

The Significance of Kitchen Gardens during COVID-19: A Lesson in Resilience and Self-Sufficiency

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SUMMARY

Kitchen gardening is the act of consuming vegetables that have been produced at home. Currently, there has been a gradual change in consumer behavior towards the adoption of a balanced and nutritious diet as a result of the growing health awareness, the increased purchasing power, and the rising literacy rate. Additionally, vegetables are an abundant source of minerals, vitamins, antioxidants, and other nutrients. Nevertheless, the vegetable supply chain was disrupted during COVID-19, and there was an apprehension of viral contamination on all items arriving from outside the home, including food. The urban India's food crisis has been permanently altered by the COVID-19 pandemic, prompting the prime minister to promote the "vocal-for-local" concept. In an effort to alleviate these issues, urban kitchen gardening practices, including terrace farming and roof-top farming, are not only acquiring popularity but are also regarded as a metric of self-reliance in urban food ecosystems. In such instances, the consumer is also conscious of the dosage and types of agrochemicals applied to cultivate their own crops, which alleviates the concern of consuming produce that has been raised using excessive pesticides or chemical fertilizers (beyond the legally permissible limits). The urban kitchen gardening concept is experiencing a surge in prominence among urban Indian households, particularly during the post-COVID-19 lockdown period. Consequently, it is imperative to enhance the efficiency of urban kitchen gardening practices in order to ensure that urban Indian households are self-sufficient in vegetable production in an environmentally sustainable fashion.

INTRODUCTION

It is a difficult task to guarantee the nutritional security of all individuals. The provision of agricultural produce to all humans in either raw or processed form is essential, as the majority of human sustenance is derived from agriculture. In the supply of agricultural commodities from farm to plate, a multitude of organizations, including both government and non-government organizations, are involved. The food supply chain is a critical element of a nation's nutritional security; however, its significance was not recognized until it was disrupted by lockdowns in various regions of the world in 2020. It led to a reduction in the supply of food items, which in turn threatened food security. This was the consequence of a mass quarantine, transport halt, mass quarantine, and stay-at-home orders (Workie *et al.*, 2020; Reardon *et al.*, 2020).

The COVID-19 pandemic was a historic event that revealed the vulnerable state of global food supply chains and prompted us to consider how to prevent their disruption in the future. In doing so, the local supply can be beneficial. Mr. Narendra Modi, the Prime Minister of India, made an appeal for the "vocal-for-local" movement in his address to the nation on May 13, 2020, in recognition of the necessity of obtaining local supplies from an Indian perspective (Chakraborty, 2020). As a result, a significant number of individuals began to engage in kitchen gardening autonomously in order to guarantee the availability of fresh vegetables in their neighborhoods. It pertains to the cultivation of vegetables and fruits within the confines of one's residence, including the backyard, rooftop, or a tiny garden within the house's boundary. It not only helps in the self-reliance on fresh vegetables but also utilizes urban households for urban gardening (Mohsin *et al.*, 2016).

This approach not only guarantees self-sufficiency in vegetable production but also enhances human health by reducing food expenditure and providing improved nutrition. Additionally, it is a low-cost, environmentally sustainable method for reducing malnutrition. From the local and existing resources, it guarantees the farm-to-plate supply of nutritious vegetables to promote excellent health (Lieske, 2009).

COVID-19 outbreak:

COVID-19 caused by a virus i.e., SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2) was identified as a pandemic (Giri *et al.*, 2021) by WHO. A variety of stringent measures were implemented by numerous countries to mitigate the virus's transmission. The halt of conveyance (both intra- and inter-state), work from home, and restrictions on human gatherings and community festivals were all included.

The Indian government was anticipated to implement stringent measures in response to the increasing global death toll and the potential for the virus to rapidly disseminate in India. The COVID-19 pandemic was the subject of a complete lockdown in India on March 22, 2020, for a period of 21 days (Singh and Chauhan, 2020). This circumstance had never been encountered by the Indian populace previously. There were numerous individuals who encountered shortages of food and other essential items each day (Sow *et al.*, 2022). Not only did the closure impact transportation, but it also impacted the supply of food items, including fruits and vegetables. During the COVID-19 pandemic, these particularly nutritious food commodities were crucial for bolstering the population's immunity.

Supply Chain Disruption During the COVID-19 Pandemic:

The transportation of food items, such as vegetables and fruits, was impacted by a nationwide shutdown in India (Reardon *et al.*, 2020), which affected both the income of the farmers and the supply to the consumers. It had an impact on the national economy in addition to human health. The maintenance of the food supply chain was a significant challenge in India, as it had never encountered a pandemic of this magnitude. This was due to the fact that nutrition was being associated with robust immunity by numerous health experts. The same was also being observed in other regions of the globe.

The COVID-19 pandemic exposed the vulnerability of the global food supply. Although the strict lockdown measures were progressively relaxed and life was once again returning to normal, there was still a lingering concern that if such a situation were to occur in the future, what could be the potential solution? The query that perplexed everyone was, "Can we continue to depend on local resources in the same way that humans have done for centuries?"

Need of 'Vocal for local'

When the necessity arises, it impels us to investigate potential solutions. An anticipated solution was to generate oneself, which is not provided by others. National self-sufficiency was the subject of deliberation on television programs. In his address to the nation on May 13, 2020, the Indian Prime Minister urged the Indian people to advocate for local resources, which in turn encouraged them to consider the most effective ways to utilize them (Chakraborty, 2020).

Many individuals began gardening themselves as a hobby and as a necessity to guarantee the availability of agricultural commodities from the local area. The concept of cultivating by consumers themselves in the backyards, on rooftops, and during work-from-home days gained popularity. It not only promotes self-sufficiency in fresh vegetables but also employs urban households for urban horticulture (Mohsin *et al.*, 2016). This practice of kitchen gardening was now considered a means of achieving self-sufficiency, particularly in the production of vegetables, by common households (Lieske, 2009).

Kitchen garden for self-sufficiency:

The kitchen garden usually grows in a small tract of available land in the backyard of the residence. Frequently, vegetable gardens are recommended as a method for households to reduce their expenses. The minimal maintenance effort and inputs are necessary due to the recycling of resources. Compost is typically produced from kitchen waste, and water for irrigation is sourced from waste kitchen water and locally available planting material. This is a more prevalent practice in rural areas; however, it has gained popularity in urban areas as a result of the growing awareness of the significance of fresh vegetables. Some of the benefits of kitchen garden are:

- Money saving
- Space utilization
- Physical exercise
- Reviving hobby
- Plant of own choice
- Learning for kids
- Can grow them organically
- Can harvest fresh
- Can mitigate malnutrition
- Can get multi nutritional food intake

Things to be noted while practicing Nutri-garden or Kitchen Garden:

- In order to ensure that all crops are able to access sunlight, plots should be designed so that tall vegetable varieties are always followed by medium and dwarf varieties, ensuring that each plot receives the maximum amount of sunlight.
- In order to prevent perennial vegetables from interfering with annual vegetables, it is recommended that they be planted in a specific area of the garden. This will prevent them from obstructing the preparation of the land and from creating shade.
- In order to prevent the occurrence of disease, it is important to adhere to general sanitation principles, such as crop rotation.
- The crops can be cultivated in succession with a brief interval or in multiple sowings to guarantee a consistent supply of fresh vegetables. This can be achieved through the use of a continuous crop pattern in the form of companion cropping and succession.
- In order to preserve soil fertility, it is possible to incorporate leguminous vegetables (such as French beans and peas) into the rotation, which are recognized for their ability to enhance soil fertility.
- Root vegetables may be cultivated on ridges, while tomatoes or other foliage vegetables may be grown alongside paths.
- At the time of planting, it is important to consider the vegetables' maturation time. To ensure that the area is immediately available for the sowing of late varieties, early maturing varieties should be planted in a continuous row.

Kitchen Waste as a Valuable Resource: Composting Kitchen Waste:

Kitchen garden can provide inputs to our kitchen, as well as the other way around. In addition to being converted to compost, kitchen refuse can also be utilized in the production of biofuels (Sharma *et al.*, 2022). The compost that is subsequently produced can be directly applied as an organic amendment to the household gardens to increase the production of fruits and vegetables. Vermicomposting is a more efficient and rapid method of converting bio-waste, such as kitchen trash, into valuable vermicomposting with the assistance of earthworms. This prevents us from exclusively purchasing organic composts such as FYM or vermicompost, and it facilitates the recycling of nutrients in our domestic gardens.

CONCLUSION:

A domestic vegetable garden can offer economic and environmental benefits, as well as physical and mental health benefits, as well as recreation. There are no synthetic fertilizers and pesticides used, no greenhouse gas emissions, and no leaching losses. There is untapped potential for household vegetable gardens to influence environmental outcomes, citizens' consciousness, and market trends, despite the practical challenges and existential difficulties we encounter. It is time to consider a novel lifestyle that begins with daily activities and is rooted in a small-scale, bottom-up approach.

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