

International Journal of Statistics and Applied Mathematics

ISSN: 2456-1452

Maths 2023; SP-8(6): 440-445

© 2023 Stats & Maths

<https://www.mathsjournal.com>

Received: 21-10-2023

Accepted: 22-11-2023

G Charan Tej

P.G Scholar, Department of
Agricultural Extension
Education, College of
Agriculture, Rajendranagar,
Hyderabad Telangana, India

P Vijaya Lakshmi

Professor, Extension Education
Institute, Rajendranagar,
Hyderabad, Telangana, India

B Savitha

Professor, Department of
Agricultural Extension
Education, College of
Agriculture, Rajendranagar,
Hyderabad, Telangana, India

A Meena

Assistant Professor, Department
of Statistics and Mathematics,
College of Agriculture,
Rajendranagar, Hyderabad,
Telangana, India

Corresponding Author:

G Charan Tej

P.G scholar, Department of
Agricultural Extension
Education, College of
Agriculture, Rajendranagar,
Hyderabad Telangana, India

Profile characteristics of urban dwellers on terrace gardening in Telangana state

G Charan Tej, P Vijaya Lakshmi, B Savitha and A Meena

Abstract

The present study was conducted in Hyderabad, Warangal and Karimnagar cities as those cities had the highest number of terrace gardening practitioners. A total of 120 respondents were selected for the study. Ex-post-facto research design was used for the present study. It was found that among respondents majority of them fell under middle age category (50.83%), most of them were female (60.83%), had graduation and above level education (61.67%), most of them were government employees (36.66%), had medium annual income (55.83%), low level of experience (76.66%), more than half (53.33%) had support of family always, had medium size terrace garden (64.17%), majority (53.34%) grows vegetables + green leafy vegetables, had preference for leafy vegetables (65.00%), had source of information always as progressive farmers (71.66%), planting materials were primarily sourced from the Department of Horticulture (76.66%), received institutional support from government (52.50%), had undergone 1-2 trainings (38.33%), most 40.83 per cent of the respondents had spent 2-3 hours in terrace gardening, most 42.50 per cent of respondents experienced a medium level of drudgery and majority 74.16 per cent of respondents disseminating varieties information related to terrace gardening through WhatsApp.

Keywords: Terrace gardening, department of horticulture and profile characteristics

1. Introduction

India is one of the most densely populated country in the world. It is predicted that India's population will reach around 2.0 billion by 2050. As the population grows, the availability of food and energy also increases, but not enough to meet the rising demand (Siva *et al.*, 2017)^[16]. This population increase can lead to problems such as hunger, poverty, malnutrition, and social instability. Terrace gardening is a great way to make unused spaces in cities, like rooftops, balconies, and patios, look nice and help the environment. Terrace gardening fits perfectly with India's increasing concern for the environment. By adding greenery to rooftops, this movement fights the heat effect in cities, reduces the amount of carbon released, and helps local plant and animal life. At the same time, terrace gardening is educating and empowering people. Workshops, training, and campaigns are spreading knowledge about how to live sustainably and explaining the bigger impact on the environment. This helps create a generation of people who know how-to live-in harmony with nature.

Terrace farming uses new and smart farming methods to grow fresh, organic food in small city spaces like terraces and balconies all year round. This way of farming has lots of benefits, like not depending too much on the weather, using recycled water from sewage and treated wet waste as fertilizer, bringing producers and consumers closer together, and reducing the pollution from carbon emissions.

2. Materials and Methods

The study was carried out in the year 2023 in Telangana state. Ex-post facto research design was adopted for the study. Hyderabad, Warangal and Karimnagar cities were selected purposively for the study as those cities had highest number of terrace gardening practitioners. A proportionate random sampling technique was adopted for the selection of respondents, 60 respondents were selected from Hyderabad city and 30 each were selected from Karimnagar and Warangal cities in proportion to the population size. Data was collected from the respondents using pre-tested interview schedule by personal interview method by the

researcher. The collected data were coded and tabulated for statistical analysis by using statistical tools such as frequency and percentage.

3. Results and Discussion

3.1 Age: From Table 1 it was found out that most of the respondents fell into the middle-age category (50.83%), followed by young (29.17%) and old (20.00%). This could be because middle-aged and younger respondents tend to prioritize their health and prefer consuming fresh, pesticide-free, and organically grown food. The above findings were in consonance with Hasan and Sultan (2021) ^[6] and Karim *et al.* (2021) ^[7].

3.2 Gender: It could be observed from Table 1 that, among the respondents, 39.17 per cent (47 respondents) are male, and 60.83 per cent (73 respondents) are female. The higher proportion of female's participation could be attributed to fact that majority of women were housewives and shoulder the responsibility of household activities, including providing nutritious food to the family. The above findings were in consonance with Chimbwanda *et al.* (2016) ^[4] and Rao *et al.* (2022) ^[15].

3.3 Education: It could be observed from Table 1 that a substantial majority (61.67%) had a graduation and above level of education followed by intermediate and high school education with the percentage of 14.16 and 10.83 respectively, which indicates that the respondents who had graduation and above level of education were more inclined towards engaging in activities of terrace gardening. This could be due to increased health consciousness among the respondents. The above findings were in consonance with Rani *et al.* (2016) ^[14].

3.4 Occupation: The results illustrated in table 1 show that the occupation distribution among respondents. The most notable inference is a significant portion i.e., 36.66 per cent comprised government employees, indicating that respondents with stable government jobs actively participated in terrace gardening because they had fixed time for their job. So, they are able to manage the terrace gardening activities regularly due to the fixed time. Additionally retired employs constituted 15.83 per cent of the respondents, suggesting that respondents post-employment found leisure and fulfillment in terrace gardening, possibly due to its therapeutic and productive aspects. Interestingly, homemakers, constituted 23.33 per cent of the respondents, actively engaged in terrace gardening, indicating that activity provides a meaningful and productive pursuit for respondents primarily engaged in household responsibilities. The relatively lower participation from private employees (5.83%) suggests that respondents in the private sector might had limited leisure time for activities like terrace gardening due to their demanding work schedules. The above findings were in consonance with Bhimani *et al.* (2020) ^[2].

3.5 Annual income: The data represented in table 1 shows that the majority of the respondents (55.83%) had medium level of income category of Rs. 6,00,000 to Rs. 9,00,000. followed by high (18.34%) between Rs. 9,00,000 to Rs. 12,00,000 and low (25.83%) level of annual income was between Rs. 3,00,000 to Rs. 6,00,000. This trend could be attributed to the financial capability of respondents in the middle-income categories, allowing them to afford homes

with ample open spaces roof tops and cover the initial setup costs. The above findings were in consonance with Greeshma (2017) ^[5] and Bhimani *et al.* (2020) ^[2].

3.6 Experience: The data represented in table 1, indicates that among the 120 surveyed respondents engaged in terrace gardening, majority of the respondents had low level of experience (76.66%) (3-9 years) followed by medium level of experience (15.83%). However, it's noteworthy that 7.51 per cent had high level of experience (15-21 years). It can be inferred that most of the urban gardening participants had limited farming experience. This trend could be attributed to the fact of being conscious about pesticide-free and nutritious food has only gained momentum in the last 5-10 years only. Moreover, there was a rapid increase in awareness about health-related aspects among respondents. The above findings were in consonance with Binsa (2018) ^[11].

3.7 Family support: From table 1 data on family support among respondents engaged in terrace farming more than half 53.33 per cent of the surveyed population, reported consistent support from their families followed by occasionally (29.16%) and rarely (17.51%). The data indicated that a substantial segment of the respondents benefitted from a stable and dependable support system within their families. Specifically, children played a crucial role in assisting their parents with gardening activities, displaying both enthusiasm and discipline in their approach. The above findings were in consonance with Nair and Lekshmy (2015) ^[10].

3.8 Size of terrace gardening: From the table 1, it was inferred that most of the respondents i.e., 64.17 per cent fell under medium size (1,500-2,000 sq.m) followed by 25.83 per cent and 10.00 per cent respondents were fell under large size (2,000-2,500 sq.m) and small (1,000-1,500 sq.m) respectively. The above findings were in consonance with Rehman *et al.* (2013).

3.9 Type of crops: Table 1 reveals that the majority of respondents, accounting for 53.34 per cent of the surveyed population, cultivated a diverse range of crops including vegetables, leafy vegetables, roots and tubers, crucifers, cucurbits, fruits, and medicinal/aromatic plants. A smaller percentage i.e., 4.17 per cent of the respondents concentrates solely on leafy vegetables and vegetables, possibly indicating a focus on quick-growing, high-demanding crops. Overall, these patterns reflect a varied agricultural landscape among urban respondents, showcasing a mix of dietary, medicinal, and economic considerations. This diversification might cater to the household's nutritional needs. The above findings were in consonance with Kaur *et al.* (2017) ^[8] and Kumari and Shirisha (2022) ^[9].

3.10 Preference of crops: Table 1 shows the overwhelming preference, with 65 per cent of respondents, for leafy vegetables followed by, 21.67 per cent of urban farmers preferred cultivating vegetables, showcasing a substantial interest in a variety of edible plants. However, it's noteworthy that only 5.83 per cent each showed a preference for creepers, medicinal/aromatic plants, and fruits. The dominance of leafy vegetables and the preference for vegetables in general highlighted the practicality of cultivating essential, commonly consumed items. It also indicates a focus on self-sustainability and the production of fresh and healthy foods. The lower preferences for medicinal/aromatic plants and fruits could

indicate either a lack of awareness about their cultivation benefits or the challenging nature of growing these crops in urban rooftop settings. The above findings were in consonance with Rani *et al.* (2016) ^[14].

3.11 Source of information: Table 1 presents the distribution of respondents based on their sources of information. Horticulture Officers were consistently contacted by 47.50 per cent of the respondents, University/ UFD were contacted frequently by 68.33 per cent of respondents. Interestingly, a large portion of the respondents (71.66%) frequently contacted progressive farmers for information. About 43.33 per cent of respondents never contacted Friends/neighbours/family for information regarding terrace gardening. Television was sometimes used by 38.33 per cent of respondents, followed by newspapers (60.83%). With respect to social media platforms Facebook, WhatsApp and YouTube were also found to be popular, with varying degrees of frequency among the respondents.

3.12 Source of procurement of inputs: The results represented in table 1 illustrate the diverse procurement patterns for inputs in terrace farming among respondents. Planting materials were primarily sourced from the Department of Horticulture (76.66%), indicating a substantial dependence on official sources. These sources are associated with subsidies and can provide certified and quality seed materials. Simultaneously, friends and neighbors play a significant role in sharing planting materials (60.83%), underscoring the importance of community networks in this regard, while also being easily accessible. Bedding materials, however, are mainly procured online (55.00%), signaling a digital shift in obtaining farming essentials, given that seeds are non-perishable items. Implements, on the other hand, are primarily purchased online (74.16%), highlighting a clear preference for online platforms, likely due to their convenience and the availability of a wide variety of options. This finding suggests a blend of traditional community-based sharing, official input sources, and a growing reliance on online platforms, reflecting the evolving landscape of procurement practices in terrace gardening. The above findings were in consonance with Rani *et al.* (2016) ^[14].

3.13 Institutional support: Table 1, indicates that Govt agencies provided institutional support through knowledge materials like magazines/literatures for 52.50 per cent of respondents followed by 45.00 per cent were benefited through training, input support (41.66%). About 40.00 per cent of respondents received trainings from private agencies, followed by 26.66 per cent of the respondents received institutional support through magazines. Only 15.00 per cent of respondents received training support from NGO. Hence, from above data it can be concluded that Department of Horticulture is the main institutional support providers. The above findings were in consonance with.

3.14 Trainings undergone: Table 1, indicates that about 38.33 per cent of respondents undergone 1-2 trainings followed by 32.50 per cent of respondents undergone 3 or

more than 3 trainings. Notably about 29.17 per cent had not undergone any training. The findings indicate that out of 120 respondents 85 had undergone training and 35 respondents did not undergo any training related to terrace gardening. During the interaction with the respondents, it was found that respondents of the Hyderabad (43.00%) have attended trainings on terrace gardening. The above findings were in consonance with Yasmin *et al.* (2014) ^[18].

3.15 Time utilization pattern: Table 1, indicates that 40.83 per cent of the respondents had spent 2-3 hours in terrace gardening followed by 4-5 hours (35.83%). While 23.34 per cent of respondents were engaged in terrace gardening for 3-4 hours in a day. The findings suggests that as the size of terrace gardening and number of crops were very limited, so majority of the respondents were able to complete their work in 2-3 hours. The respondents who had large size of terrace gardening and diverse crops in the terrace gardening were able to complete the work in 3-5 hours. The compilation of work or time utilization depends on size of terrace gardening, number of crops grown and family support. The above findings were in consonance with Rani *et al.* (2016) ^[14].

3.16 Drudgery in terrace gardening: The results represented in table 4.16 and figure 4.16, indicates that 42.50 per cent of respondents experienced a medium level of drudgery. This suggests that a significant portion of the respondents finds terrace gardening as moderately demanding, it signifies that watering the plants regularly, monitoring, planting, pruning, weeding and harvesting of the crops. Meanwhile, 31.67 per cent felt a high level of drudgery, majority of women caring out terrace gardening activities like lifts heavy sized tools and implements and also standing while doing terrace gardening activities might have reflects high level of drudgery in terrace gardening. However, it's noteworthy that 25.83 per cent experienced low drudgery, signifies that a quarter of the respondents find terrace gardening relatively manageable and less burdensome. The above findings were in consonance with Biradar (2021) ^[3].

3.17 Spread of terrace gardening information: Table 4.17 and figure 4.17, indicates that 74.16 per cent of respondents disseminating varieties information related to terrace gardening through WhatsApp followed by Facebook and Instagram with (36.66%) and (5.83%) of respondents respectively. Regarding harvesting practices 79.16 per cent of respondents disseminating information related to terrace gardening through WhatsApp followed by Facebook and Instagram with (46.66%) and (5.00%) of respondents respectively. Whereas for management practices 76.66 per cent of respondents disseminating information related to terrace gardening through WhatsApp followed by Facebook and Instagram with (41.66%) and (6.66%) of respondents respectively. The findings revealed that most of the information was disseminated through WhatsApp. This might be due to the easy accessibility and user-friendly interface as compared to Facebook and Instagram. The above findings were in consonance with Navadkar *et al.* (2004) ^[11] and Prasad *et al.* (2018) ^[12].

Table 1: Distribution of farm women and farm men based on their profile characteristics

S. No.	Characteristics	Respondents (n=120)					
		Frequency			Percentage		
1. Age							
	Young (<35 years)	35			29.17		
	Middle (35 – 50 years)	61			50.83		
	Old (>50 years)	24			20.00		
2. Gender							
	Male	47			39.17		
	Female	73			60.83		
3. Education							
	Illiterate	3			2.51		
	Can read and write	2			1.67		
	Primary school	11			9.16		
	High school	13			10.83		
	Intermediate	17			14.16		
	Graduation and above	74			61.67		
4. Occupation							
	Government Employee	44			36.66		
	Private employee	7			5.84		
	Retired employee	19			15.83		
	Business (Self employee)	22			18.34		
	Home maker	28			23.33		
5. Annual income							
	Low	31			25.83		
	Medium	67			55.83		
	High	22			18.34		
6. Experience							
	Low (3-9)	92			76.66		
	Medium (9-15)	19			15.83		
	High (15-21)	09			7.51		
7. Family support							
	Rarely supported	21			17.51		
	Occasionally Supported	35			29.16		
	Always supported	64			53.33		
8. Size of terrace gardening							
	Small	12			10.00		
	Medium	77			64.17		
	Large	31			25.83		
9. Type of crops							
	Vegetables+ leafy vegetables+roots tubers+crucifers+cucurbits+ fruits+ medicinal aromatic	64			53.34		
	Leafy vegetables+vegetables+roots+fruits	35			29.16		
	Leafy vegetables+vegetables+medicinal and aromatic	16			13.33		
	Leafy vegetables+vegetables	5			4.17		
10. Preference of crops							
	Leafy vegetables	78			65		
	Vegetables	26			21.67		
	Creepers	7			5.83		
	Medicinal and aromatic	5			4.16		
	Fruits	4			3.34		
11. Source of Information							
		Always		Sometimes		Never	
		F	%	F	%	F	%
	Horticulture Officer	57	47.50	24	20.00	39	32.50
	University/ UFD	82	68.33	21	17.50	17	14.16
	Progressive farmers	86	71.66	20	16.66	14	11.66
	Friends/neighbours/family	29	24.16	39	32.50	52	43.33
	Television	40	33.33	46	38.33	34	28.33
	News paper	73	60.83	23	19.16	24	20.00
	Farm magazine	84	70.00	17	14.16	19	15.83
	Facebook	78	65	15	12.50	27	22.50
	WhatsApp	83	69.16	21	17.50	16	13.33
	Youtube	81	67.50	25	20.83	14	11.66
12. Source of procurement of inputs							
		Friends		Online		Dept of horticulture	
		F	%	F	%	F	%
	Planting material	73	60.83	39	32.50	92	76.66

	Bedding material		46.66	66	55.00	18	15.00		
	Implements	30	25.00	89	74.16	26	21.66		
13. Institutional support									
	Institutions	Magazines/literatures		Trainings		Advisory services		Inputs	
		F	%	F	%	F	%	F	%
	Government	63	52.50	54	45.00	44	36.66	50	41.66
	Private	32	26.66	48	40.00	22	18.33	24	20.00
	NGO	14	11.66	18	15.00	10	8.33	12	10.00
		F				%			
14. Trainings undergone									
	Low	35				29.17			
	Medium	46				38.33			
	High	39				32.50			
15. Time utilization pattern									
	2-3 hours	49				40.83			
	3-4 hours	28				23.34			
	4-5 hours	43				35.83			
16. Drudgery in terrace gardening									
	Low (14-17)	31				25.83			
	Medium (17-20)	51				42.50			
	High (20-23)	38				31.67			
17. Spread of terrace gardening information									
Types of information	Facebook		WhatsApp		Instagram		You tube		
	F	%	F	%	F	%	F	%	
Varieties	44	36.66	89	74.16	29	24.16	7	5.83	
Harvesting practices	56	46.66	95	79.16	35	29.16	6	5.00	
Management practices	50	41.66	92	76.66	56	46.66	8	6.66	

4. Conclusion

The study concluded that a significant proportion of the respondents fell under medium category for most of the profile characteristics like annual income, size of terrace garden, trainings undergone and drudgery. Most of the respondents preferred to grow green leafy vegetables and are spending 2-3 hours in terrace gardening. There is a need to explore vertical gardening to utilize more space, specialized training sessions based on the need for terrace gardening practitioners.

5. References

- Binsa B. Constraint analysis of farming on house terrace and distribution of grow bags. M.Sc. (Ag.) Thesis. Kerala Agricultural University, Thrissur, India; c2018.
- Bhimani GJ, Bariya MK, Panchal B. Knowledge and adoption of kitchen gardening by urban women. Gujarat Journal of Extension Education. 2020;31(2):16-20.
- Biradar S. Perceived drudgery of farm women involved in agricultural activities. Indian Research Journal of Extension Education. 2021;21(1):103-106.
- Chimbwanda F. Perceptions and attitudes of participants toward urban gardening. A case study of nutrition gardens in Muccheke Town, Tasvingo. Civil and Environmental Research. 2016;8(8):2224-5790.
- Greeshma U. Techno-economic analysis of house terrace cultivation in Thiruvananthapuram corporation. M.Sc. (Ag.) Thesis. Kerala Agricultural University, Thrissur, India; c2017.
- Hasan SS, Sultana S. Food and economic security through homestead vegetable production by women in flood affected char land. The Agriculturists. 2011;9(1-2):44-53.
- Karim SMR, Ahmed MM, Ansari A, Khatun M, Kamal TB, Afrad MSI. Homestead vegetable gardening as a source of calorie supplement at Ishurdi Upazila, Bangladesh. ISABB Journal of Food and Agricultural Sciences. 2021;10(1):13-20.
- Kaur R, Kaur S, Sharma P. Adoption of Model Nutrition Garden by Farming Families of Punjab. Indian Journal of Extension Education. 2017;53(3):138-140.
- Kumari V, Shirsha J. Urban Farming Practices Among the Urbanites of Hyderabad, Telangana. Journal of Community Mobilization and Sustainable Development. 2022;16(1):54-58.
- Nair NN, Lekshmy PR. A study on terrace farming and its effect on women empowerment in Ernakulum district. American International Journal of Research in Humanities, Arts and Social Sciences. 2015;10(2):149-151.
- Navadkar DS, Birari KS, Kasar DV. Study of awareness of adoption of organic farming amongst the cultivators in Maharashtra agricultural situation in India. Maharashtra Journal of Extension Education. 2004;9:387-392.
- Prasad HV, Venkataramulu PSM. Study on farmers level of knowledge towards vegetable cultivation. Young (up to 35 years). Journal of Research ANGRAU. 2018;46(2):75-82.
- Rahman MH, Rahman M, Kamal MM, Uddin MJ, Fardusi MJ, Roy B. Present status of rooftop gardening in sylhet city corporation of Bangladesh: an assessment based on ecological and economic perspectives. Journal of Forest and Environmental Science. 2013;29(1):71-80.
- Rani UK, Reddy TN, Shah S. Urban Agriculture: Experiences of Practitioners of Rooftop Gardening. Journal of Agricultural Extension Management. 2016;17(1):1-11.
- Rao PB, Inampudi MP, Srikumar MS. Consumer Attitude towards Organic Terrace Gardening-A Study in Bangalore City. International Journal of All Research Education and Scientific Methods. 2022;10(9):1158-1163.
- Siva M, Prasad BVG, Thirupathi R, Kiranpatro TSKK. Terrace gardening for vegetable cultivation. International Journal of Advances in Science Engineering and Technology. 2017;5(4):19-22.

17. Vincent A, Saravanan R, Suchiradipta B. Urban farming: Knowledge management and impact-lessons from twin cities of Hyderabad and Secunderabad. *Journal of Agricultural Extension Management*. 2019;20(1):75-97.
18. Yasmin T, Khattak R, Ngah I. Eco-friendly kitchen gardening by Pakistani rural women developed through a farmer field school participatory approach. *Biological Agriculture & Horticulture*. 2014;30(1):32-41.