Journal of Community Mobilization and Sustainable Development
Volume 2 (Seminar Special Issue) May 26-28, 2022: pp 295-300

Urban Farming Practices Among the Urbanites of Hyderabad, Telangana

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ABSTRACT

An exploratory study was conducted to know the urban farming practices followed by the urbanites from different areas of Hyderabad city. Hundred active urban farming practitioners were selected as the study sample and by using semi-structured interview schedule, responses were collected. The data was decoded and statistically analyzed followed by logical interpretation. The results showed that majority of the respondents (43.0%) were growing 2 to 4 food types, eg. fruits vegetables, mushroom and fish. Out of which 45.0 per cent of them grew at least 1 to 5 types of vegetables and fruits. Majority of them (35.0%) utilized 500 to 1000 sqft for vegetable cultivation and less than 500 sqft. for fruits cultivation (75.0%). Major reasons for practicing urban farming as reported by the respondents were 'own interest' (81.0%). Different sources of motivation that inspired them to take urban farming practices expressed by the respondents were 'own interest', followed by information from 'newspapers' and from their relatives and friends respectively. Only 13.0 per cent of them had attended training programs on urban farming. In urban farming, popularly adopted model is terrace garden and majority of the respondents (67.0%) were practicing urban farming since 1 to 3 years. They are growing vegetables and fruits in mud pots, followed by grow bags as containers growing vegetables and fruits. The major challenges faced by the respondents were problems caused by insects, birds and monkeys, followed by accessibility of quality seeds in their nearby places, availability of water, especially during the summer season, spare time for gardening from their regular routine activities, inappropriate sunlight and lack of space for gardening. Based on the findings of this study, it is suggested that the urban farming practitioners may be provided training on scientific methods & practices to grow their own food, including measures to control insects, birds and pests, making vermi compost from kitchen waste etc., to increase urban farming produce.

Keywords: Challenges in urban farming, Urban agriculture, Urban agriculture practitioners, Urban farming, Urban farming practices

INTRODUCTION

Urbanization is taking place at a faster pace in India. The population dwelling in urban areas was 11.4 per cent according to 1901 census. This count has increased to 28.53 per cent according to 2001 census, even crossing 30 per cent as per 2011 census, standing at 31.16 per cent. It is also expected that by 2030, 40.76 per cent of the country's population will be residing in urban areas (Awasthi, 2013).

The growing population in urban areas and low land availability are the two major constraints to crop production in and around urban areas. Many people around the world do not get enough food and proper nourishment. Urban agriculture has been defined as the growing of plants and the raising of animals within and around cities. The most common feature which differentiates between rural agriculture and urban agriculture is integrated into the urban economic and ecological system. Urban Agriculture plays an important role for making a city more resilient and safer not only in terms of food and economy but also in improving standard of living of urban poor by increasing means of livelihood. Urban horticulture can be seen as a

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solution for prevention of hunger and malnutrition. Due to the temperature rise and climate change, urbanites are facing challenges in sustaining production, resulting in poor yield and crop losses. Therefore, urban horticulture growers may need to employ new techniques and tools to improve their practices (Nwosisi and Nandwani, 2018). However, these development needs capital, information sources, knowledge and resources to improve their skills on production, processing and marketing of their produce. This paper examines the recent practices adopted by the urban residents in urban farming, the types of urban farming practices and models practiced by them. The constraints, challenges and benefits of urban farming were also explored.

MATERIALS AND METHODS

The present study focused on urban farming practices of active urban practitioners from the city of Hyderabad, Telangana State. The survey was carried out during January to August, 2019. A total of 100 respondents who were practicing urban farming were selected as the sample and data was collected through the developed semi-structured interview schedule. Data on types and number of foods grown, area utilized for urban farming, reasons and sources of motivation to practice urban farming, models adopted, duration of urban farming practice, types of containers used and the constraints faced by them was collected during the survey. The data was statistically analyzed using descriptive statistics i.e. mean, Percentage and standard deviation (SD), and presented logically in detail under results and discussion section.

RESULTS AND DISCUSSION

The major urban farming practices followed by the respondents include types of foods grown, total number of fruits and vegetables grown, area of cultivation, reasons and source of motivation for urban farming, training programmes attended, models & containers used and duration of practice.

The respondents were growing different types of foods as indicated in Table 1, like vegetables, fruits, mushroom, fish etc. Accordingly they were categorized into different categories based on the no. of different types of foods grown by them. Respondents were categorized into 3 groups as per the number of foods grown i.e. upto 2, 3 to 4 and more than 4 food groups. Majority of them (43.0%) were growing 3 to 4 food groups consisting of fruits and vegetables, followed by 41.0 per cent of them who grew upto 2 food groups i.e. vegetables, fruits, mushroom etc. and only 4.0 per cent of them were growing more than 4 types of food groups.

Table 1: Types of food grown by the respondents through urban farming

Type of foods grown	Number of respondents (f)	Percentage (%)
Upto 2	41	41.0
3-4	43	43.0
>4	4	4.0
Total	100	100.0

From the above results, it was noticed that majority of the respondents were growing 3 to 4 varieties of food groups such as fruits, green leafy vegetables, other vegetables and medicinal plants but a very less Percentage of the respondents were growing diverse types of food. Hence more training programmes on diversified urban farming or home gardening should be conducted, in order to give hands-on-experience.

The respondents were also surveyed regarding no. of fruits and vegetables grown by them through urban farming, such as brinjal, tomato, ladies finger, chilies, ridge gourd, bitter gourd and so on. Among the fruits group papaya, lemon, sweet lime, plums etc. were grown in their home garden. The data on number of fruits and vegetables grown by the respondents is given in Table 2. The results showed that majority of the respondents (45.0%) were growing at least 1 to 5 types of fruits and vegetables in their home garden, followed by 40.0 per cent of them who were growing 5 to 10 types of fruits and vegetables and 15.0 per cent of them with more than 10 varieties of fruits and vegetable in their home garden.

Table 2: Total number of fruits and vegetables grown by the respondents through urban farming

No. of foods grown	Number of respondents (f)	Percentage (%)
1-5	45	45.0
5-10	40	40.0
Above 10	15	15.0
Total	100	100.0

Major advantage of urban farming noted was that it improved access to fresh and green vegetables, as observed by a study of Vincent *et al.* (2019).

The area utilized for urban farming by the respondents is given in Table 3. Majority of the respondents (35.0%) utilized 500 to 1000 sqft, followed by 34.0 per cent who used more than 1000 sqft and 31.0 per cent who grow vegetables in an area of less than 500 sqft. The utilization of the area for fruits cultivation by majority of them (75.0%) was less than 500sqft, followed by 21.4 per cent who used 500 to 1000 sqft and the rest (3.6%) of them used more than 1000 sqft of area.

The data on area utilization showed that majority of the respondents used 500 to 1000 sqft for vegetable cultivation whereas for fruits cultivation, the area was less than 500 sqft. The area under vegetables cultivation was high compared to fruits cultivation, in terms of area and number of respondents growing vegetables. Cent per cent of the respondents were growing vegetables whereas only 28.0 per cent of them were growing fruits. The reasons could be that growing vegetables is easy in terms of watering, maintenance, knowledge and skill and can be carried out in pots/ containers of any size or material as compared to fruit cultivation. The other reason could also be that there is more demand for vegetables than fruits.

Data of Table 4 highlights the reasons for urban farming practice by the respondents. The major reason expressed by majority (81.0%) of them was 'own interest'. The other reasons reported by them were their nativity of being from an agriculture family that created interest to practice urban farming, passion, healthy and safe foods by organic farming, to get government subsidy, inspired by other fellow members who were practicing, to reinstate biodiversity, through newspaper articles and found the information as useful, to inspire and educate in varying Percentages ranging from 8 to 1.

Table 3: Area utilization under urban farming practice by the respondents

Area (sqft)	Vegetables (n=100)		Fruits (n=28)	
	N	%	N	%
< 500	31	31.0	21	75.0
500-1000	35	35.0	6	21.4
>1000	34	34.0	1	3.6
Total	100	100.0	28	100.0

Table 4: Reasons for taking up urban farming practice by the respondents

Reasons	Number of respondents	Percentage
Passion	4	4.0
Interest/Hobby	81	81.0
Being from agriculture family	8	8.0
Health & Nutritious supply of foods	1	1.0
Interest and Govt. subsidy	1	1.0
Inspired by others	1	1.0
To preserve and safe foods by organic farming	4	4.0
To reinstate biodiversity	1	1.0
Newspaper article	1	1.0
To inspire and educate	1	1.0

**Note:* The total Percentage cannot be 100 as the reasons stated by the respondents can be more than one for each respondent. So the data represents pooled Percentage for each reason presented in Table 4.

It can be seen that as majority of the respondents (81.0%) were doing urban farming out of their own interest, therefore, to do any activity or task it is important to have self-interest which is the pre-requisite of any action/initiative. Interest is the internal drive to continue with the desired activity or task. Different sources of motivation to do urban farming was collected from the respondents and presented in Table 5. It is evident from the above result that majority of the respondents (88.0%) cited their source of motivation as 'own interest', followed by 9.0 per cent for whom the source of motivation was information from newspapers, for 7.0 per cent of the respondents,

Table 5: Source of motivation for urban farming

Source	Number of respondents (f)	Percentage (%)
Training	0	0
Neighbors	0	0
Friends	3	3.0
Relatives	7	7.0
Newspaper	9	9.0
Own interest	88	88.0

it was their relatives and the remaining 3.0 per cent from their friends.

Data on training programmes attended by the respondents before taking up urban farming practices is presented in Table 6. Majority of the respondents (87.0%) did not attend/receive any training on urban farming, whereas only 13.0 per cent of them had attended/received trainings on urban farming before taking up urban agriculture practices. Hence there is a need and scope for organizing more training programs on urban farming to enhance technical skills and knowledge of the practicing urbanites, so that they get motivated and start practicing urban farming with more enthusiasm and confidence. Those who are already into urban farming will get further advanced scientific know-how about urban farming.

The urban farming models adopted by the respondents is shown in Table 7. Majority of the respondents (88.0%) practiced urban gardening on terrace, followed by 37.0 per cent who practiced front yard gardening. Another 13.0 per cent each practiced in balcony and back yard. Yet another 12.0 per cent as rooftop garden, 2.0 per cent of them were practicing on hanging model, 1.0 per cent practiced window/slit garden and vertical garden each. None of the respondents practiced stack model as urban farming practice.

Table 6: Trainings attended on urban farming by the respondents (n=100)

Yes	Percentage	No	Percentage
13	13.0	87	87.0

Table 7: Urban farming model practiced by the respondents

Urban farming model	N (%)
Terrace garden	88.0
Roof top garden	12.0
Vertical garden	1.0
Balcony garden	13.0
Back yard garden	13.0
Front yard garden	37.0
Hanging model	2.0
Window/slit garden	1.0
Stack model	0.0

Note: Percentage and number are same.

From the above data on urban farming models practiced, by the respondents it can be inferred that the most popularly adopted model is terrace garden, since it is easily available in most of the independent houses, easy to maintain with ample amount of sun light and without much constraints of space. Another model adopted by the respondents was front yard gardening which will add beauty to their home, can be supervised easily and provide coolness during sunny days and evenings.

The urban farming practice duration, in number of years, was collected from the respondents to know the time duration since they started urban agriculture practices and is presented in Table 8. Majority of the respondents (67.0%) were practicing urban farming since 1 to 3 years, while 13.0 per cent of them were continuing this practice since more than 5 years, 12.0 per cent of them were practicing for less than 1 year and the remaining 8.0 per cent were practicing since 3 to 5 years.

From this result it can be seen that majority of them were practicing since 1-3 years, which clearly suggests the growing popularity of urban farming among the people living in urban areas and the motivation to grow safe and nutritious foods. Similar results was found in a study conducted in Hyderabad city by Rani *et al.* (2016). Majority of them (56.0%) practiced gardening since less than 3 years whereas, 30.0 per cent of them practiced for 3-5 years and only 14.0 per cent of them had experience of more than 5 years.

The data regarding type of containers used for urban agriculture by the respondents is presented in Table 9. Majority (91.0%) of the respondents used mud pots, followed by 84.0 per cent who used grow bags, 29.0 per cent does farming on ground, 23.0 per cent

Table 8: Duration of urban farming practiced by the respondents

Duration (Years)	Number of respondents (f)	Percentage (%)
<1	12	12.0
1-3	67	67.0
3-5	8	8.0
>5	13	13.0
Total	100	100.0

Table 9: Type of containers used for urban farming by the respondents

Containers Used	N (%)
Mud pot	91.0
Plastic drums	23.0
Tyres	9.0
Grow bags	84.0
Pipes	9.0
On ground	29.0
Water bottles	14.0
Paint bucket	14.0
Plastic bucket	16.0
Coconut shell	2.0
Thermocol box	3.0

Note: Percentage and number are same.

used plastic drums, 16.0 per cent waste plastic buckets at home, 14.0 per cent each grew plants in water bottles and paint buckets, while another 9.0 per cent each used old tyres and broken pipes, while 3.0 per cent used thermocol boxes and the remaining 2.0 per cent grew small plants in coconut shells that were used in the kitchen and temples. From the results it was inferred that majority of the respondents were using mud pots and grow bags which was easily available in nurseries and as a part of the subsidy kits. Most of the respondents were using containers unutilized/ waste container at home or from their vehicles (tyres) and with their creative ideas they recycled and broken things into re-usable grow containers and added aesthetic element to beautify their garden in a cost-effective manner.

The constraints faced by the urban respondents is presented in Table 10. Problems caused by insects, birds and monkeys were felt by majority of the respondents (26.0%), followed by accessibility of quality seeds in their nearby places as reported by 17.0 per cent of the respondents, another 13.0 per cent of them felt that unavailability of water, especially during the summer season is a great problem to continue home farming activities, 4.0 per cent of them found it difficult to spare/manage time for gardening from their regular routine activities, 2.0 per cent of them felt that due to insufficient sunlight productivity is low and the least Percentage (1.0%) expressed that lack of space for gardening is a major concern. The above result shows

Table 10: Constraints faced by the respondents in urban farming

Constraints	Number of respondents (f)	Percentage (%)
Getting good quality seeds	17	17.0
Water availability	13	13.0
Improper sunlight	2	2.0
Insects, birds and monkeys menace	26	26.0
Space	1	1.0
Time	4	4.0

that insects/birds/animals menace is one of the biggest problems faced by urban farming practitioners. Management of insects/birds/animals menace can be one of the significant component of urban farming practices. Also easy availability of inputs for urban farming can be promoted by linking these urban farming practitioners with the agripreneurs.

CONCLUSION

Urban farming can address food security and nutritional security of the urban and peri-urban dwellers. This practice address malnutrition by ensuring healthy, nutritious, and fresh foods without any pesticides, chemicals etc. Even though many urbanites are active urban farming practitioners there seems to be technical knowledge gap which impacts productivity will promote urban farming practices among many more urban and peri-urban dwellers and update knowledge and skill of existing urban farming practitioners. By organizing awareness programs and trainings on urban farming, it will promote urban farming. In a larger picture, urban farming can be a way to address food and nutritional security of the urban and peri urban dwellers, particularly in crisis time like the current pandemic situation. Hence urban farming should be encouraged in all urban and peri-urban areas with high population density, to overcome food insecurity.

Recommendations/Suggestions for effective urban farming:

Based on the results concerning constraints faced in urban farming by the respondents, the following recommendations/ suggestions are proposed to improve urban farming practices:

Getting good quality seeds- The active urban practitioners can form social network to exchange information among themselves and get information about quality inputs suppliers for urban farming activities.

Water availability- Now-a-days, many urban farming practitioners are doing rain water harvesting. They are constructing structures that conserve rain water, to be used at a later stage. They can also divert kitchen waste water into the urban garden. Alternatively, they can also look at advanced technologies like aquaponics as an alternative, where the water will be recycled between plant and fish ecosystem, hence less consumption of water.

Hydroponics- Now-a-days, technologies like hydroponics etc. at household level are also gaining importance, where water availability is a concern.

Insects, birds and monkeys menace- To protect vegetable and fruit plants from the attack of insects, birds and monkeys, net fencing can be done in balconies or protected structures like greenhouse structure/net on the roof top/front/back yard.

Space- Urban farming is gaining significance in cities and towns because it makes judicious use of the available space. Hence, where space is a concern innovative models like vertical garden, stack model, stair-case models, hanging models etc. can be effective in growing more plants per sqft.

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Received on April 2022; Revised on May 2022