	0.28	40	11
Capsicum	1.80	40	72
Carrot	1.35	40	54
Raddish	3.60	30	108
Brinjal	2.30	28	64
Knol-khol	3.75	30	113
Pumpkin	7.21	12	87
Gourds	4.55	30	137
French bean	2.20	40	88
Coriander (Bunch)	3	10	30
Curry leaves (bunch)	2	8	16
Lemon (No.)	8	3	24
Total	-	-	879

Terrace gardening was economical with an average cost of Rs. 3632 per year provides fresh, seasonal and more importantly chemical free vegetables throughout the year and thus the respondents save their income expenditure towards purchase of veggies to an extent of Rs. 10548 per annum (Table 5). The net returns was high (Rs. 6916) with an attractive returns per rupee of expenditure of 2.90 indicating the economic efficiency of terrace gardening.



Plate 1: Fresh vegetables grown on their terraces by sample respondents

Table 5: Cost and returns structure of terrace gardening

Particulars	In rupees
Total cost	3632
Gross returns	10548
Net returns	6916
Returns per rupee of expenditure	2.90

Table 6: Motivating factors for practice of terrace gardening

S. No	Particulars	Per cent
1	Fresh and pesticide free food	90
2	Personal satisfaction	35
3	Kitchen waste utilization	45
4	As a hobby	40
5	Free time management/ Exercise	50
6	Time saving	30
7	Children can enjoy and learn	70
8	Saves money	55

The reasons for practice of terrace gardening are delineated in Table 6. It was found that, providing their own chemical free and fresh fruits and vegetables

(90%) and making children learn and enjoy gardening activities (70%) were the major motivating factors for practice of terrace gardening. In addition to the above, other major reasons were saving money towards the purchase of vegetables (55%), free time management (50%) and kitchen waste utilization (45%).

### References

- Bose, Praveen (2011). Population boom: At 46.68%, Bangalore tops urban districts, *Business standard*.
- Garnett, T. (1996). Farming in the city: The potential of urban agriculture. *The Ecologist*, 26(6): 299-307.
- Kalamkar, S.S. (2009). Urbanisation and agricultural growth in India. *Indian Journal of Agricultural Economics*, 64 (3): 442-461.
- Krishnan, J. (2014). Nutrition gardens. Women lead the way. *LEISA INDIA*, September, 2014, Vol 16, No. 3.
- Sudhira, H.S. and Gururaja, K.V. (2012). Population crunch in India: is it urban or still rural?. *Current science*, 103 (1): 37-40.
- Un-habitat (2006). Gender responsive urban planning and design. Un-habitat Publisher.
- Urban India (2011). Evidence. India Urban Conference, November 22, 2011. *Indian Institute for Human Settlements*.