

INTRODUCTION



CHAPTER I

INTRODUCTION

“The Love of Gardening is a Seed once sown that never Dies.” - Gertrude Jekyll,
(Jekyll, 2020)

India faces a truly formidable challenge in managing the rapid process of urbanization and the growth of its cities (Ballaney, 2008). Due to rapid rise in migration from rural areas to cities, there is an increasing pressure on land as a resource. As population increases, more land is required for providing the basic human needs like food and shelter. Everything around us is changing at a faster rate than we can predict. Previously, when the population was small, needs were few, and resources were plentiful, garbage was primarily biodegradable and spontaneously recycled. Handling urban garbage is a big issue that is given little attention. In the natural sinks of the atmosphere, land, streams, oceans, and soil, nature has proved its ability to disseminate, degrade, absorb, or otherwise dispose of undesired leftovers. These served the public by transporting everything we didn't want to place where we didn't care what it did. However, as the world's population grew, urbanisation and industrialization grew, the consequent massive amount of garbage, of all types, grew beyond nature's capabilities, posing a serious dilemma. As a result, rising waste levels are concerning. This necessitates efforts such as reducing waste generation to lessen the negative consequences and challenges associated with solid waste disposal and disposing waste in a way that allows for resource recovery through recycling (Beniwal, 1999). Major waste generation at household level is bio-degradable waste, which can be minimised by taking proper measures. One such measure is preparing household compost from the bio-degradable waste generated in the kitchen or garden. The household compost is a great substitute for the chemical fertilisers available in the market. Household compost can be the great option for growing healthy and nutritious organic vegetables and fruits in one's own kitchen garden. In the kitchen garden, one can grow organic vegetables for family's consumption by using household compost prepared from kitchen waste at home. Now-a-days people have started incorporating kitchen garden in their house in places such as terrace, balcony,

windowsill, or containers even if the land space is not available. The kitchen garden provides the fresh, healthy, and nutritious vegetables for family.

1.1 Kitchen Garden

Importance of gardens has greatly increased now-a-days as it presents many advantages. It improves human health and adds to natural environment. It helps in improving quality of life by providing opportunities for refreshment, relaxation, and recreation. Some gardens are developed for aesthetic purposes, while some gardens also produce food crops, sometimes in separate areas, or sometimes intermixed with both. In a home, garden developed to provide food crops and other consumable flora, are known as kitchen garden. The vegetables and fruits are the necessity of daily routine and the hike in price of the vegetables and fruits affect the purchase of the same. Fixed income group families must suffer from the decreasing real incomes and purchasing power. The need of an hour is to gain access to increase the nutritious value of the food at present. Now a day's people have started incorporating kitchen garden in the modern houses for growing fresh and nutritious chemical free food crops. (Rehman, et.al., 2013)

According to Merriam-Webster dictionary,

“Kitchen Garden is a garden in which plants (such as vegetables or herbs) for use in the kitchen are cultivated.”

According to Dhaliwal, M. (2017), Kitchen Garden or home garden is defined as

“Growing of vegetable crops in the residential houses or in their vicinity to meet vegetable requirements of the family throughout the year.”

To produce vegetables free of insects and diseases, commercial producers frequently select the careless use of pesticides, which ultimately poses major health risks. In this situation nurturing one's own kitchen garden for production of pesticide and chemical free vegetables has got an advantage. Major essential element is location of kitchen garden for a successful growth of vegetables and fruits. As one spare their free time performing garden operations, the location of the kitchen garden should preferably be in the backyard of the house. The kitchen

garden should also be planned near the water source, and it should never be planned in a shady place, rather it should be planned such a way, that the sunlight is available for most part of the day. Nevertheless, the houses now-a-days has very limited choice with regards to size, shape, and location. Therefore, whatever space is available in the house must be utilized for developing kitchen garden. (Dhaliwal, 2017)

According to Vaishali, 2020, for a healthy living, it is essential to have a healthy diet. A healthy diet includes a good and adequate and balanced mix of rice, pulses, cereals, vegetables, fruits, and herbs. Vegetables play an important role in fighting against the disease and providing enough energy and immunity to stay healthy. By growing vegetables at home, without any chemical inputs, proves beneficial for healthy body. Developing a kitchen garden in a residence does not require lot of space and does not cost more as one can use their balcony, terrace, or windowsill also for growing vegetables (Vaishali, 2020).

Vaishali, 2020, emphasised on the need of kitchen garden in present times. One can grow healthy and fresh vegetables all around the year. One can control the pests and diseases by cultivation in small areas in the kitchen garden by removing the affected parts. By successfully growing required amount of vegetable and fruit in kitchen garden cuts down the cost of buying fruits and vegetables from market. One can use the kitchen waste and wastewater from kitchen to grow nutritious and chemical free vegetables and fruits in their own kitchen garden.

There are innumerable reasons to develop kitchen garden. With a little land, a few seeds and tools, and some fertilizer, anyone willing to put in the time and effort can grow a wide variety of delicious and nutritious vegetables and fruit. Growing the vegetables can cost significantly less than buying them and the food one grows may be more nutritious than equivalent produce purchased at grocery stores. We live in an age in which food marketing is all about cholesterol, fiber, and fat. Gardening helps to turn away from this absurdity and return to the idea of eating whole, nutritious, delicious food, as opposed to whatever “nutrients” the latest scientists, marketers, and journalists have suggested. Similarly, in an era in which many people are almost completely sedentary or go to great lengths to “exercise,” gardening is a form of activity that has a useful end-product. For those

overwhelmed by the pace of modern life, gardening can provide a focused, mindful break from constant noise and rush. Others like the sense of ownership they get from taking care of a piece of land, including the plants and soil. For those with children, gardening can be an excellent way to introduce children to the natural world and to food production and preparation. Finally, many just plain find it enjoyable (Mittenthal, 2007). Kitchen gardens can be grown in the empty space available at the backyard of the house or a group of women can come together, identify a common place, or land and grow desired vegetables, fruits, cereals etc. that can benefit the women and community (Christensen, 2011).

Crops for the kitchen garden are chosen based on two factors: the size of the garden and the preferences of the household. Only vegetables which are appropriate to the region and produce a reasonable yield are preferred. Crops should be chosen based on their adaptability for the climate and season. Freshness is preferred for crops with high edibility and nutritional value. Tomatoes, chilies, beans, peas, salad crops, and green vegetables are examples of such crops. (Dhaliwal, 2017)

Residents are experimenting with producing everything from easy-to-cultivate herbs and leafy greens to vegetables and fruits on sunny kitchen corners, balconies, and terraces in high-rises, and little garden spaces around bungalow-style residences across the city. The product is not only healthier than what is available in the marketplaces, but it also tastes better, thanks to the hard effort put in by 'cultivators,' who gain more than just good health (Puri, 2016).

1.1.1 Problems related to Kitchen Garden

In present times, people are more sensitized regarding the benefits of a kitchen garden and therefore, several homeowners develop it in their homes. It is designed professionally by landscape experts or self-developed by the homeowners. Homemakers plan kitchen garden for growing fresh and nutritious fruits and vegetables. In doing so homeowners may face problems in developing, utilizing, and maintaining their kitchen gardens. Kitchen gardening may seem easy, but many problems are encountered by homemakers in this. People who already have developed kitchen garden also face different problems related to their kitchen garden; viz, related to soil, drainage, amount of sunlight,

pests, seedlings, plants, fruits, etc. All these problems also need to be addressed while developing a kitchen garden. One needs to identify the issues faced in the development or maintaining the kitchen garden. Thus, it is necessary to study the problems faced by the homemakers in their kitchen garden.

When growing vegetables, every gardener encounters a few common issues at some point. Seedlings that wilt, plants that stay small and appear yellow, scorched-looking leaves on plants, tomato plants that appear deformed and harsh, and snap bean blooms that fail to grow are all examples of these issues. Vegetable farming, unfortunately, may and will cause lots of new issues. It is, nevertheless, important to approach it methodically and gradually. Even before anyone expect any fruit, problems can arise with a newly developing plant. To ensure a successful harvest, one need to diagnose and correct the frequent problems before the plants yield fruit. Some of the common problems related to vegetable and fruit crop are wilting plants, weak and spindly plants, too slow growth of plant with yellow or light green colour, dark spots on leaves and stems, curling leaves, white spots or coating on the plants, shredded leaves with holes, poor yield with less or no fruits, irregular growth of fruits and vegetables, etc. ⁽¹⁾

1.2 Household Compost

About a third of the waste in our bins is food and vegetable waste. It can contain up to 90% water, making it extremely flammable. It can be composted and used in agriculture and gardening if it is kept apart from other garbage. Food waste can be composted or placed in a biodegradable bin. Composting at home is the most environmentally friendly way to dispose of kitchen and garden trash, and it produces compost that can be used to enhance soil. ⁽²⁾

The best way to reduce the consumption of pesticides in fruits and vegetables is growing them at home with the household compost. Growing organic crops at home helps to maintain the nutritional health of the family. Kitchen garden helps the owner to eat organic fruits and vegetables at home without spending much at the market to buy them. To grow organic crops at home, it is important to avoid using the pesticides in kitchen garden. It's always better to prepare the compost at home with the help of the bio-degradable waste generated in the kitchen. For

preparing the compost at home, the waste generated at home should be segregated in bio-degradable waste which can decompose. Composting the kitchen waste materials saves the money of the house owner as well as the municipality. By using the kitchen waste to make compost at one's own home, one can save the cost of buying compost and fertilizers to improve the kitchen garden. By using kitchen and garden waste to create the compost one can save lot of landfill space. Composting also help the soil to increase the number and type of microbes in the soil and will help plants to obtain nutrients and maintain the balance among microbes to help limit the number of disease-causing organisms. (3)

Compost is best for improving the texture of the soil, so that it can hold the water and air for the betterment of the plants. For healthy root development in the plants the compost is good as it adds nutrients to the soil. The benefits of composting are free fertilizer, no harmful chemicals, less waste, and a cleaner planet. Any kind of kitchen waste which includes the vegetable and fruit scrapes can go into the compost pile. Even actual plants and its parts also can be used in the compost pile, such as paper, sawdust, dryer lint if it's made from natural fibre. The household compost can be created using a mixture of brown and green waste (Livingston, 2021).

Composting is best done with kitchen and garden wastes. To generate effective compost, one needs a combination of nitrogen and carbon-rich ingredients. Nitrogen is found in lush, green materials like grass clippings. Brown material, such as woody stems and cardboard, is a source of carbon. Green material for composting can be fruit/vegetable scrape, eggshells, coffee grounds, grass and plant clippings, tea leaves/bags, flower/garden waste, and green leaves. Brown materials in the other hands are dry leaves, finely chopped wood and bark chips, shredded newspaper, straw, sawdust from untreated wood, cardboard, paper towels/bags and dead house plants. There are also other things which does not go into compost bin for composting, such as anything containing meat, oil, fat, grease, diseased plant, glossy/coloured/printed paper, weeds with seed, dairy products, sawdust or chips from pressure-treated wood, cooked food, and dog or cat faeces. (2)

Types of composting depends on the several factors like; the availability of space, amount of organic waste generated, type of organic waste generated (kitchen waste or garden waste) and the composting process time. There are basically three types of composting, i.e., cold composting, hot composting, and vermicomposting. ⁽⁴⁾

Household compost is healthy and chemical free option for kitchen garden. The existing kitchen garden owner should have a good knowledge about the preparation and use of the household compost in their kitchen garden. One needs to have a good knowledge about various aspects of household compost, such as benefits, materials, types, and preparation process. Without having proper knowledge of the process, one cannot prepare good compost. Thus, it becomes important to enhance the knowledge of the respondents regarding the different aspects of household composting.

1.3 Kitchen Garden Designs

Growing own food can be quite gratifying. Growing vegetable is not difficult, whether one want to start small with lettuce and tomatoes for salads or want to create a gourmet kitchen garden. Vegetables can be planted in the ground, raised garden beds, containers, or even combined into garden beds and borders. Some gardeners prefer to start from seed, while others prefer to buy young plants. Plants can be arranged in pleasant patterns or rows, decorative containers can be used, and vegetables and flowers can be mixed in vegetable gardens. This not only makes a visually appealing garden, but it also attracts pollinators, resulting in a higher vegetable output.

Kitchen gardens are developed by many homemakers now-a-days. Growing fruit and vegetables takes time and effort, but the efforts will be rewarded with the freshest and tastiest products to consume nutritious food. Growing vegetables and fruits in the house requires a good knowledge about the plants and their placements. Kitchen garden can be designed on land, balcony, terrace, or containers also. According to the availability of the space at home, one can design a kitchen garden. The design of kitchen garden varies as per the space. Even in small houses, where there are no spaces to develop a kitchen garden, one can always grow vegetables in containers, which can be placed on windowsill or

in the balconies. Thus, the researcher felt a need to develop various designs for land, balcony, terrace, and container kitchen garden, which would be useful for the users to help develop their kitchen garden at their residence.

JUSTIFICATION

Rapid urbanisation and industrialization are responsible for increase in pollution at all the levels viz., land, air, and water pollution. The factories and mills are disposing their waste into the river and ponds, which is polluting the water. The land is polluted with a lot of solid waste deposited at landfill and on the streets as well. These factories and mills are adding lots of bad gases to the air which contains lots of harmful chemicals, which creates air pollution. One of the land wastes is the household waste. Every year tons of household waste ends up in the landfill. This household waste contains lots of biodegradable waste, which can be segregated at household level and can be utilised to create household compost. The kitchen waste generated at home can be used to create household compost which can be used in the kitchen garden itself. Due to excessive pollution the vegetables and fruits available in the market are full of harmful chemical and pesticides which leads to deadly diseases. Thus, kitchen garden option for fresh vegetables and fruits for the family is adopted by many homemakers now-a-days. The fruits and vegetables grown in one's own kitchen garden can be chemical free and nutritious and can be grown with the use of household compost. In a kitchen garden, one can grow different varieties of vegetables and fruits throughout the year. But many a time, problems are experienced by homemakers related to various aspects in kitchen gardening. The problems related to sunlight, soil, drainage, pests, etc. need to be assessed before developing kitchen garden designs. Thus, the researcher was interested in gathering the information regarding the problems experienced by the homemakers regarding their existing kitchen garden. Researcher was also keen on collecting data related to the knowledge of the homemakers regarding household compost, with an aim to solve management of solid bio-degradable household kitchen waste issue.

The researcher came across many studies related to compost and gardening, but dearth of researches were found focusing on developing kitchen garden designs and preparation of household compost. This made the researcher interested in this less explored area regarding kitchen garden which was not studied under the umbrella of

Family and Community Sciences (Home Science). It is the need of hour to train the homemakers to develop the kitchen garden with best suitable plants according to their available space.

Thus, the major focus of the study was to develop kitchen garden designs for various spaces in the residences. The researcher was also interested in assessing problems experienced by the homemakers regarding their existing kitchen garden and aimed to enhance their knowledge regarding different methods of household composting and its use in their own kitchen garden. The researcher wanted to target the respondents who had kitchen garden but were facing problems maintaining their kitchen garden. Researcher planned to develop a booklet, which would cover all the aspects of kitchen gardening. An intervention program was also needed to focus on the problems related to kitchen garden and ways to solve them. The intervention program should focus on enhancing the knowledge of the homemaker regarding the benefits of composting, types of composting and preparation and use of composting in their kitchen garden.

The study will be beneficial to the students of Family and Community Resource Management, Interior Designing students, Architecture Students and Landscape Designers to design kitchen garden. The findings of the study will broaden the horizon of kitchen gardening and various kitchen garden designs developed will be useful for those working in the landscape and gardening area and those who are interested in creating their own garden by themselves.

The study will be beneficial to those who want to have kitchen garden but have less knowledge about the growing patterns and their seasons for cultivation. The study will also be beneficial to those who do not have land space and still want to grow their own vegetables at home. The study will be beneficial to those who want to prepare their own household natural and chemical free compost at home for their kitchen garden. The kitchen garden designs proposed for various spaces would benefit the respondents to plan a kitchen garden and grow fresh and nutritious herbs and vegetables at home.

STATEMENT OF PROBLEM

The present research aimed to develop kitchen garden designs for the residences of Vadodara City.

OBJECTIVES

1. To analyse the extent of problems experienced by the users of their existing kitchen garden.
2. To assess the extent of knowledge of the respondents regarding the household compost.
3. To develop designs for kitchen garden for various spaces as follows:
 - a. Small space garden (on land)
 - b. Medium space garden (on land)
 - c. Large space garden (on land)
 - d. Terrace garden
 - e. Balcony garden
 - f. Container garden
4. To develop a booklet in Gujarati and English language regarding all aspects related to kitchen gardening.
5. To conduct an intervention program and enhance the knowledge of the homemakers regarding the various aspects of kitchen gardening.