

A STUDY ON PEOPLE'S ATTITUDE TOWARDS TERRACE GARDENING IN CHENNAI

Submitted in partial fulfilment of the requirements for the award of
Master of Business Administration

by

VINCY VINOLA X

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SCHOOL OF BUSINESS ADMINISTRATION

SATHYABAMA

**INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)**

**Accredited with Grade "A" by NAAC | 12B Status by UGC | Approved by AICTE
JEPPIAAR NAGAR, RAJIV GANDHI SALAI CHENNAI 600119**

APRIL 2021



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BONAFIDE CERTIFICATE

This is to certify that this Project Report is the bonafide work of Ms. Vincy Vinola X (39410236) who have done the Project work entitled , “**A STUDY ON PEOPLE’S ATTITUDE WITH REFFERENCE TO TERRACE GARDENING IN CHENNAI**” under my supervision from December 2020 to February 2021.

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DECLARATION

I **Vincy Vinola X (39410236)** hereby declare that the Project Report entitled, “**A STUDY ON PEOPLE’S ATTITUDE WITH REFFERENCE TO TERRACE GARDENING IN CHENNAI**” done by me under the guidance of **Dr. J. RANI** is submitted in partial fulfillment of the requirements for the award of Master of Business Administration degree.

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ABSTRACT

In today's urban environment high rise buildings, parking areas, network of roads have acquired major urban land. In such an environment rooftop and terrace of buildings provide a valuable potential source of outdoor space accessible to users of building. Need for terrace gardens have increased with increasing number of high rise buildings which deprive their occupants of any visual contact with nature. Terrace gardens bring back the missing link between man and nature though on a moderate scale. The study of this review is to highlight the agronomic challenges of terrace farming Life in city is great! We have access to good school, hospitals, jobs and entertainment, but there are problems too, like pollution and traffic. In our country, trees are cut down to accommodate more buildings and the pollution has made the air toxic. Its not just the air which is is toxic, even the food we eat is equally toxic with farmers spraying dangerous fertilizers.

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CHAPTER – 1

INTRODUCTION

1.1 INTRODUCTION

Life in the city is great! - For the most part. We have access to good schools, hospitals, jobs, and entertainment centres but there are problems too, like overcrowding, pollution, and traffic woes. What would make city life better is the presence of more greenery. In our country, trees are recklessly cut down to accommodate more houses, river beds are turned into housing complexes and our daily commute spews more and more toxins into the air. It is not just the air that is toxic, even the food we eat is equally toxic with farmers spraying generous amounts of dangerous, banned and expired fertilizers on the fruits and vegetables we consume. This indiscriminate use of pesticides and fertilizers are causing birth defects, abnormalities and cancer, yet we turn a blind eye to this danger.

But this is something you and I already know, If you want a breath of clean, fresh air, you don't have to take a 30-minute ride (causing more pollution) to a park or a beach or spend a ton of money to unwind at a nature resort. Similarly, if you want to eat healthy, fresh, organic fruits and vegetables, you don't have to search long and wide for an organic shop in your locality. Setting up a terrace garden in your home can solve both problems! Terrace gardening may sound like a complicated, time consuming process that is expensive. But the truth is, you can set up a green space in your home even on a window sill or balcony if you are constrained for space. You don't have to splash a lot of money to set it up - a small monthly budget should work out nicely. And if you're a busy corporate with little or no time to spend on gardening, surely an hour or two a day won't be hard to set aside.

In fact, gardening is a highly therapeutic activity that will help you be more productive in the workplace. Spending just half an hour in the morning and another half hour in the evening tending to your plants will help you get rid of your stress and anxiety, reduce your breathing problems and leave you feeling refreshed and exhilarated. If you're not into producing vegetables, no worries. You can simply set up a herb or flower bed, or an exotic green landscape with a spring decked with lights to unwind in the comfort of

your home. Finally, terrace gardening is more than just a person-centric activity. When you set up a terrace garden, you also clean up your environment and inspire your neighbours and friends to do their own bit for it as well. Before too long, your neighbours will be sharing seeds and plants and your entire neighbourhood will be transformed into a green zone. You can be proud that you're doing your bit for Mother Earth and inspiring others to do so as well.

1.1.2 REASONS TO START A TERRACE GARDEN

You may think that gardening is an ideal activity for your grandpa or grandma because they have time on their hands and can afford to idle it away on plants. Or maybe you live in a small apartment and have no space to set up your garden. Or it is your jet-setting lifestyle that's in the way. Whatever your excuse for not starting a garden, you're missing out on a ton of great benefits that it affords. If you are cooking up excuses why you shouldn't start a garden, stop it right now and start counting the reasons why you should start a terrace garden in your home.

COOK TASTY AND NUTRITIOUS FOOD

The most obvious reason why you'd want to start your own garden is that vegetables grown in your own garden are fresh and free from chemicals and pesticides that are sprayed in shop-bought items. Fresh ingredients also add more taste to your meals and offers better nutritional value. There is nothing quite like biting into a fresh juicy tomato or making lemonade from a freshly plucked lime and fragrant mint.

COOK MORE VEGETABLES

If you don't have a garden at home, chances are you are buying more meat and junk food from the supermarket. On the other hand, home-grown vegetables give you a personal interest in eating what you harvested. Tell your kids to eat their greens and they'll throw a fit. But ask them to grow their own greens and other veggies and they can't wait to eat the work of their hands. Growing your own vegetable garden can help kids develop the right attitude towards fresh fruits and vegetables and encourage them to automatically eat the right foods from a young age.

BURN CALORIES AND STAY FIT

If you have a desk job, chances are you never get up from your seat unless you absolutely have to. You work at your desk and eat while you work so you can get more work done. At the end of the day, you end up with an eye strain, cramped muscles and spinal problems. You probably make up for all that sitting by going to the gym and throwing away good money on someone else. Instead a simple activity like gardening can give you the physical exertion you need to stay fit and healthy. Digging the soil, tilling, mixing, potting, repotting, preparing the compost, transplanting seedlings, and watering all adds up to a good workout – one that doesn't cost a penny. Studies indicate that spending one hour on moderate gardening activities like planting and weeding can burn between 200-400 calories but if you're hauling soil up your terrace and doing some intensive work, you could lose as much as 600 calories per hour. Best of all, it also makes you more goal oriented. Doing a steady run on the treadmill may feel great on Day 1 but after the 15th day, you'll feel drained and bored with the monotony of the task. With gardening, you don't just keep doing different activities every day, you also tend to become goal oriented and more purposeful because you want to achieve more than just losing calories at the end of that workout – you want your garden to thrive. So there's exercise for the mind and body.

GET MORE VITAMIN D

You are probably aware that Vitamin D is not naturally produced in the body and the lack of it may leads to several illnesses like heart disease, multiple sclerosis and depression. Vitamin D also helps strengthen bones, regulates insulin levels and promotes good cardiovascular health among other things. A few hours of exposure in the sun can give you the necessary Vitamin D fix the natural way.

BECOME PURPOSEFUL

Gardening makes you more purposeful in life. Although gardening sounds like a passive activity, it stimulates your mind and body to think in creative ways to accomplish an end result. Planning your garden, choosing your containers, coming up with a good theme for your garden and deciding which plants go where gives you and your family

a chance to stimulate the mind into coming up with creative design ideas for your project. Once you've decided on a plan, finding the resources needed, working on the soil, planting, watering, pruning, fertilizing and harvesting keeps your body engaged and active. Before you know it, you will have a garden calendar all drawn up with what to plant in each month and when to harvest them. Best of all, you will look forward to all the coming days and weeks ahead (in fact, you can't wait for it!) and you'll accomplish everything with a purposeful, yet contented smile on your face.

1.1.3 THINGS NEEDED TO GET STARTED WITH TERRACE GARDENING

Now that you are convinced of the benefits of terrace gardening and are ready to set up your garden, it is time to know about some of the tools to get started with your terrace garden.

SPACE

First you need to determine how much space you have for starting your garden. This is essential to determine the number of pots that can be accommodated.

SUNLIGHT

Sunlight is absolutely essential for plants to grow properly. Ensure that your terrace receives full to partial sunlight.

WATER

Make sure you have access to a water source on your terrace. Most houses should have a water tank with a tap from where water can be sourced for watering the plants. If you don't have such an option, arrange an appropriate medium for accessing water.

SHADE NET

Indian summers can be scorching. As much as plants love the sunshine, too much of it can wilt the plants, if not kill them. You can buy a shade net from an online store or

reuse an old mosquito net to protect container plants from excessive heat and torrential rains.

TRELLIS OR POLES

If you plan to set up a vegetable garden, make sure you have a trellis for climbers and creepers to grow comfortably. You can use wooden poles; PVC pipes or bamboo sticks to create a square or rectangular support for the plants.

GARDEN TOOLS

As you start to garden, you'll realize that you need some essential tools to mix the soil, cut your dried flower stems or remove the fruits and vegetables without damaging the plants. For starters, get yourselves a pair of good rubber gloves, a shear, a rake and a sprayer. You can buy other essentials as you grow your garden. Having a rack space to store the essentials also helps.

CONTAINERS

The next item that you need for your garden are containers. There are number of different container types available in the market and you can take your pick from any of them. When choosing a container, keep in mind the plants that you intend to grow. Climbers and creepers require larger pots, plants like chilies and tomatoes can be grown in medium sized pots and green leafy vegetables will do perfectly well in small sized pots or poly bags. When picking containers, go for the light ones, preferably coloured so they absorb less heat. Lighter containers also make it easy for you to move the pots around if required.

COMPOST KIT

I find it highly useful to have my own home made compost to nourish and condition the soil at frequent intervals. Having a compost kit like a SmartBin lets you get a constant supply of good home-made compost for your garden. This will take at least a couple of months to set up and get started so the sooner you invest in a compost kit, the better.

ORGANIC FERTILIZERS

Despite the fact that you have a good potting mix with compost, the nutrients in the soil get depleted very quickly. Organic fertilizers therefore must be used to supplement the plants at regular intervals. You can buy cow dung, chicken manure, bone meal, fish meal, Epsom salts, Vermicompost as well as seaweed cake, oilseed cake, cottonseed cake, neem oil, neem cake, fish emulsion and seaweed emulsion to fertilize your plants. All of these are made from organic matter but check the labels before you buy. When I initially started my garden, I bought seaweed emulsion, Vermicompost, and neem cake. The seaweed liquid did wonders for my plant growth and quickly became my favourite fertilizer. I have since bought bone meal and fish meal for my roses, which seem happy enough and am in the process of using Epsom salts on my capsicum and tomato plants, which I will watch closely in the coming days. For pest control, neem oil is said to work great, but I found a good drenching of tobacco water to do the trick. Still, it never hurts to have neem oil handy.

1.1.4 PLANNING YOUR CONTAINER GARDEN

DECIDING THE PLANTS

If your express reason for starting terrace garden is to grow vegetables, first decide on the list of vegetables you want to start with. Tomatoes, brinjals, beans, any type of gourds, green leafy vegetables, radish, and mint are some of the easiest vegetables to grow, with fairly quick harvest times to boot. Also consider the climatic conditions and season when you are starting your garden. Start with plants that are ideal to grow in that particular season. Also try to include some flowering plants in your garden plan. Plants like the marigold are helpful in keeping pests away while others like the sunflower attract bees to the garden and help in pollination.

CHOOSING THE LOCATION

When choosing a location for your garden, consider the needs of your plants. Some plants require full sun, others do well in partial shade and still others will grow in a cool place. Place the plants according to their sunshine requirements and you'll save

yourself and the plants the hassle of moving around different parts of the terrace. Vegetables need more breathing space so make sure you provide enough space around the plants. It won't do you any good to keep bumping into the plant when you are pruning them. Also check if your plants need to spread or climb and choose a location where you can give it adequate support like setting up poles and trellises. One other thing to consider is quick access to water. You shouldn't have to carry water from your house all the way up to the terrace to water the plants. Once you've decided on the location of your plants, it's time to consider other requirements.

PREPARING THE SOIL

Next, it is time to prepare the potting soil. Soil is the most essential ingredient that helps in the healthy growth and development of the plant. It anchors the roots to the soil and supplies it with all the essential nutrients needed for growth. An ideal soil is one that has a fine crumbly structure, is rich in organic matter, and has good drainage. Since you usually don't have instant access to the perfect soil, you can create an ideal potting mix that contains the above mentioned characteristics. A simple potting soil mix is to use 1-part sand (you can get them from a nursery), 1-part coco peat, and 1-part compost (available online). You can top up the soil with fresh compost in regular intervals to retain the soil composition. Again, there are plenty of cheap and easy ways you can make your own compost at home with kitchen scrap. Having your own home made compost is cheap and highly effective way of conditioning your soil that quickly gets depleted of nutrients. Before you add sand to your container, make sure to close all the holes at the bottom of the pot with a piece of flat stone. This is to prevent the soil and nutrients draining away from the pot when you deeply water the plant.

WATERING

Watering your plants is one of the most intensive parts of gardening. While it may seem like a piece of cake, it is not as simple as it sounds. Before you water your plants, you need to have a good understanding of your plants' water needs as well. Too much watering, too little watering or inconsistent watering can lead to various fungal diseases

and plant problems like yellow leaves, root rotting, and stunted growth. Keep these points in mind when watering plants:

- Always water the plants in the mornings.
- Never spray water on the leaves. you must do it early morning and never in the evenings.
- Make sure water never stagnates in your containers.
- Water your plants twice a day if the weather is too hot and make sure the water temperature is cool when you do.

FERTILIZATION OF PLANTS

Container plants have limited soil space and therefore a limited supply of nutrients, which gets quickly depleted. Therefore, it is essential that you fertilize your plants regularly with a mix of liquid, compost and granular fertilizers – all organic of course. Organic fertilizers that you use should have 3 essential ingredients: • Nitrogen – for production of healthy green leaves • Phosphorous – for root growth and development of the plant • Potassium - for tastier produce Organic, home-made compost is ideal to top up your soil while bone meal, fish meal, and seaweed can provide the various nutritional requirements specified above. Whatever fertilizer you choose for your soil, make sure you don't over fertilize as it can be harmful for your plant. And read the label instructions before application. In my experience I found it better to test the application on a small area of the plant before applying it on the whole plant. So with the right choice of containers, location, potting mix, watering and fertilizing, you have set the right foundation for your plants to grow heartily and produce healthy vegetables and abundant blooms. Next up, we'll take a look at how you can go wrong with your plants despite understanding their growing requirements and needs.

1.1.5 CONSTRUCTION OF A TERRACE GARDEN

There are three distinct layers in a green roof from the bottom, namely:

1. Structural layer
2. Growing media
3. Vegetative layer

- **Roof Deck** - - The most important layer on a green roof is its decking, which can be concrete, wood, metal, plastic, gypsum or composite as it determines whether the structure is capable of taking the load of the green roof.
- **Waterproofing** - The primary purpose of waterproofing is to keep the unwanted moisture from rain and condensation away from the structure below.
- **Insulation** – The roof is the primary location for heat transfer and the insulation restricts the transfer of heat energy through the roof by creating a barrier between spaces of different temperature.
- **Protection Layer** - As green roofs contain living and growing materials, a protection layer and a root barrier are one of the most important elements of the assembly. As roots grow they can penetrate the waterproofing membrane and create leak locations. The root barrier placed above the membrane ensures that no roots pass through and harm the membrane. A protection layer shields the waterproofing membrane from damage after it has been installed.
- **Drainage and retention Layer** – A drainage course allows moisture to move laterally through the green roof system. It prevents oversaturation, ensures root ventilation and provides additional space for the roots to grow. It is a porous, continuous layer over the entire roof surface just above the concrete slab.
- **Root Permeable filter Layer** – This layer separates the growing medium from the drainage layer and protects the medium from shifting and washing away. It restricts the flow of fine soil particles and other contaminants while allowing water to pass through freely to avoid clogging.

1.1.6 COMMON MISTAKES EVERY NEWBIE GARDENER MAKES AND HOW TO AVOID THEM

BUYING WEAK PLANTS FROM THE NURSERY

The local nursery is a great place to buy plants, but not all of them may actually be healthy. Avoid picking up plants with brown, yellow or wilted leaves. Also inspect the

plant for aphids, scale, spider mites and other tiny creatures as you don't want them to infest the rest of your garden. Pick up plants with lush vibrant foliage and sturdy stems.

HAVING TOO MANY SMALL POTS

It is easy to get carried away and try to have as many plants in your garden as possible. This will cause you to make stupid decisions like buying plenty of small plant containers to hold the different plants. That's certainly one mistake I made in the initial years of gardening. I ended up with a clumsy balcony and my plants eventually ran out of space to grow. Vary the size of your containers keeping in mind the type of plants you intend to grow.

OVER/UNDER WATERING PLANTS

If you live in a sunny spot, chances are, you feel the need to water your plants generously morning, noon and evening. However, you must remember that plants grown in containers don't need that much of water love. Yellowing of leaves is a sure-fire sign of over watering the plants. Just as you feel the need to over water your plants, you may also feel too lazy to water them, leaving your plants bereft of water. Signs of drooping leaves is a sure fire sign that your plant is dying of thirst. Inconsistent watering can also cause plant diseases and fruit droppings. Place your finger into the soil until your second knuckle is reached. If the tip of your finger is not moist, you can water the plants. Remember that your container is small and can hold only so much moisture, so when you are pouring water, don't just sprinkle to wet the top layer of the soil but pour enough water until it reaches the bottom of the pot and a little bit drains out. Understand the moisture requirements for each of your plants and follow them judiciously when watering.

WATERING THE LEAVES

Another common mistake that you tend to make when watering plants is to water the leaves. It may feel wonderful to have green leaves glistening with water in the fading sunlight, but this is a sure-fire way to set up a breeding ground for fungus and disease. If you can't use a drip irrigation system, pour the water in the soil so that the roots can

take it directly, where they need it the most. Schedule your watering in the early morning hours and avoid evening watering as overnight moisture can encourage disease.

NOT PRUNING REGULARLY

Some plants require regular pruning to keep them healthy and promote growth. Pruning is the removal of certain parts of the plant that are of no use to it. However, you may fear that pruning will kill the plant and avoid doing it. Bad Idea! It may seem like a dastardly thing to nip off leaves and stems that are full of gorgeous looking buds, but if you don't do it, you may end up with a zombie plant. My jasmine plant had plenty of gorgeous looking green leaves but showed no signs of growing further or flowering. When I nipped off all the older leaves, new shoots started to grow everywhere and I had a plant full of flowers in about a week's time. So don't hesitate pruning the plants at the right time. Also keep removing dead leaves and flowers as they shed. You will not only have a clean garden, but your plants will not feel stressed as well.

NOT COMPOSTING

All plants require a nutrient rich soil to grow. This is even more significant in container gardening as growing plants quickly zap the nutrition leaving the soil in need of constant replenishment. You must therefore make time to add compost to your plants every month or two. If you don't have the time to make your own compost, you can buy them from a local nursery or online store.

OVER FERTILIZING

Fertilizers are essential for the healthy growth of plants. Often, in your enthusiasm to see more vegetables or flowers in your plants, you may keep piling on the fertilizers. This will have a detrimental effect on your plants. In some cases, your plants will stop flowering and in others, they will just die on you. Moderation must be practiced in the use of fertilizers. Read the labels and apply fertilizers judiciously.

IGNORING PESTS

Pests are called pests for a reason. Give them a little room and they will completely destroy your plants before you know what hit you. I made the mistake of ignoring those

pesky mealy bugs on my gorgeous orange Ixora and before I knew it, the whole plant was infected and eventually died on me. Pests are hard to get rid of and since chemical fertilizers a strict no-no, it takes double the effort to keep your garden pest free. In fact, it is an ongoing job that never ends. One way to keep off pests is to feed your plants well and keep them healthy. Next is to water your plants consistently. Pests will attack your weak plants so you'll need to keep working on them and trying various concoctions to get rid of them. If all fails, nip off the infected stems or get rid of the plant to prevent the spread.

PLANTING OUT OF SEASON

It's easy to get discouraged when seeds you planted failed to germinate. It may have been because you simply planted them in the wrong season. Be aware of which plants grow in which season and plant them accordingly.

PLANTING IN THE SHADE

My roses never grew a new leaf for over a year and I simply assumed that it was because they were not suited to the hot Chennai weather. But the actual reason they were struggling to grow and were eventually rotting and dying was because I did not allow it the full 6-8 hours of sunlight it needed to grow. When I moved my pots from a shady spot to my terrace, I had fresh leaves and buds sprouting in just 3 days. Now they are happily blooming every day! Do your homework properly and check if your plants require full sunlight or partial shade. Place them in the appropriate part of your terrace and you will start to see the rewards.

PLANTING THE SAME CROP IN THE SAME POT REPEATEDLY

You may be used to the idea of using the gorgeous red container to host your greens and may keep repeatedly growing greens in that container after the first yield has come through. Again, Bad Idea! Just as you have gone used to the idea of seeing greens in your red container, insects and bugs that have gotten used to munching on them as well, will leave behind plenty of larvae and eggs to feed on the next crop. Doing a plant rotation actually helps break that cycle. Another issue is that the greens may have

replenished the nutrients required for their growth, leaving the subsequent yields poor. Some plants like legumes actually repair the soil by fixing nitrogen in the soil, thereby helping the next batch of crops that need it but it is not the case with every plant. So avoid repeating the same crop of vegetables in the same container after every harvest. Now that you are aware of these mistakes and how to correct them, you can give your plants the right care and attention they require.

1.2 NEED FOR STUDY

In today's urban environment high rise buildings, parking areas, network of roads have acquired major urban land. In such an environment rooftop and terrace of buildings provide a valuable potential source of outdoor space accessible to users of building. Need for terrace gardens have increased with increasing number of high rise buildings which deprive their occupants of any visual contact with nature. Terrace gardens bring back the missing link between man and nature though on a moderate scale. The study of this review is to highlight the agronomic challenges of terrace farming.

1.3 SCOPE FOR THE STUDY

This study focuses on finding out the attitude of people towards terrace gardening. Where the people's interest towards terrace gardening is analysed.

1.4 OBJECTIVE OF THE STUDY

1. To Study and understand what is terrace gardening and its need and utilization.
2. Study on People's interest towards terrace gardening.
3. To investigate the elements involved in terrace gardening.
4. To examine the common problems faced in terrace gardening.

1.5 LIMITATIONS OF STUDY

- The study is restricted to people in Chennai.
- In this study, vast area is not covered in Chennai.
- Some of the respondents did not take time to fill the questionnaire.

CHAPTER – 2

REVIEW OF LITERATURE

2.1 REVIEW OF LITERATURE

Dunnett and Kingsbury (2004) - Planting on roofs and walls began in Europe, but it is now becoming popular all over the world. Green roofs and walls reduce pollution and run-off, and also help insulate and reduce the maintenance needs of buildings. Planting Green Roofs and Living Walls discusses the practical techniques required to make planting on roofs and walls a reality. It describes how roofs may be modified to bear the weight of vegetation, considers the different options for drainage layers and growing media, and lists the plants suitable for different climates and environments.

Michelle Nowak (2004) - The Rossettis liked to cultivate pharmaceutical plants up on the roof, a few of them hardy enough to survive fogs and frosts, but most returning as fragments of peculiar alkaloids, to rooftop earth, along with manure from a trio of prize Wessex Saddleback sows quartered there by Throp's successor, and dead leaves off many decorative trees transplanted to the roof by later tenants, and the odd unpalatable meal thrown or vomited there by this or that sensitive epicurean – all got scumbled together, eventually, by the knives of the seasons, to an impasto, feet thick, of unbelievable black topsoil in which anything could grow, not the least being bananas. Pirate, driven to despair by the wartime banana shortage, decided to build a glass hothouse on the roof, and persuade a friend who flew the Rio-to-Ascension-to-Fort-Lamy run to pinch him a sapling banana tree or two, in exchange for a German camera, should Pirate happen across one on his next mission by parachute.

Robin Vande Zande (2006) - It is becoming increasingly evident that we are immersed in vital ecological relationships and with that awareness comes the undertaking of responsibly sharing the planet with non-human life, of the need to live within environmental limits, and of ways to create communities that enhance life. There is movement toward a transition from a society preoccupied with consumerism and exploitation, to one that gives priority to a more sustainable future. Underscoring the importance of this issue are three regeneration principles adhered to by many city

planners, architects, and product designers: smart growth, sustainable development, and new urbanism. Each has a slightly different set of theories and practices but all have a common thread in restructuring efforts for cities and buildings to be aesthetically, economically, and ecologically healthier places for human and non-human life. Students should be taught that life-enhancing design embraces inclusiveness, is built to human scale, is eco-effective, is aesthetically enriching, and is embedded in social responsibility.

Pratistha Mishra (2010) - This is a research based thesis which explains Urban Gardening and how to setup this garden at Haaga- Helia University of Applied Sciences, Haaga. The purpose of this thesis is to highlight the importance of sustainability and encouraging green way of living by starting a pilot project within the university building.

Lisa Barreiro (2012) - Green roofs have been studied quite extensively over the past few decades, in part due to the success of Germany's incentive programs in the 20th century (Kohler 2008). However, the majority of green roofs studied have included only grasses, sedums, forbs and the like as research demonstrated that only certain plants can survive the extreme conditions of rooftops (Dunnett, et al. 2008). In the past decade, members of the public have begun to produce food crops, known as urban farming, on private rooftops for personal or community use (Germain, et al. 2008; Woessner 2011; Urban Agriculture Notes 2003). Research is very limited into this type of rooftop and it is not known whether rooftop gardens (RTGs) can provide similar benefits as seen with extensive roofs, in addition to providing other benefits not found in extensive, monoculture roofing systems.

Karen Liu (2013) - Rooftop gardens offer many benefits to an urban area. They can reduce energy demand on space conditioning, and hence GHG emissions, through direct shading of the roof, evapotranspiration and improved insulation values. If widely adopted, rooftop gardens could reduce the urban heat island, which would decrease smog episodes, problems associated with heat stress and further lower energy consumption. They could also help to improve storm water management if sufficiently implemented in an urban area. Part of the rain is stored in the growing medium

temporarily, and will be taken up by the plants and returned to the atmosphere through evapotranspiration. Rooftop gardens delay run-off into the sewage system, thus helping to reduce the frequency of combined sewage overflow events, which is a significant problem for many major cities in North America. The plants and the growing medium can also filter out airborne pollutants washed off in the rain, thus improving the quality of the run-off. In addition, rooftop gardens can increase membrane durability, provide additional green space in urban areas, and increase property values.

R. Fernandez-Canero, T. Emilsson, C. Fernandez-Barba, M.Á. Herrera Machuca(2013) - This study investigates people's preconceptions of green roofs and their visual preference for different green roof design alternatives in relation to behavioral, social and demographical variables. The investigation was performed as a visual preference study using digital images created to represent eight different alternatives: gravel roof, extensive green roof with Sedums not in flower, extensive green roof with sedums in bloom, semi-intensive green roof with sedums and ornamental grasses, semi-intensive green roof with shrubs, intensive green roof planted with a lawn, intensive green roof with succulent and trees and intensive green roof with shrubs and trees. Using a Likert-type scale, 450 respondents were asked to indicate their preference for each digital image. Results indicated that respondents' sociodemographic characteristics and childhood environmental background influenced their preferences toward different green roof types. Results also showed that green roofs with a more careful design, greater variety of vegetation structure, and more variety of colors were preferred over alternatives.

Prem Jose Vazhacharickal (2014) - The Millennium Development Goals (MGDs) recognized the role of urban and peri-urban agriculture (UPA) in reducing urban poverty and ensuring environmental sustainability. Mumbai Metropolitan Region is a fastest growing region in India with a population of 21 million. The rapid urbanization and high proportion of people below the poverty line along with higher migration to MMR makes the region vulnerable to food crisis. This paper focuses on the current situation of balcony gardens and terrace gardens in MMR with special attention towards their contribution in ecosystem service. An overview about the various concepts of city farming was also presented in the paper. The question about various

technical non feasibility of these production systems was also mentioned. Based on primary and secondary data, this paper attempts to confirm that UPA is one of the best options to address increasing urban food demand and can serve to complement rural supply chains and reduce ecological food prints in India. City farming should be planned and incorporated into the city architecture for the better sustainability and resiliencies especially in MMR.

Syumi Rafida Abdul Rahman, Hamidah Ahmad Sapura Mohammad, Muhamad Solehin Fitry Rosley (2015) - Urban dwellers are receiving benefits from the extensive new development of the commercial environment in the city. However, improper planning and rapid developments often result in the destruction of the natural elements and the loss of green space. Therefore, the combination of greenery element with urban structure such as a green roof become a trend in many developing and developed country to solve the problem. However, study on the perception of green roof for urban regeneration is less been investigated in Malaysian context.

Esther Sanye-Mengual, Francesco Orsini, Jordi Oliver-Sola, Joan Rieradevall, Juan Ignacio Montero & Giorgio Gianquinto (2015) - Urban rooftop farming is sprouting around cities driven by the growing interest in urban agriculture (Mok et al. [2013](#)). Urban rooftop farming, a type of urban agriculture which is placed on the roofs of buildings, is growing in popularity in such a way that urban planning policy has started to include it, such as in New York City (New York City Council [2012](#)). Rooftops have become a new resource thereby providing spaces for food cultivation in highly populated cities (Cerón-Palma et al. [2012](#); Specht et al. [2014](#); Thomaier et al. [2015](#)). Among rooftop farming types, open-air rooftop farming is the most common (Thomaier et al. [2015](#)) in contrast to more complex systems, such as rooftop greenhouses, which need a higher economic investment, or indoor farming, linked to a large energy demand (Germer et al. [2011](#); Specht et al. [2014](#)). As part of urban agriculture, rooftop farming is linked to multiple sustainability benefits.

Willem Van Cotthem (2015) - There is no exclusive need to construct a garden at the ground level. Roof gardens can be splendid substitutes for natural looking, landscaped areas at the ground level. With some imagination and fantasy, a flat roof can easily be

turned into a green roof garden. Numerous rooftops of a city can be transformed from a barren landscape into a living network of gardens. A green roof is a contained ecological oasis for nature on top of human-made structures and it constitutes an environment that is very different from a garden rooted in natural soil at ground level. Rooftop gardening is a special type of urban agriculture or urban horticulture. Standing on one of the higher floors of a building, one sees immediately how extremely large the total surface of the roofs in the city is. These roof spaces are generally unused. They often have good exposure to sunlight and rain, and they are always available, even in the densest urban areas. Whether in the rain or the sun, a roof garden always has a lot of character, changing with the season and the time of day, so it will be visited regularly.

M.V. Kishore and M.S. Patil (2015) - Due to global warming and natural calamities balance of nature is disturbed. Human activities are also responsible for this. In addition to this degradable waste is another major problem. To overcome this problem recycling of this waste is very much necessary, which includes creative efforts such as vermicomposting. By using this vermicompost cultivation of plants as well as vegetables from terrace garden has been worked out this is found to be very useful to overcome much of the above problems. As a result terrace garden has been developed having the area 800 sq.feet. This garden includes cultivation of different flowering plants, climbers, indoor plants, cucurbits, leafy vegetables and so on.

Navare,Prachi Samit (2016) - The extent of implementation of green practices in the hotel industry today. The management involvement in implementation of these practices in two to five star hotel and resorts in Pune Region. The various types of green /eco-friendly practices carried out in all operating 2 departments of the hotel such as Front Office, Housekeeping, Kitchen and Food & Beverage Service, as well as the allied areas. Whether any special kind of training is given to the hotel staff to carry out these initiatives. The degree of costs involved in implementing these practices initially. Whether this investment in implementing these practices is justified, in terms of CSR initiatives, turnover & popularity of the hotels. If in the long run, these initiatives end up being cost effective for the hotel operations, on the whole. Whether the implementation of such practices is a deciding factor for customers to stay at such properties. If there

is government support for such kinds of environment-friendly initiatives carried out. The various certifications existing for such practices globally as well as within the country and the number of hotels in this study that are aware of these and have applied for such certifications. The effect of conducting such practices on the overall performance of the hotels.

K. P . NAVEENA AND R. T. SAHANA (2017) - 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.

Erica Dorr, Esther Sanye-Mengual, Benoit Gabrielle, Baptiste J-P Grard & Christine Aubry Article number: 51 (2017) - Rooftop gardens are a promising way to supplement the growing demand for local food production, and are especially relevant in large cities with acute space constraints. However, they face the challenge of achieving viable food productivity while minimizing their impacts on the environment, two priorities that often oppose one another. Also, the actual impacts of management practices, which are deemed environmentally friendly in principle, are rarely quantified. Therefore, evaluations that encompass all components of urban gardens and a comprehensive range of environmental issues are necessary to reveal potential trade-offs and provide guidance in the design of these systems.

Francesco Orsini, Marielle Dubbeling, Henk de Zeeuw, Giorgio Gianquinto (2017) - While rooftop farming experiences are sprouting all over the world the need for scientific evidence on the most suitable growing solutions, policies and potential

benefits emerges. This volume brings together existing experiences as well as suggestions for planning future sustainable cities.

M. SIVA, B.V.G. PRASAD, R.THIRUPATHI, T.S.K.K.KIRAN PATRO (2017) - Terrace gardens are becoming a common feature in today's urban environment. The phenomenon of landscaping on the terraces and rooftops has evolved due to excessive exploitation of the urban land. In such congested environment, rooftops and terraces of buildings remains as a valuable sources for urban horticulture. It is also a potential option for cultivation of vegetables due to its short duration of life cycle and easy to manage on terrace conditions. Besides, terrace cultivation of vegetables can supply preferential, fresh, toxic free produce with minimum expenditure there by increases monetary value of land per unit area (apartment). In addition, it improves aesthetic sense, reduces stress and strain of the growers as well as environmental pollution. These multi-dimensional uses of terrace gardening encourages urban growers to produce healthy vegetables round the year. Due to lack of substantial information on terrace vegetables cultivation, this article aimed to highlight the methods for cultivation of vegetables and their cultural practices on terrace conditions.

Allan Haschick, David Squire (2018) - It is surprising how much colour can be created on a balcony or terrace. Pots, troughs and hanging baskets packed with summer-flowering bedding plants are ideal in summer, while from autumn to spring, a terrace garden relies on small evergreen shrubs, dwarf conifers and succulents. If you have a view, choose plants that will enhance it, not obscure it.

B.Santhiya, I.Govindharaj, C.Soundharya,R.Priyanka, R.Rajadurai B.Maduravani, M. Shanmukhi (2018) - Internet of things (IoT) is the network of different “things” or “objects” which is usually web-enabled devices that collect, send data through sensors, electronics, and software. In today's world automatic system is more preferred than manual and also it is difficult to water and maintain the terrace garden in person who is working or an aged. To overcome this issue, if LPC2418 microcontroller is used which automates the watering and monitoring the plants in terrace garden, it will yield good performance in terms of QoS like response time, availability and efficiency.

Ferdous Farhana Huq, Nidalia Islam (2019) - Dhaka the capital of Bangladesh looks no better than a piece of hardscape from aerial view which justifies the swelling concern of replacing green areas with built up areas to fulfill the demand of briskly growing urban population. Increasing air temperature, changing rainfall pattern and 'unhealthy' air bears the proof of Dhaka city being an urban heat island created by the present development trend. Unrecoverable damage has already been done to the green spaces of this city which has turned this city as the most polluted city in the world. At the edge of the collapse of sustainability of this city new approaches such as 'green roof' can be used to repair its lungs. Although rooftop gardening has been a traditional concept in Bangladesh, in city-wide scale a very few buildings can be seen with green space in roof or balconies. This study employs satellite image analysis and GIS technology to identify the buildings with a green roof. This study uses a questionnaire survey to explore the commonly used green roof method, motivation benefits and challenges behind the implementation of the green roof. This research presents the global scenario of green roof and explores the possibilities of developing the green roof approach in city scale in Dhaka city.

Akash Patel, Rohit Yadav and Bhagirathi Singh (2019) - In today's urban environment high rise buildings, parking areas, network of roads have acquired major urban land. In such congested environment rooftop and terrace of buildings provide a valuable potential source of outdoor space accessible to users of building. Need of terrace gardens have increased with increasing number of high rise buildings which deprive their occupants of any visual contact with nature. Terrace gardens bring back the missing link between man and nature though on a moderate scale. The factors which make roof gardens important part of architecture throughout the world is • Full use of terrace, which is normally a discarded area in crowded cities. Maximum meaningful use of minimum available space. • An economical way of balancing green space with uncontrolled growth of cement structure in urban areas.

Anitha. K, Amudha. R (2019) - Terrace gardening are a living work of art in which the plants are arranged on a terrace. It also consists of indoor or outdoor plants (Irfan-Iodhi, 2018). One important purpose of terrace gardening is passion for gardening. Apart from

that, it has many other benefits like ecological benefits, water conservation, energy conservation, decorative enhancement and attraction to birds and insects. Terrace gardens also contribute tremendously towards the health betterment of the occupants of the building (Rao, 2016). The present study focused on comparing the benefits of terrace gardening between individual houses and apartments. The results of the study showed that benefits of terrace garden by the selected respondents were similar irrespective of their type of house and positive relationship exists between factors inspired and level of satisfaction on benefits of terrace gardening.

Vikash Kumar, Mohd Talha Ansari, Md Ramjan, Theja Angami (2019) - The roof garden is a garden on the roof. This means that each roof covers with plants such as trees, shrubs, bushes and grasses. Roof gardening can also be defined as 'environment or nature in the sky'. Similarly, if vegetables are allowed to grow on the roof in place of other ornamental plants than it is called roof top vegetable garden. Green roofs are roofs of buildings covered with a growth substrate and plants, which are also known as roof gardens, living roofs, and eco-roofs. Urban communities face many challenges related to the health and well being of citizens. Many of these challenges arise as the direct consequence of dense urban environments. Industry, automobiles, and impermeable concrete and asphalt surfaces combine to negatively impact upon the air and water quality, while due to climate change there is a continuous increase in the atmospheric temperature because of global warming. Intense competition for land decreases green space, and there is a subsequent spiritual disconnect from agricultural roots and the natural world. In urban locations, high night temperature caused by the heat island effect makes it difficult to live there comfortably in the summer. Rooftop gardening is expected to reduce temperature and excessive heat energy absorption from solar radiation, thus resulting in a significant energy saving for air-conditioning in a building. In addition growing vegetable on roof top reduces the expenditure on purchase of vegetable from the market. It also provides minerals rich good quality fresh organic vegetable free from chemical, thus contributing to nutritional security.

Jha Ritesh Kumar, Bhattarai Natasha, KC Suraj, Shrestha Arjun Kumar and Kadariya Manahar (2019) - In ecological terms, modern cities consume 75% of world

resources with 2% of global land area and have become a parasite and a resource sink. Unmanaged planning and rapid development often result in the destruction of natural resources and loss of greenery. Pokhara is rapidly urbanizing into a megacity in Nepal and climate change caused by global warming is a great menace here. To support the rising requirement of quality food for the skyrocketing population, the main consumption centre should be mobilized for food production. Rooftop gardens are gaining relevance as they have the potential to meet the growing demand for food in cities and enhance the ecosystem along with the conservation of biodiversity. Thus, the addition of greenery element such as a green roof is becoming a trend to solve this problem in Pokhara. Establishment of green roofs in Pokhara city is arousing the interest of the government and public due to their demonstrated environmental benefits. The objective of this research is to inspect the existing practice and obstacles in rooftop farming that is faced by practitioners. Nagdhungha and Birauta are the areas of research here. Two practitioners are interviewed and sixty nonpractitioners are surveyed. The result shows that rooftop farming can benefit the environment by greatly reducing carbon in the atmosphere and can assist urban areas by reducing stormwater management cost. Furthermore, the paper demonstrates that the willingness to practice rooftop farming is high among urban dwellers and for future scope, some recommendations are provided in this research.

Shubham Kumar, Shishir, Sharad Gautam (2020) - In the present urban life where we have reserved space for our nurseries, terrace or yard, garden idea gives an ideal answer for green up your home. A terrace garden makes your space look great as well as causes it to feel great. We give inventive ideas to your nursery which include components like vertical nurseries, kitchen gardens, indoor temperature control arrangements and so on. In the present urban condition high structures system of streets have gained major urban land. In such blocked condition terrace garden concept bring back the missing link between man and nature. The elements which make terrace gardens significant piece of design all through the world is full utilization of terrace and they give extra insulation to building.

J. Kalaivani, C. Uma, P. Sivagurunathan (2020) - The termite mound soil added in different wastes for fermentation is to quick up the process and the Termite soil (TS)

containing organisms act as a microbial starter. If we allowing composting the wastes under the natural landfills naturally the soil organisms involved in composting process. There is no need to accelerating the composting process by adding starter or any inoculums. The main aim of the study is the initiative experiment to minimize the procedures and manage the solid wastes and to allow composting process naturally and their effects on growth of terrace garden plant. The experiment showed that, composts containing termite soil organisms induced the plant growth and developments. Also, the application of Termite soil accelerated compost promoting the plant growth parameters.

C P Poornima and Pallavi D Suryawanshi (2020) - A study was conducted to analyse the vegetable consumption pattern and health consciousness of urban households practicing terrace gardening at their homes. The survey was conducted among randomly selected 90 households in Pune city i.e., Pune Municipal Corporation and Pimpri - Chinchwad Municipal Corporation. The study revealed that among the urban wellers doing terrace gardening, everyone showed either moderate or high level of health consciousness and no one showed low level. The amount of vegetables consumed per household per day was taken in to consideration while collecting details regarding general consumption pattern of vegetables. As per the study, it was found that, 70 per cent were consuming moderate amount of vegetables on daily basis.

CHAPTER – 3

RESEARCH METHODOLOGY

3.1 RESEARCH DESIGN

In this study, Descriptive research design is used in research topic.

3.2 SAMPLING TECHNIQUE

This method of sampling adopted to conduct survey is Convenience/Random sampling sampling. The area of study is concentrated in Chennai.

3.3 SOURCES OF DATA

The data for study is collected through questionnaire consisting of multiple choice questions.

3.4 STRUCTURE OF QUESTIONNAIRE

Multiple choice questions and Linkert's scale questions.

3.5 SAMPLING SIZE

Sample size of 120 people located in Chennai.

3.6 PERIOD OF STUDY

The period of study is carried out from Jan 2021 to March 2021 which is three month of study.

3.7 ANALYTICAL TOOLS

- Percentage Analysis
- Correlation

CHAPTER - 4

DATA ANALYSIS AND INTERPRETATION

4.1 PERCENTAGE ANALYSIS

Table 4.1.1: Classification of respondents on the basis of Age

OPTIONS	FREQUENCY	PERCENTAGE
Below 20 years	8	6.6%
21-30 years	44	36.4%
31-40 years	54	44.6%
41-50 years	9	7.4%
Above 50 years	6	5%
Total	120	100%

Source of data – Primary data

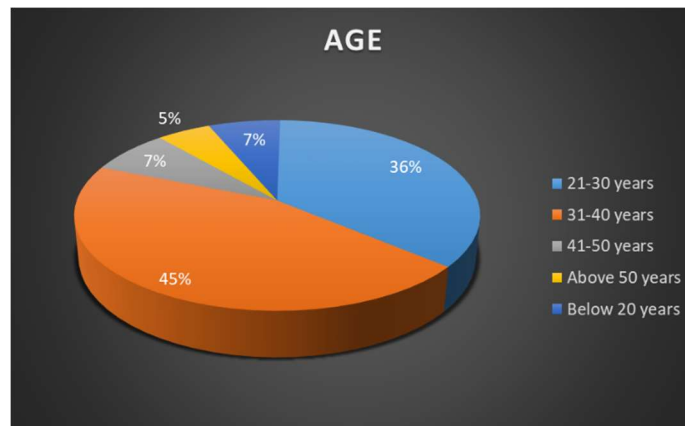


Chart 4.1.1: Showing age wise classifications of respondents

INTERPRETATION:

From the above table and chart it's understood that 6.6% of respondents are aged below 20 years, 36.4% of respondents are aged from 21-30, 44.6% of respondents are aged from 31-40, 7.4% of respondents are aged from 41-50 and 5% of respondents are aged 50 and above and further it is concluded that majority 44.6% of respondents are aged from 31- 40.

Table 4.1.2: Classification of respondents on the basis of Gender

OPTIONS	FREQUENCY	PERCENTAGE
Male	54	45%
Female	66	55%
Total	120	100%

Source of data – Primary data

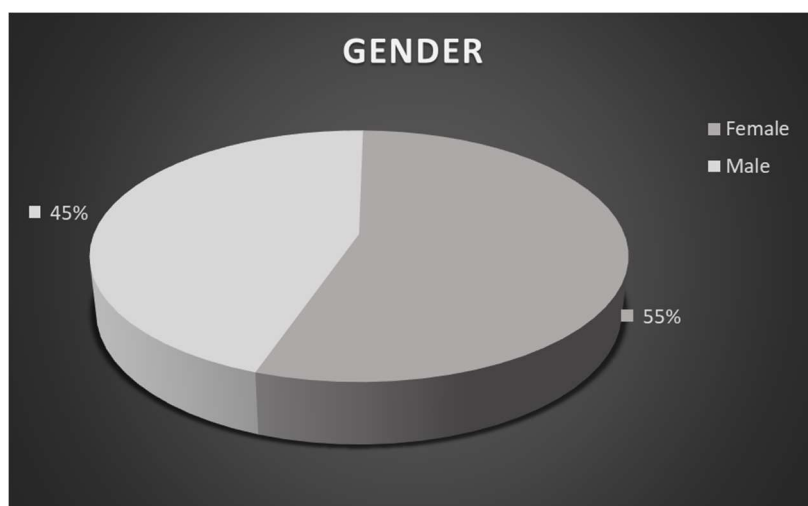


Chart 4.1.2: Showing Gender wise classification of respondents

INTERPRETATION:

From the above table and chart it's understood that 45% of respondents are male and 55% of respondents are female and its further concluded that majority of 55% are female.

Table 4.1.3: Classification of respondents on the basis of Educational Qualification:

OPTIONS	FREQUENCY	PERCENTAGE
Graduation	77	64%
Professionals	30	25%
Upto school level	13	11%

Source of data – Primary data

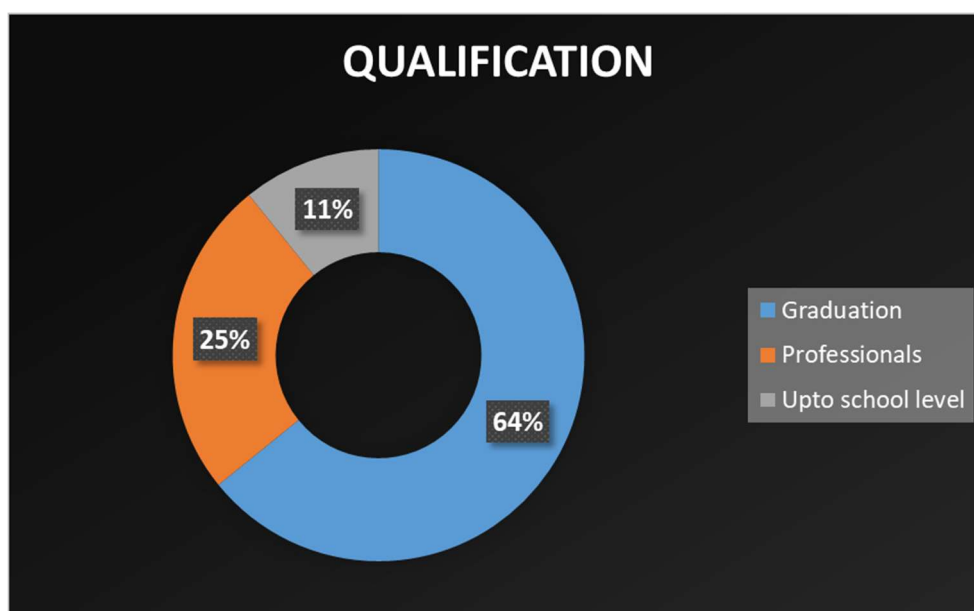


Chart 4.1.3: Showing the classification of respondents based on educational qualification.

INTERPRETATION:

From the above table and chart it is understood that 64% of respondents are graduates, 25% of respondents are professionals and 11% of respondents are upto school level and it is further concluded that 64% of respondents are graduates.

Table 4.1.4. Classification of respondents on the basis of Occupation:

OPTIONS	FREQUENCY	PERCENTAGE
Home maker	27	22%
Retired	6	5%
Self Employed	24	20%
Student	19	16%
Working	44	37%

Source of data – Primary data

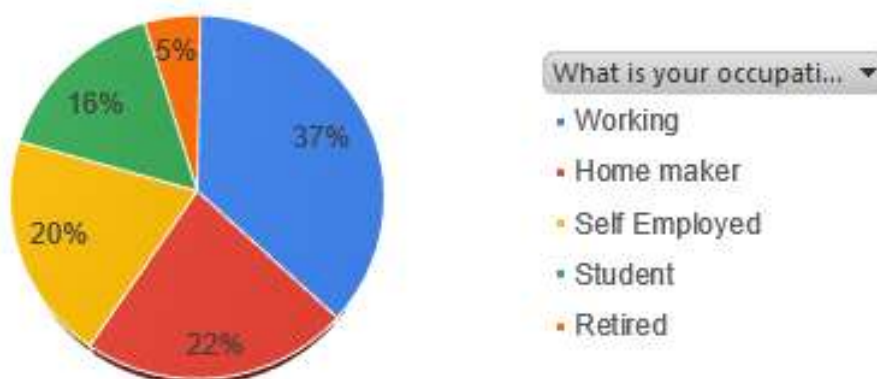


Chart 4.1.4 Showing classification of respondents based on Occupation

INTERPRETATION:

From the above table and chart its understood that 23% of the respondents are homemaker, 5% of respondents are retired, 20% of respondents are self employed, 16% of the respondents are students and 37% of respondents are working and its further concluded that majority of 37% of respondents are working.

Table 4.1.5. Classification of respondents on the basis of family type:

OPTIONS	FREQUENCY	PERCENTAGE
Joint Family	54	45%
Nuclear	66	55%

Source of data – Primary data

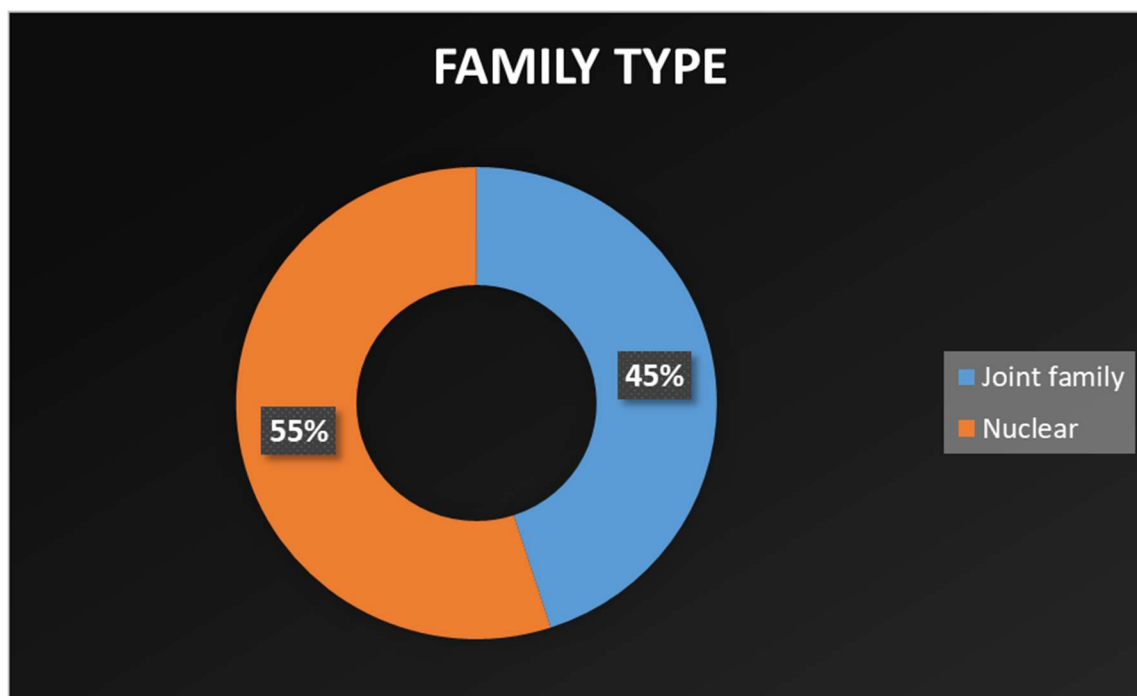


Chart 4.1.5 Showing classification of respondents based on family type

INTERPRETATION:

From the above table and chart its understood that the 45% of respondents are from joint family and 55% of respondents are from nuclear family and it is concluded that majority of 55% of respondents are from nuclear family.

Table 4.1.6: Classification of respondents on the basis of the place they Live

OPTIONS	FREQUENCY	PERCENTAGE
Flats	35	29%
Own house	66	55%
Rented	19	16%

Source of data – Primary data

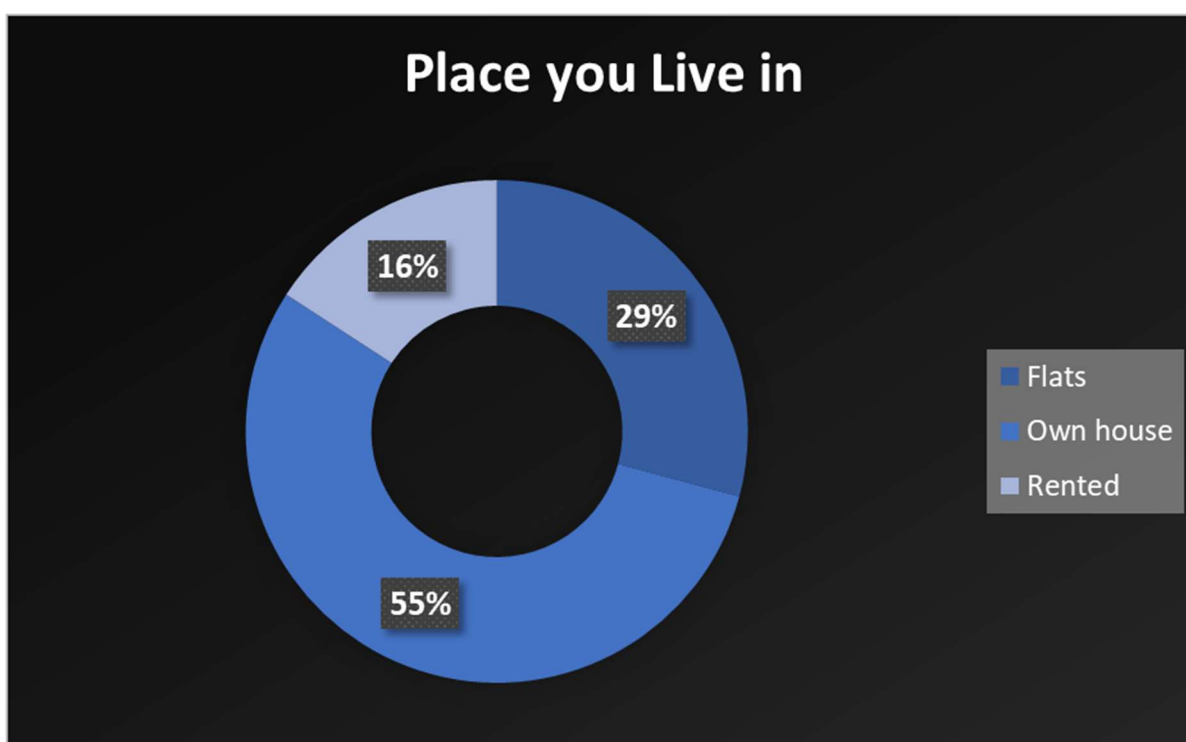


Chart 4.1.6: Showing classification of respondents based on the type of place they live

INTERPRETATION:

From the above table and chart its understood that 29% of respondents live in flats, 55% of respondents livein their own house and 16% of respondents live in rented house and its concluded that the majority of 55% of respondents live in own house.

Table 4.1.7: Classification of respondents on the basis of the space they have allocated for their garden

OPTIONS	FREQUENCY	PERCENTAGE
Balcony	55	46%
Terrace	65	54%

Source of data – Primary data

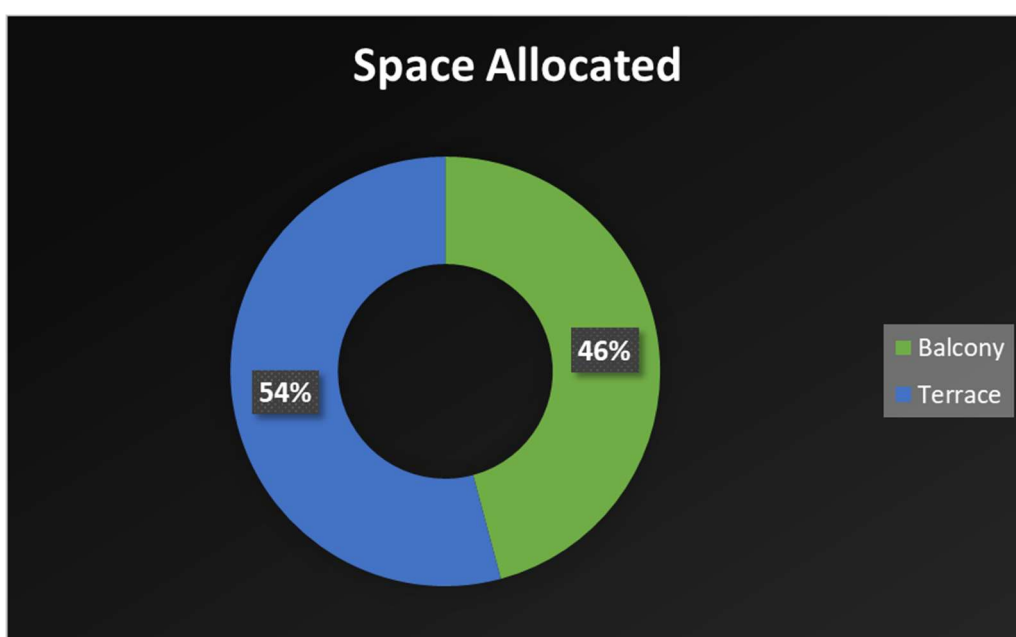


Chart 4.1.7: Showing classification of respondents on the basis of the space they have allocated for their garden

INTERPRETATION:

From the above table and chart it is clearly understood that 46% of respondents have allocated the balcony space and 54% of the respondents have allocated the terrace space and it is understood that a majority of 54% of respondents have chosen the terrace space.

Table 4.1.8: Classification of respondents on the basis of how much will a terrace garden cost initially

OPTIONS	FREQUENCY	PERCENTAGE
11k-15k	47	39%
16k-20k	16	13%
5k-10k	57	48%

Source of data – Primary data

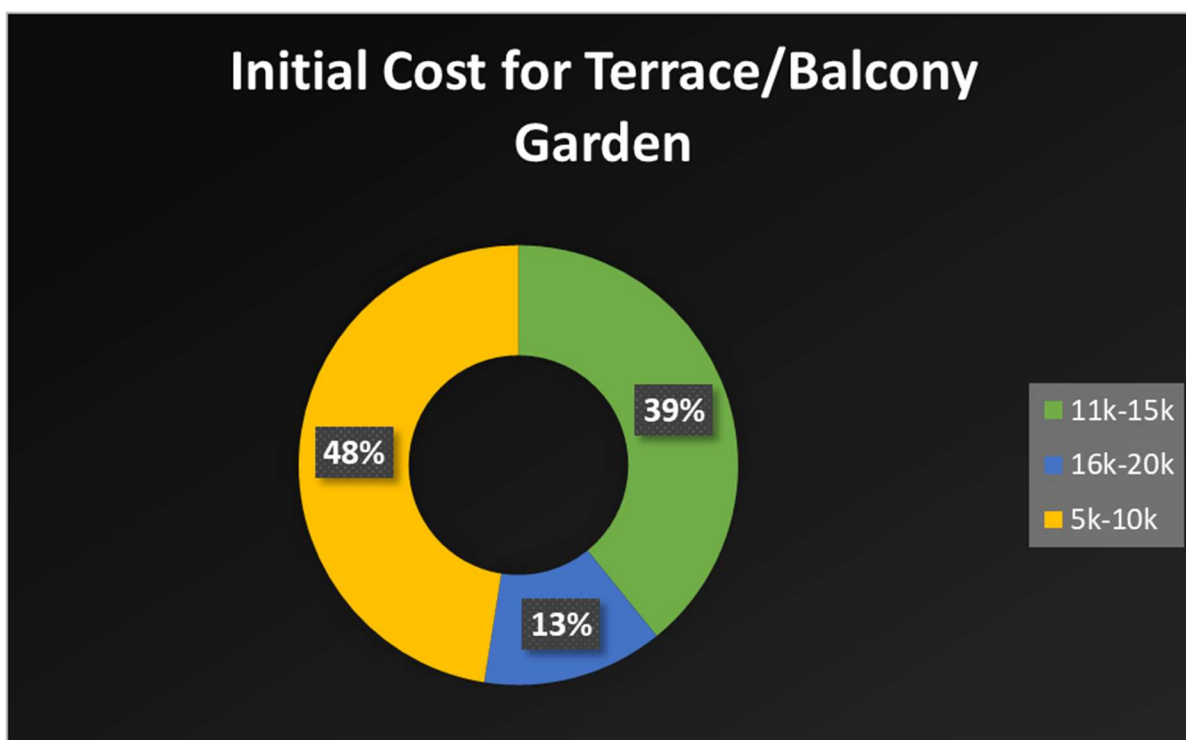


Chart 4.1.8: Showing classification of respondents on the basis of how much will a terrace garden cost initially

INTERPRETATION:

From the above table and chart its understood that 39% of respondents have spent 11k-15k, 13% of respondents have spent 16k-20k, 48% of respondents have spent 5k-10k and it is concluded that majority of 48% have spent 5k-10k.

Table 4.1.9. Classification of respondents on the basis of what made you to start up a terrace garden

Question types	SA	A	N	DA	SDA
Because beggies harvested from your garden tastes better than those purchased from market	74%	11%	6%	6%	3%
More fresh,safer and trustable	49%	28%	14%	8%	2%
Health benefits	57%	24%	12%	4%	3%

Source of data – Primary data

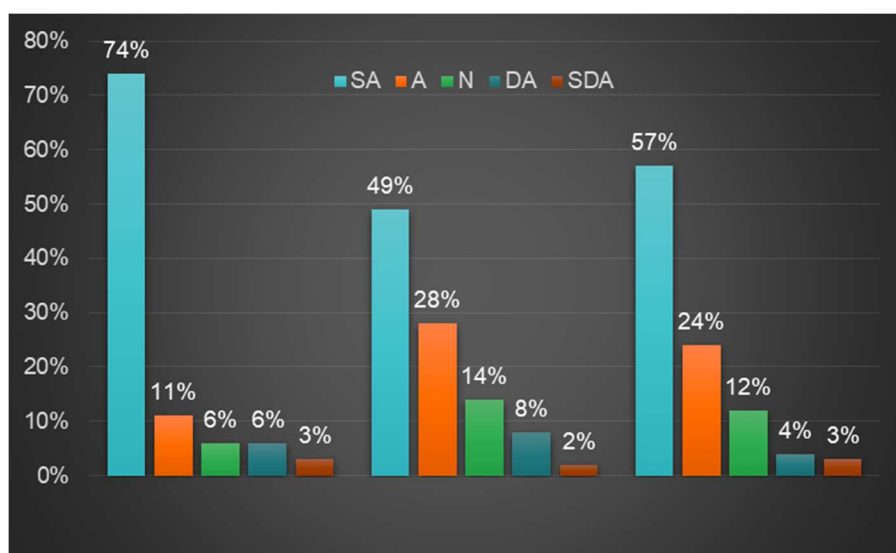


Chart 4.1.9. Showing classification of respondents on the basis of what made you to start up a terrace garden

INTERPRETATION:

From the above table and chart its understood that 74% of respondents strongly agree that they have started Because veggies harvested from your garden tastes better than those purchased from market, 11% of respondents agree to this 6% are neutral, 6% disagree, 3% strongly disagree that they have started Because veggies harvested from your garden tastes better than those purchased from market.49% of respondents have strongly agreed, 28% respondents have agreed, 14% have neutralized, 8% have disagreed, 2% have strongly disagreed to the point that they have started because its more fresher,safer and trustable.57% of respondents have strongly agreed, 24% of respondents have agreed, 12% of respondents have neutralized, 4% of disagreed, 3% have strongly disagreed that they have started it because of health benefits.

Table 4. 1.10. Classification of respondents on the basis of why and when they started up their garden

Question types	SA	A	N	DA	SDA
Friends relatives influenced you to start up a terrace garden	34%	27%	18%	16%	5%
Influenced through social media	13%	43%	27%	14%	3%
Got the idea of starting terrace gardening during lockdown	28%	43%	21%	4%	3%
Does the hybrid varieties and the adulteration of food etc made you choose terrace farming	55%	23%	14%	5%	3%

Source of data – Primary data

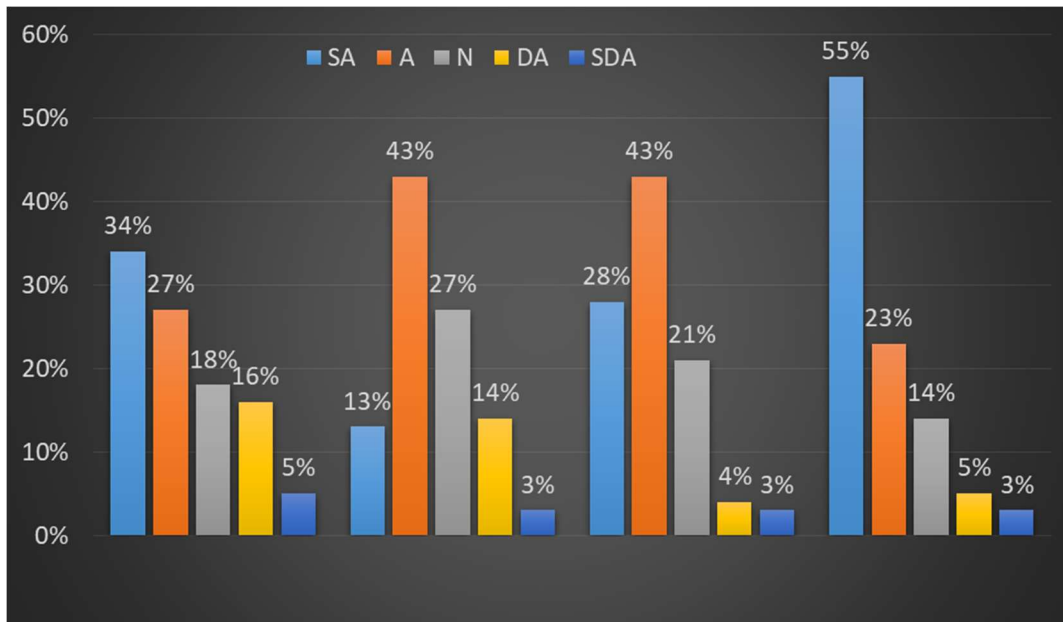


Chart 4. 1.10. Showing classification of respondents on the basis of why and when they started up their garden

INTERPRETATION:

From the above table and chart its understood that 34% of respondents strongly agree that they have started because friends relatives influenced them to start up a terrace garden, 27% of respondents agree to this 18% are neutral, 16% disagree, 5% strongly disagree that they have started because friends relatives influenced you to start up a terrace garden. 13% of respondents have strongly agreed, 43% respondents have agreed, 27% have neutralized, 14% have disagreed, 3% have strongly disagreed to the point that they have started because they are Influenced through social media. 28% of respondents have strongly agreed, 43% of respondents have agreed, 21% of respondents have neutralized, 4% of disagreed, 3% have strongly disagreed that they got the idea of starting terrace gardening during lockdown. 55% of respondents have strongly agreed, 23% of respondents have agreed, 14% of respondents have neutralized, 5% of disagreed, 3% have strongly disagreed that they are doing this because of the hybrid varieties and the adulteration of food etc made you choose terrace farming.

Table 4.1.11: Classification of respondents on the basis of their interest towards terrace gardening:

OPTIONS	SA	A	N	DA	SDA
To harvest safe,pesticide –free healthy and fresh veggies and fruits.	70%	11%	8%	9%	2%
It works wonders for your physical health and your mental well-being	62%	23%	12%	3%	2%
To reduce the overall heat absorption of the building	28%	52%	13%	4%	3%

Source of data – Primary data

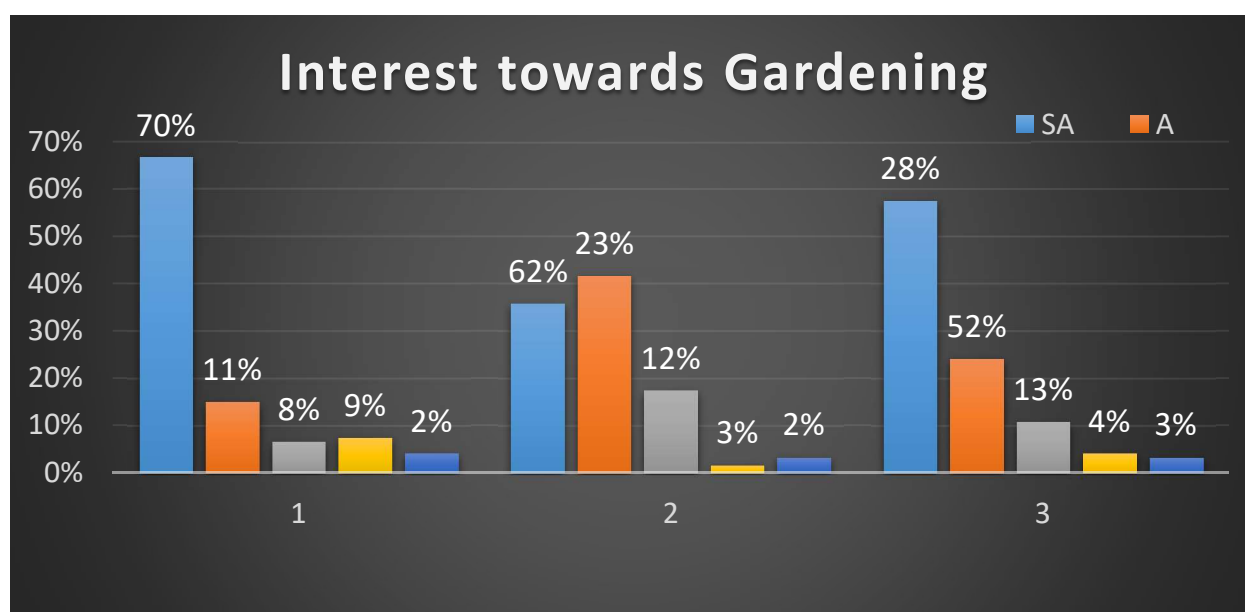


Chart 4.1.11: Showing classification of respondents on the basis of their interest towards terrace gardening:

INTERPRETATION:

From the above table and chart its understood that 70% of respondents strongly agree that they have started it to harvest safe,pesticide –free healthy and fresh veggies and fruits , 11% of respondents agree to this 8% are neutral, 9% disagree, 2% strongly

disagree that they have started it to harvest safe,pesticide –free healthy and fresh veggies and fruits.62% of respondents have strongly agreed, 23% respondents have agreed, 12% have neutralized, 3% have disagreed, 2% have strongly disagreed to the point that they have started because it works wonders for your physical health and your mental well-being .28% of respondents have strongly agreed, 52% of respondents have agreed, 13% of respondents have neutralized, 4% of disagreed, 3% have strongly disagreed that they have started it because to reduce the overall heat absorption of the building.

Table 4.1.12. Classification of respondents on the basis of environmental Benefit

OPTIONS	SA	A	N	DA	SDA
Terrace gardening is environmental friendly	67%	15%	7%	8%	4%
Is that the green rooftop proven to reduce the temperature of the roof surface	36%	42%	18%	2%	3%
Gardening when done organically can protect the environment because it doesnot contain any harmful pesticides and fertilizer.	28%	52%	13%	4%	3%

Source of data – Primary data

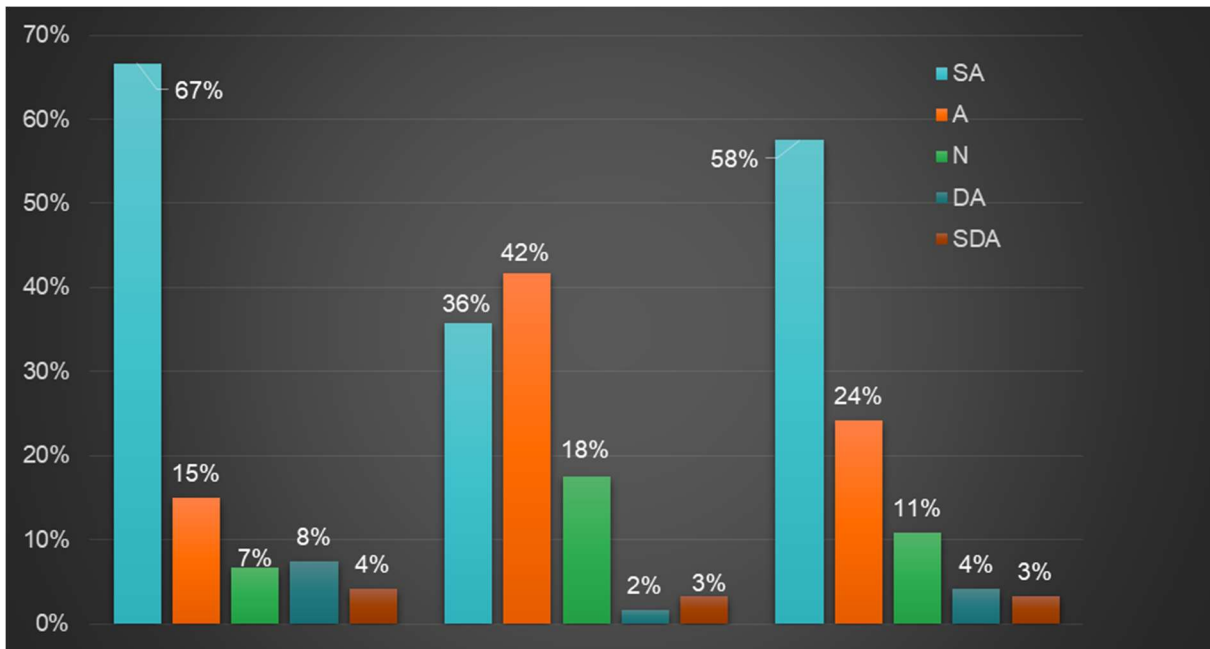


Chart 4.1.12. Showing classification of respondents on the basis of environmental Benefit

INTERPRETATION:

From the above table and chart its understood that 67% of respondents strongly agree that they have started Because terrace gardening is environmental friendly, 15% of respondents agree to this 7% are neutral, 8% disagree, 4% strongly disagree that they have started because terrace gardening is environmental friendly. 34% of respondents have strongly agreed, 42% respondents have agreed, 18% have neutralized, 2% have disagreed, 3% have strongly disagreed to the point that they have started because is that the green rooftop proven to reduce the temperature of the roof surface. 58% of respondents have strongly agreed, 24% of respondents have agreed, 11% of respondents have neutralized, 4% of disagreed, 3% have strongly disagreed that they have started it because gardening when done organically can protect the environment because it doesnot contain any harmful pesticides and fertilizer.

Table 4.1.13. Classification of respondents on the basis of health benefits

OPTIONS	SA	A	N	DA	SDA
Choosing to grow your own food has a good impact on your overall health.	60%	18%	6%	11%	5%
Does terrace garden increases the oxygen in the air.	45%	33%	13%	7%	3%
The veggies or fruits you grow contains more amount of vitamins and nutrients free from toxic chemicals.	59%	20%	15%	3%	3%

Source of data – Primary data

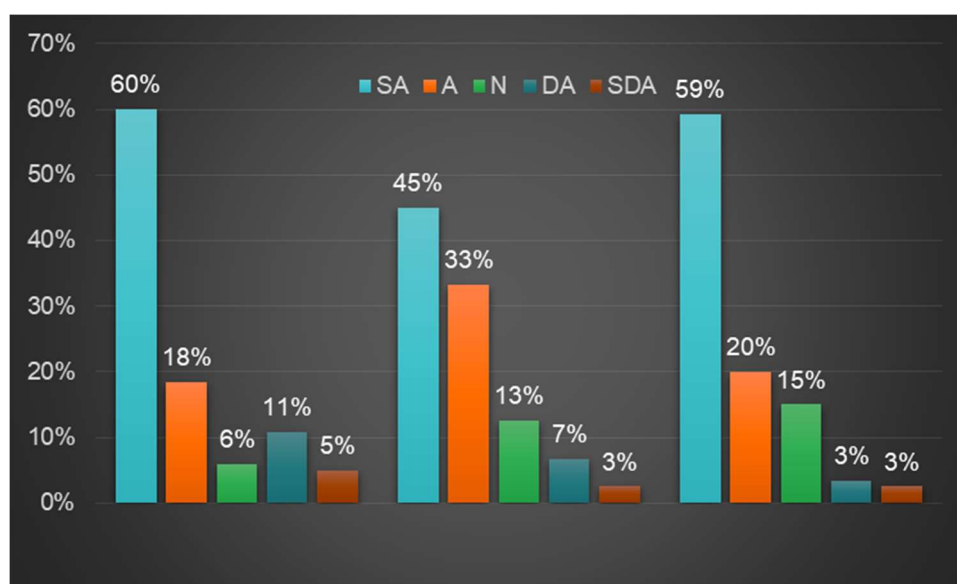


Chart 4.1.13. Showing classification of respondents on the basis of health benefits

INTERPRETATION:

From the above table and chart its understood that 60% of respondents strongly agree that they have started because choosing to grow your own food has a good impact on your overall health, 18% of respondents agree to this 6% are neutral, 11% disagree, 5% strongly disagree that they have started because choosing to grow your own food has a good impact on your overall health. 45% of respondents have strongly agreed,

33% respondents have agreed, 13% have neutralized, 7% have disagreed, 3% have strongly disagreed to the point that they have started because terrace garden increases the oxygen in the air. 59% of respondents have strongly agreed, 20% of respondents have agreed, 15% of respondents have neutralized, 3% of disagreed, 3% have strongly disagreed that they have started it because the veggies or fruits they grow contains more amount of vitamins and nutrients free from toxic chemicals.

Table 4.1.14. Classification of respondents on the basis of one agricultural Knowledge

OPTIONS	SA	A	N	DA	SDA
One needs to have agricultural knowledge	23%	19%	11%	41%	6%
You just need to have some interest towards gardening	49%	30%	14%	4%	3%
Basic information is enough	16%	61%	16%	5%	3%

Source of data – Primary data

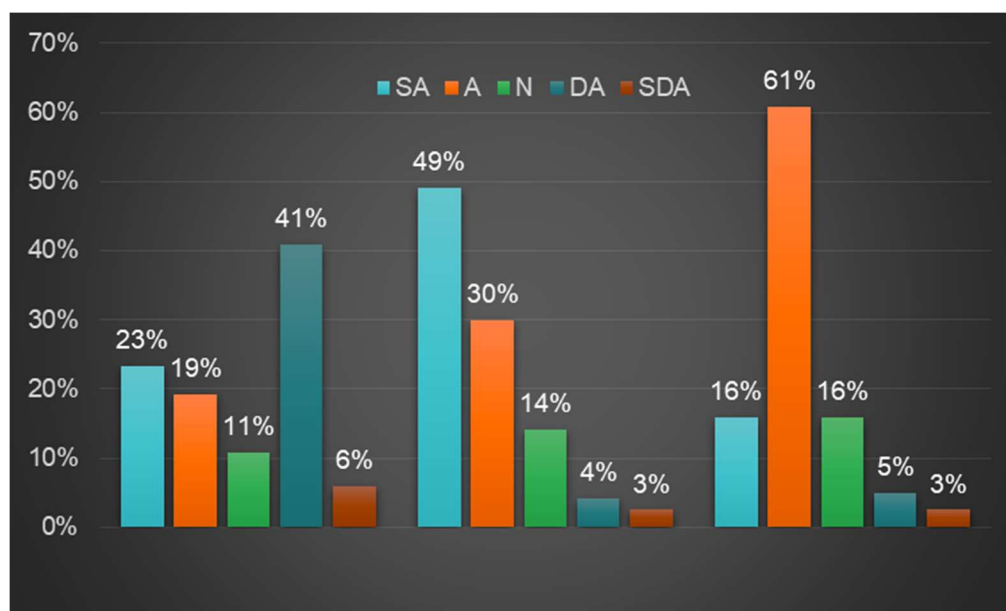


Chart 4.1.14. Showing classification of respondents on the basis of one agricultural Knowledge

INTERPRETATION:

From the above table and chart its understood that 23% of respondents strongly agree that one needs to have agricultural knowledge to start the garden, 19% of respondents agree to this 11% are neutral, 41% disagree, 6% strongly disagree that one needs to have agricultural knowledge to start the garden. 49% of respondents have strongly agreed, 30% respondents have agreed, 14% have neutralized, 4% have disagreed, 3% have strongly disagreed to the point that you just need to have some interest towards gardening. 16% of respondents have strongly agreed, 61% of respondents have agreed, 16% of respondents have neutralized, 5% of disagreed, 3% have strongly disagreed that basic information is enough.

Table 4.1.15. Classification of respondents on the basis of type of Container they use

OPTIONS	FREQUENCY	PERCENTAGE
Growbags	45	38%
Plastic bags or cover	16	13%
Pots (ceramic, mud, metal or plastic)	59	49%

Source of data – Primary data

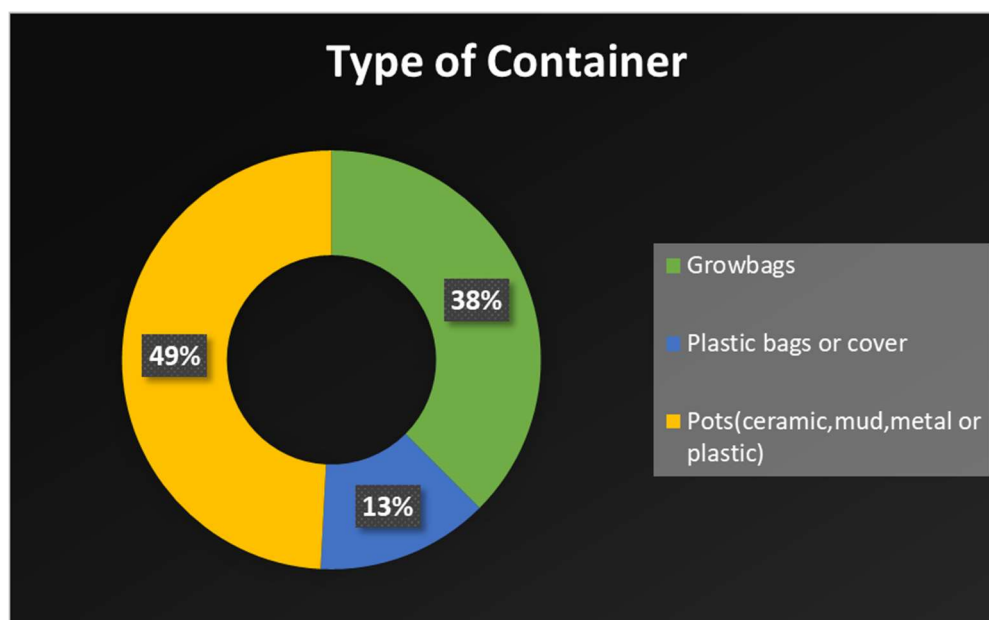


Chart 4.1.14. Showing classification of respondents on the basis of one agricultural Knowledge

INTERPRETATION:

From the above table and chart its understood that 38% of respondents uses growbags, 13% of respondents uses plastic bags and covers, 49% of respondents use pots and it is concluded that majority of 49% of respondents use pots to grow their plants.

Table 4.1.16. Classification of respondents on the basis of type of Pesticides they use

OPTIONS	FREQUENCY	PERCENTAGE
Chemical fertilizers	24	20%
Organic manure and Organic pest repellents	96	80%

Source of data – Primary data

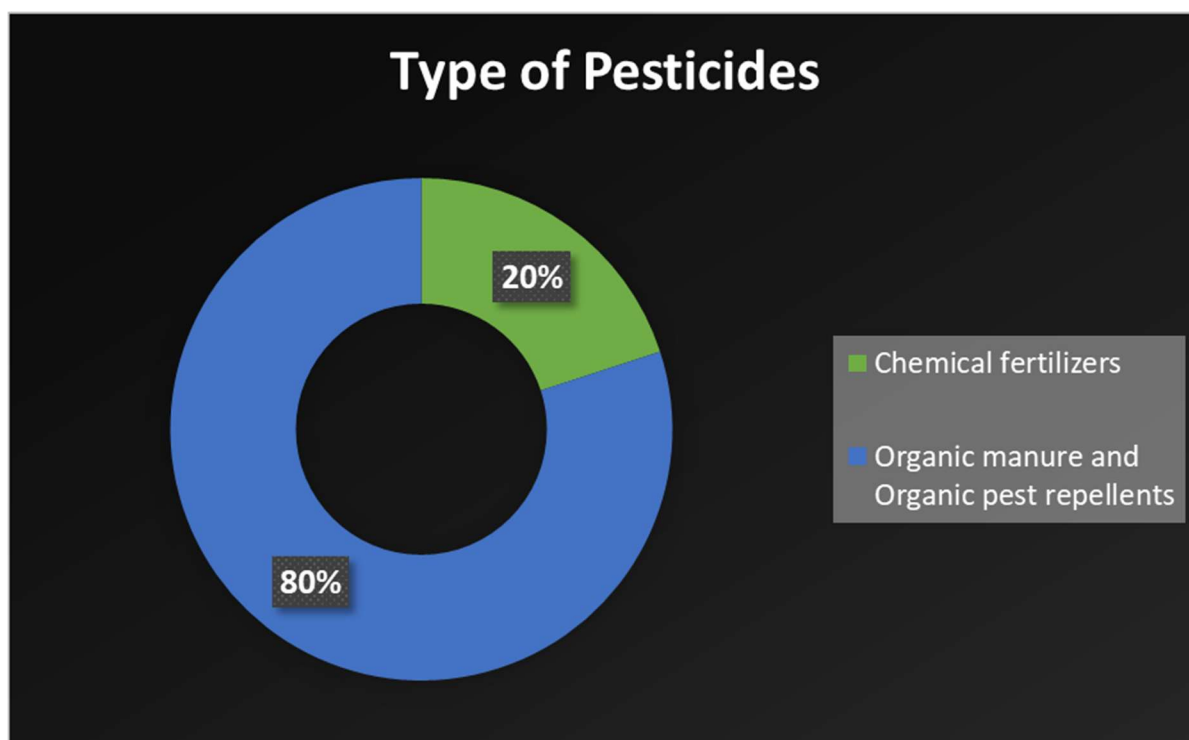


Chart 4.1.16. Showing classification of respondents on the basis of type of Pesticides they use

INTERPRETATION:

From the above table and chart its understood that 80% of respondents uses organic fertilizers, 20% of respondents use chemical fertilizer and it is concluded that majority of 80% of respondents use organic fertilizers.

Table 4.1.17. Classification of respondents on the basis of the fertilizers they use

OPTIONS	SA	A	N	DA	SDA
Organic manure more preferred in terrace garden	63%	13%	7%	11%	7%
Organic fertilizers are used in concern with health benefits	58%	20%	15%	4%	3%
Organic gardens are environment friendly	56%	20%	17%	4%	3%
Cocomilk fertilizers betters in flowering and fruiting	20%	56%	17%	4%	3%

Source of data – Primary data

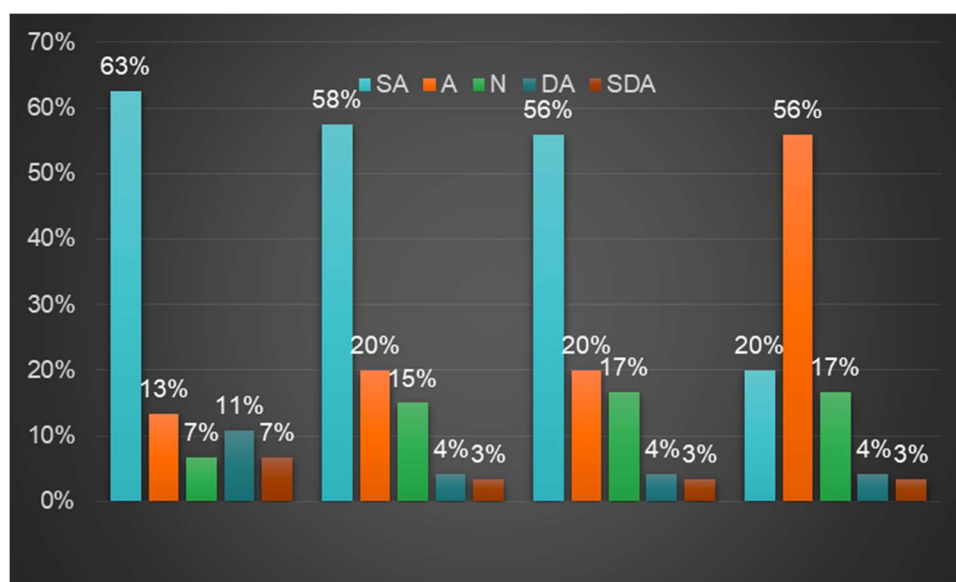


Chart 4.1.17. Showing classification of respondents on the basis of the fertilizers they use

INTERPRETATION:

From the above table and chart its understood that 63% of respondents strongly agree, 13% of respondents agree, 7% of respondents are neutral, 11% of respondents have disagreed, 7% of respondents have strongly disagree that organic manure more preferred in terrace garden. 58% of respondents have strongly agreed, 20% respondents have agreed, 15% have neutralized, 4% have disagreed, 3% have strongly disagreed to the point that organic fertilizers are used in concern with health benefits. 56% of respondents have strongly agreed, 20% of respondents have agreed, 17% of respondents have neutralized, 4% of disagreed, 3% have strongly disagreed that organic gardens are environment friendly. 20% of respondents have strongly agreed, 56% respondents have agreed, 7% have neutralized, 4% have disagreed, 3% have strongly disagreed to the point that cocomilk fertilizers betters in flowering and fruiting.

Table 4.1.18. Classification of respondents on the basis of the source of fertilizers

OPTIONS	FREQUENCY	%
Make your own fertilizers	43	36%
Store	77	64%

Source of data – Primary data

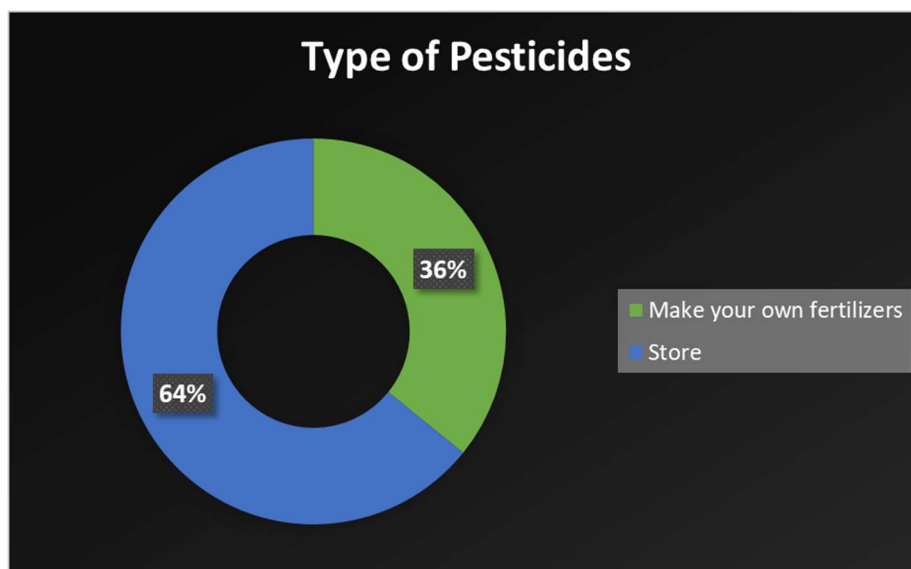


Chart 4.1.18. Showing classification of respondents on the basis of the source of fertilizers

INTERPRETATION:

From the above table and chart its understood that 36% of respondents make their own fertilizers, 64% of respondent get their fertilizers from store and it is concluded that majority of 64% of respondents get their fertilizers from store.

Table 4.1.19. Classification of respondents on the basis of ranking fertilizer types

Fertilizer / Rank	1	2	3	4	5
Vermicompost	23%	15%	10%	6%	46%
Fish amino acid	45%	3%	19%	18%	15%
Goat manure	38%	7%	26%	12%	18%
Cocomilk	53%	6%	17%	17%	8%
Amino acids	47%	8%	19%	11%	15%

Source of data – Primary data

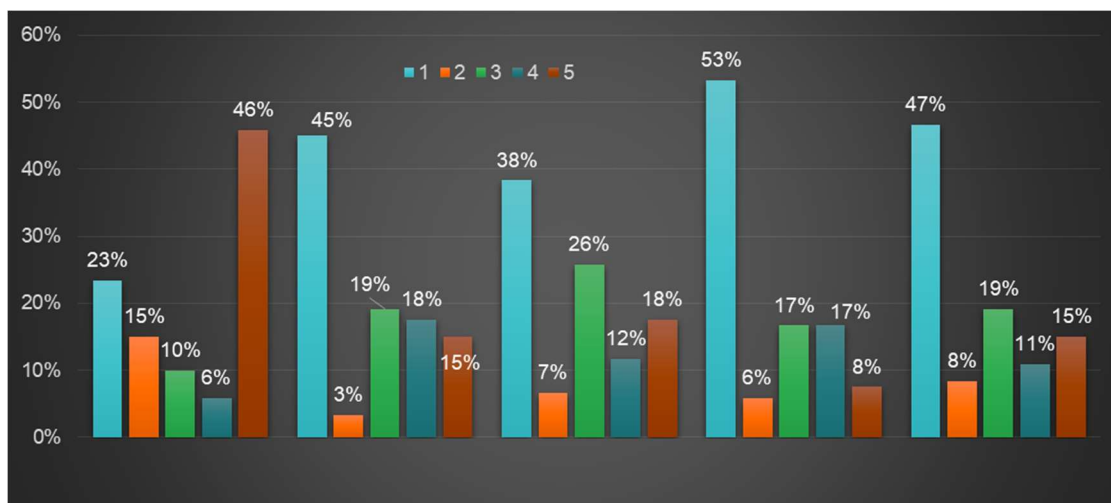


Chart 4.1.19. Showing classification of respondents on the basis of ranking fertilizer types

INTERPRETATION:

From the above table and chart its understood that 23% of respondents have rated 1, 15% of respondents have rated 2, 10% of respondents have rated 3, 6% of respondents have rated 4, 46% of respondents have rated 5 for vermicompost fertilizer and its concluded that majority of the respondents(46%) have rated 5 for vermicompost fertilizer.

From the above table and chart its understood that 45% of respondents have rated 1, 3% of respondents have rated 2, 19% of respondents have rated 3, 18% of respondents have rated 4, 15% of respondents have rated 5 for fish amino acids fertilizer and its concluded that majority of the respondents(45%) have rated 1 for fish amino acid fertilizer.

From the above table and chart its understood that 38% of respondents have rated 1, 7% of respondents have rated 2, 26% of respondents have rated 3, 12% of respondents have rated 4, 18% of respondents have rated 5 for goat manure fertilizer and its concluded that majority of the respondents(38%) have rated 1 for goat manure fertilizer.

From the above table and chart its understood that 53% of respondents have rated 1, 6% of respondents have rated 2, 17% of respondents have rated 3, 17% of respondents have rated 4, 8% of respondents have rated 5 for cocomilk fertilizer and its concluded that majority of the respondents(53%) have rated 1 for cococmilk fertilizer.

From the above table and chart its understood that 47% of respondents have rated 1, 8% of respondents have rated 2, 19% of respondents have rated 3, 11% of respondents have rated 4, 15% of respondents have rated 5 for amino acids and its concluded that majority of the respondents(47%) have rated 1 for amino acids.

Table 4.1.20. Classification of respondents on the basis of common Problem Faced in Gardening

Common Problem	SA	A	N	DA	SDA
Is pest control a major problem in gardening	64%	11%	8%	13%	5%
Does soil gets harden gradually when not mixed with cocopit	18%	58%	17%	5%	3%
Quick evapouration is a major prolem in terrace garden	24%	49%	17%	6%	4%
Lack of nutrition in soil occurs frequently	20%	56%	15%	7%	3%
Waterproof roof is enough to start up a terrace garden	11%	64%	18%	4%	3%

Source of data – Primary data

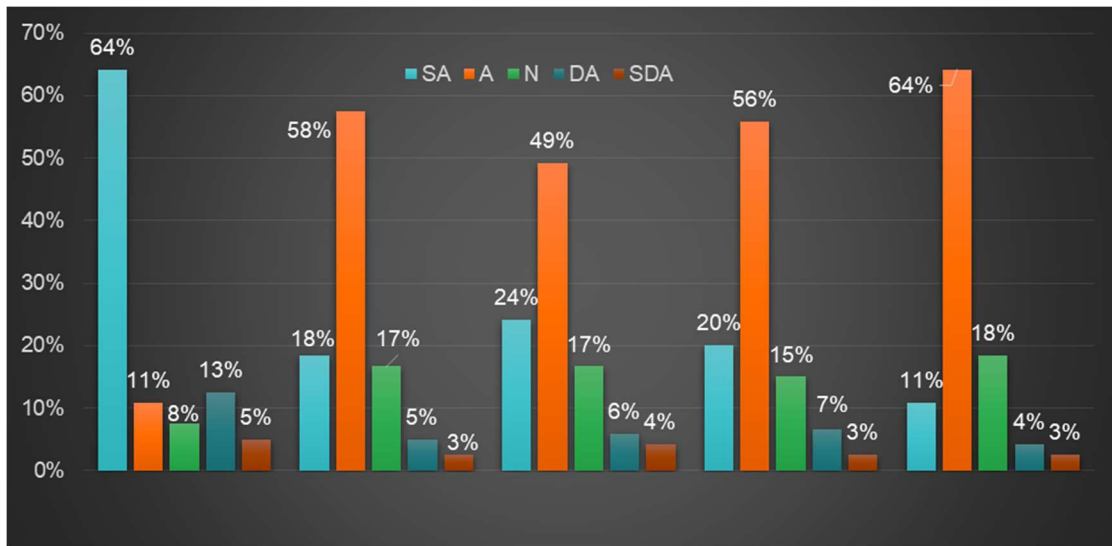


Chart 4.1.20. Showing classification of respondents on the basis of common Problem Faced in Gardening

INTERPRETATION:

From the above table and chart its understood that 64% of respondents strongly agree, 11% of respondents agree, 8% of respondents are neutral, 13% of respondents have disagreed, 5% of repondents have strongly disagree that pest control a major problem in gardening. 18% of respondents have strongly agreed, 58% respondents have agreed, 17% have neutralized, 5% have disagreed, 3% have strongly disagreed to the point that soil gets harden gradually when not mixed with cocopit. 24% of respondents have strongly agreed, 49% of respondents have agreed, 17% of respondents have neutralized, 6% of disagreed, 4% have strongly disagreed that quick evapouration is a major prolem in terrace garden. 20% of respondents have strongly agreed, 56% respondents have agreed, 15% have neutralized, 7% have disagreed, 3% have strongly disagreed to the point that lack of nutrition in soil occurs frequently. 11% of respondents have strongly agreed, 64% respondents have agreed, 18% have neutralized, 4% have disagreed, 3% have strongly disagreed to the point that waterproof roof is enough to start up a terrace garden.

Table 4.1.21. Classification of respondents on the basis of ways to rectify common issues

Ways to rectify issues	SA	A	N	DA	SDA
Does continuous monitoring and using the right pesticides control the pest	54%	19%	8%	13%	6%
Providing the soil the right amount of bio fertilizer weekly once can overcome the problem	19%	57%	15%	7%	3%
Watering the plants twice in a day can be helpful	26%	51%	12%	8%	3%

Source of data – Primary data

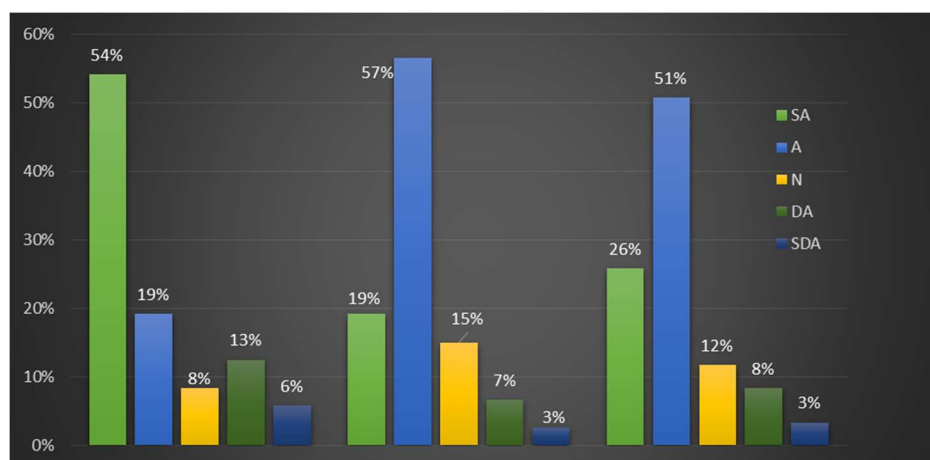


Chart 4.1.21. Showing classification of respondents on the basis of ways to rectify common issues

INTERPRETATION:

From the above table and chart its understood that 54% of respondents strongly agree, 19% of respondents agree to this 8% are neutral, 13% disagree, 6% strongly disagree that continuous monitoring and using the right pesticides control the pest can rectify the pest control.19% of respondents have strongly agreed, 57% respondents have agreed, 15% have neutralized, 7% have disagreed, 3% have strongly disagreed to the point that providing the soil the right amount of bio fertilizer weekly once can overcome the problem.26% of respondents have strongly agreed, 51% of respondents have agreed, 12% of respondents have neutralized, 8% of disagreed, 3% have strongly disagreed that watering the plants twice in a day can be helpful.

4.2 CORRELATION

HYPOTHESIS:

H0 (Null Hypothesis): There is no significant difference between occupation and why and when did they start up their terrace garden [Friends or relatives influenced you to start up a terrace garden].

H1 (Alternate Hypothesis): There is a significant difference between occupation and why and when did they start up your terrace garden [Friends or relatives influenced you to start up a terrace garden].

Table 4.2.1: Showing Descriptive Statistics of Occupation and Friends or relatives influenced you to start up a terrace garden.

Descriptive Statistics			
	Mean	Std. Deviation	N
Occupation	3.39	1.563	120
Friends or relatives influenced you to start up a terrace garden	2.75	1.311	120

Table 4.2.2: Showing Correlation of Occupation and Friends or relatives influenced you to start up a terrace garden.

Correlations			
		Occupation	Why and When did you start up your terrace garden? [Friends or relatives influenced you to start up a terrace garden]
Occupation	Pearson Correlation	1	.179*
	Sig. (2-tailed)		0.005
	N	120	120
Friends or relatives influenced you to start up a terrace garden	Pearson Correlation	.179*	1
	Sig. (2-tailed)	0.005	
	N	120	120
*. Correlation is significant at the 0.05 level (2-tailed).			

INFERENCE:

The p-value is 0.005 which is lesser than the alpha value (0.05), hence alternate hypothesis(H1) is accepted. Therefore, there is a significant difference between occupation and friends or relatives influenced you to start up a terrace garden.

HYPOTHESIS:

H0 (Null Hypothesis): There is no significant difference between what made you to start up a terrace garden? [More fresher, safer and trustable] and your interest towards terrace gardening? [It works wonders for your physical health and your mental well-being]

H1 (Alternate Hypothesis): There is a significant difference between what made you to start up a terrace garden? [More fresher, safer and trustable] and your interest towards terrace gardening? [It works wonders for your physical health and your mental well-being]

Table 4.2.3: Showing Descriptive Statistics of what made you to start up a terrace garden? [More fresher, safer and trustable] and your interest towards terrace gardening? [It works wonders for your physical health and your mental well-being]

Descriptive Statistics			
	Mean	Std. Deviation	N
What made you to start up a terrace garden? [More fresher, safer and trustable]	2.90	1.318	120
Your interest towards terrace gardening? [It works wonders for your physical health and your mental well-being]	2.26	1.399	120

Table 4.2.4: Showing Correlation of what made you to start up a terrace garden? [More fresher, safer and trustable] and your interest towards terrace gardening? [It works wonders for your physical health and your mental well-being]

Correlations			
		What made you to start up a terrace garden? [More fresher, safer and trustable]	Your interest towards terrace gardening? [It works wonders for your physical health and your mental well-being]
What made you to start up a terrace garden? [More fresher, safer and trustable]	Pearson Correlation	1	.192*
	Sig. (2-tailed)		0.036
	N	120	120
Your interest towards terrace gardening? [It works wonders for your physical health and your mental well-being]	Pearson Correlation	.192*	1
	Sig. (2-tailed)	0.036	
	N	120	120
*. Correlation is significant at the 0.05 level (2-tailed).			

INFERENCE:

The p-value is 0.036 which is lesser than the alpha value(0.05), hence alternate hypothesis (H1) is accepted. Therefore, there is a significant difference between what made you to start up a terrace garden? [More fresher, safer and trustable] and your interest towards terrace gardening? [It works wonders for your physical health and your mental well-being].

HYPOTHESIS:

H0 (Null Hypothesis): There is no significant differences between where do you get your organic fertilizers and what made you to start up a terrace garden? [Health benefits]

H1 (Alternate Hypothesis): There is a significant difference between where do you get your organic fertilizers and what made you to start up a terrace garden? [Health benefits]

Table 4.2.5: Showing Discriptive Statistics of where do you get your organic fertilizers and what made you to start up a terrace garden [Health benefits]

Descriptive Statistics			
	Mean	Std. Deviation	N
Where do you get your organic fertilizers	1.64	0.482	120
What made you to start up a terrace garden? [Health benefits]	3.11	1.308	120

Table 4.2.6: Showing Correlation of where do you get your organic fertilizers and what made you to start up a terrace garden [Health benefits]

Correlations			
		Where do you get your organic fertilizers	What made you to start up a terrace garden? [Health benefits]
Where do you get your organic fertilizers	Pearson Correlation	1	.222*
	Sig. (2-tailed)		0.015
	N	120	120
What made you to start up a terrace garden? [Health benefits]	Pearson Correlation	.222*	1
	Sig. (2-tailed)	0.015	
	N	120	120
*. Correlation is significant at the 0.05 level (2-tailed).			

INFERENCE:

The p-value is 0.015 which is lesser than the alpha value (0.05), hence alternate hypothesis (H_1) is accepted. Therefore, there is a significant difference between where do you get your organic fertilizers and what made you to start up a terrace garden? [Health benefits].

CHAPTER – 5

5.1 FINDINGS

- It is found that 36.4% of the majority of the respondents are between 2 -30 years of age.
- It is found that 55% of the majority of the respondents are Females.
- It is found that 64% of the majority of the respondents are Graduated.
- It is found that 37% of the majority of the respondents are Working.
- It is found that 55% of the majority of the respondents are Nuclear family.
- It is found that 55% of the majority of the respondents live in Own house.
- It is found that 54% of the majority of the respondents have allocated their terrace for gardening.
- It is found that 48% of the majority of the respondents have spent 5k–10k for their garden.
- It is found that 74% of the majority of the respondents strongly agree that the veggies harvested from their garden tastes better than those purchased from market.
- It is found that 49% of the majority of the respondents strongly agree that the veggies harvested are more fresh and trustable.
- It is found that 57% of the majority of the respondents strongly agree that they have started the terrace garden due to health benefits.
- It is found that 34% of the majority of the respondents strongly agree that they are influenced from friends and relatives.
- It is found that 43% of the majority of the respondents agree that they are influenced through social media.
- It is found that 43% of the majority of the respondents agree that they got the idea of starting terrace garden during lockdown.
- It is found that 58% of the majority of the respondents strongly agree that the hybrid varieties and the adulteration of food made them choose terrace farming.

- It is found that 70% of the majority of the respondents strongly agree that their interest towards terrace gardening is to harvest safe, pesticide free healthy and fresh veggies and fruits.
- It is found that 62% of the majority of the respondents strongly agree that their interest towards terrace gardening is because it works wonders for their physical health and their mental health.
- It is found that 52% of the majority of the respondents agree that their interest towards terrace gardening is to reduce the overall heat absorption of the building.
- It is found that 67% of the majority of the respondents strongly agree that terrace garden is environmental friendly.
- It is found that 42% of the majority of the respondents agree that rooftop garden have proven to reduce the overall temperature of the roof.
- It is found that 52% of the majority of the respondents agree that gardening when done organically can protect the environment because it does not contain any harmful pesticides and fertilizers.
- It is found that 60% of the majority of the respondents strongly agree that choosing to grow their own food has a good impact on overall health.
- It is found that 45% of the majority of the respondents strongly agree that the terrace garden increases the oxygen in the air.
- It is found that 59% of the majority of the respondents strongly agree that the veggies or fruits they grow contains more amount of vitamins and nutrients free from toxic chemicals.
- It is found that 41% of the majority of the respondents disagree that one needs to have agricultural knowledge.
- It is found that 49% of the majority of the respondents strongly agree that you just need to have some interest towards gardening.
- It is found that 61% of the majority of the respondents agree that basic information is enough.
- It is found that 49% of the majority of the respondents uses pots.

- It is found that 80% of the majority of the respondents uses organic manure and organic pest repellents.
- It is found that 63% of the majority of the respondents strongly agree that organic manure is more preferred in terrace garden.
- It is found that 58% of the majority of the respondents strongly agree that organic fertilizers are used in concern with health benefits.
- It is found that 56% of the majority of the respondents strongly agree that organic gardens are environment friendly.
- It is found that 56% of the majority of the respondents agree that cocomilk fertilizers better in flowering and fruiting.
- It is found that 64% of the majority of the respondents get their fertilizer from stores.
- It is found that 46% of the majority of the respondents think that vermicompost plays a major level in the fertilizer.
- It is found that 45% of the majority of the respondents think that fish amino acid is not so important.
- It is found that 38% of the majority of the respondents think that goat manure is not so important.
- It is found that 53% of the majority of the respondents think that cocomilk is not so important.
- It is found that 47% of the majority of the respondents think that amino acids is not so important.
- It is found that 64% of the majority of the respondents strongly agree that pest control is a major problem in gardening.
- It is found that 58% of the majority of the respondents agree that quick evaporation is a major problem in terrace garden.
- It is found that 56% of the majority of the respondents agree that lack nutrition in soil occurs frequently.

- It is found that 64% of the majority of the respondents agree that waterproof roof is enough to startup a terrace garden.
- The p-value is 0.005 which is lesser than the alpha value (0.05), hence alternate hypothesis(H1) is accepted. Therefore, there is a significant difference between occupation and friends or relatives influenced you to start up a terrace garden.
- The p-value is 0.036 which is lesser than the alpha value(0.05), hence alternate hypothesis (H1) is accepted. Therefore, there is a significant difference between what made you to start up a terrace garden? [More fresher, safer and trustable] and your interest towards terrace gardening? [It works wonders for your physical health and your mental well-being].
- The p-value is 0.015 which is lesser than the alpha value (0.05), hence alternate hypothesis (H1) is accepted. Therefore, there is a significant difference between where do you get your organic fertilizers and what made you to start up a terrace garden? [Health benefits].

5.2 SUGGESTIONS

As a result of this certain suggestions are put forth in order to improve the growth in the garden and to reduce the major problems involved.

- Before you add sand to your container, make sure to close all the holes at the bottom of the pot with a piece of flat stone. This is to prevent the soil and nutrients draining away from the pot when you deeply water the plant.
- It is essential that you fertilize your plants regularly with a mix of liquid, compost and granular fertilizers – all organic of course.
- Water your plants twice a day if the weather is too hot and make sure the water temperature is cool when you do.
- Vary the size of your containers keeping in mind the type of plants you intend to grow so that you do not crowd up the space with small pots all over.
- Make sure water never stagnates in your containers.
- Place your finger into the soil until your second knuckle is reached. If the tip of your finger is not moist, you can water the plants. Understand the moisture requirements for each of your plants.
- One way to keep off pests is to feed your plants well and keep them healthy. Next is to water your plants consistently. Pests will attack your weak plants so you'll need to keep working on them and trying various concoctions to get rid of them. If all fails, nip off the infected stems or get rid of the plant to prevent the spread.
- Planting the same plant or crop in the same container in which it was harvested is not a good idea because, insects and bugs that have gotten used to munching on them as well, will leave behind plenty of larvae and eggs to feed on the next crop. Doing a plant rotation actually helps break that cycle.

5.3 CONCLUSION

There is a great impact towards terrace garden nowadays. People's attitude towards a rooftop garden has changed. People tend to change because in today's world there are more and more of hybrids varieties coming up, they believe rooftop garden helps them in maintaining and improving the overall health. It's a great hobby for many, the suggestions listed above will help them to maintain a good and healthy garden and to get rid of the major problems caused in terrace garden. As the world is heading towards the depletion of natural resources and the loss of forest/garden area due to urbanization, there is a dire need of terrace gardens. Due to the population explosion with a house for every citizen in the country, all the open areas are eaten away by concrete buildings. This has created the ecological imbalance, which can cause tremendous harm to our future generations. When we cannot avoid utilizing open spaces on the ground for the construction of buildings and other utilities, then at least the open spaces available above these buildings can be utilized for plantations and gardens to minimize the ecological imbalance, if not eliminate it altogether. There are many benefits of these terrace gardens, such as waste recycling, ecological benefits, energy conservation, water conservation, decorative enhancement of buildings, occupant's health benefits and attracting birds and insects.

APPENDIX – I (QUESTIONNAIRE)

A STUDY ON PEOPLE'S ATTITUDE TOWARDS TERRACE GARDENING IN CHENNAI

1.Name: _____

2.Age

- a. below 20 years
- b. 21-30 years
- c. 31-40 years
- d. 41-50 years
- e. above 50 years

3.Gender

- a. Male
- b. Female

4.Educational Qualification

- a. Upto school level
- b. Graduation
- c. Professionals

5.What is your occupation?

- a. Working
- b. Self Employed
- c. Student
- d. Home Maker
- e. Retired

6.Type of family?

- a. Nuclear
- b. Joint family

7.What type of place you live in?

- a. Rented
- b. Own House
- c. Flats

9.How much will a terrace garden cost initially?

- a. 5k -10k
- b. 11k - 15k
- c. 16k – 20k
- d. more than 20k

8.The space you have allocated for your garden setup?

- a. Balcony
- b. Terrace

10.What made you to start up a terrace garden?

(1- strongly agree, 2-Agree, 3-Neutral, 4-Disagree, 5-Strongly disagree)

STATEMENT	SA	A	N	DA	SDA
Because veggies harvested from your garden tastes better than those purchased from the market.					
More fresh,safer and trustable					
Health benefits					

11. Why and when did you start up your terrace garden?

(1- strongly agree, 2-Agree, 3-Neutral, 4-Disagree, 5-Strongly disagree)

STATEMENT	SA	A	N	DA	SDA
Friends or relatives influenced you to start up a terrace garden					
Influcended through social media					
Got the idea of starting terrace gardening during lockdown					
Does the hybrid varieties and the adulteration of food etc made you choose terrace farming					

12. Your interest towards terrace gardening ?

(1- strongly agree, 2-Agree, 3-Neutral, 4-Disagree, 5-Strongly disagree)

STATEMENT	SA	A	N	DA	SDA
To harvest safe,pesticide –free healthy and fresh veggies and fruits.					
It works wonders for your physical health and your mental well-being					
To reduce the overall heat absorption of the building					

13.Environmental Benefits

(1- strongly agree, 2-Agree, 3-Neutral, 4-Disagree, 5-Strongly disagree)

STATEMENT	SA	A	N	DA	SDA
Terrace gardening is environment friendly					
Is that the green rooftop proven to reduce the temperature of roof surface.					
Gardening when done organically can protect the environment because it doesnot contain any harmful pestisides and fertilizer.					

14.Health benefits

(1- strongly agree, 2-Agree, 3-Neutral, 4-Disagree, 5-Strongly disagree)

STATEMENT	SA	A	N	DA	SDA
Choosing to grow your own food has a good impact on your overall health					
Does terrace garden increases the oxygen in the air					
The veggies or fruits you grow contains more amount of vitamins and nutrients free from toxic chemicals					

15.Does one need to have any agricultural knowledge to start a terrace garden?

(1- strongly agree, 2-Agree, 3-Neutral, 4-Disagree, 5-Strongly disagree)

STATEMENT	SA	A	N	DA	SDA
One needs to have agricultural knowledge					
You just need to have some interest towards gardening					
Basic information is enough					

16. What type of containers you use in your garden?

- a. Pots (ceramic, mud, metal or plastic)
- b. Grow bags
- c .Plastic bags or covers

17. What type of pesticides and manure you use for terrace gardening?

- a. Organic manure and organic pest repellents
- b. Chemical fertilizers

18.Organic fertilizers

(1- strongly agree, 2-Agree, 3-Neutral, 4-Disagree, 5-Strongly disagree)

SATEMENT	SA	A	N	DA	SDA
Organic manure more preferred in terrace gardening					
Organic fertilizers are used in concern with health benefits					
Organic gardens are environment friendly					
Cocomilk fertilizers betters in flowering and fruiting					

19.Rank the series of organic fertilizers on how important/how much they are used in gardening?

(1-Never, 2-Occasionally, 3-Sometimes, 4-Often, 5.Always)

SATEMENT	1	2	3	4	5
Vermicompost					
Fish amino acids					

Goat manure					
Cocomilk					
Amino acids					

20. Common Problems faced

(1- strongly agree, 2-Agree, 3-Neutral, 4-Disagree, 5-Strongly disagree)

STATEMENT	SA	A	N	DA	SDA
Is pest control a major problem in gardening					
Does soil get harden gradually when not mixed with cocopit					
Quick evapouration is a major problem in terrace garden					
Lack of nutrition in soil occurs frequently					
Waterproof roof is enough to start a terrace garden					

21. How can the common problems be rectified?

(1- strongly agree, 2-Agree, 3-Neutral, 4-Disagree, 5-Strongly disagree)

STATEMENT	SA	A	N	DA	SDA
Does continuous monitoring and using the right pesticides control the pest					
Providing the soil the right amount of bio fertilizer weekly once can overcome the problem					
Watering the plants twice in a day can be helpful					

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APPENDIX – II (ARTICLE)
**A STUDY ON PEOPLE’S ATTITUDE WITH REFERENCE TO TERRACE
FRAMING IN CHENNAI**

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ABSTRACT

Life in city is great! We have access to good school, hospitals, jobs and entertainment, but there are problems too, like pollution and traffic. In our country, trees are cut down to accommodate more buildings and the pollution has made the air toxic. It's not just the air which is toxic, even the food we eat is equally toxic with farmers spraying dangerous fertilizers. In today's urban environment high rise buildings, parking areas, network of roads have acquired major urban land. In such an environment rooftop and terrace of buildings provide a valuable potential source of outdoor space accessible to users of building. Need for terrace gardens have increased with increasing number of high rise buildings which deprive their occupants of any visual contact with nature. Terrace gardens bring back the missing link between man and nature though on a moderate scale. The study of this review is to highlight the agronomic challenges of terrace farming.

Key words: Terrace Garden, People's Attitude

INTRODUCTION

In today's urban environment high rise buildings, parking areas, network of roads have acquired major urban land. In such an environment rooftop and terrace of buildings

provide a valuable potential source of outdoor space accessible to users of building. But this is something you and I already know, If you want a breath of clean, fresh air, you don't have to take a 30-minute ride (causing more pollution) to a park or a beach or spend a ton of money to unwind at a nature resort. Similarly, if you want to eat healthy, fresh, organic fruits and vegetables, you don't have to search long and wide for an organic shop in your locality. Setting up a terrace garden in your home can solve both problems! Terrace gardening may sound like a complicated, time consuming process that is expensive. But the truth is, you can set up a green space in your home even on a window sill or balcony if you are constrained for space. You don't have to splash a lot of money to set it up - a small monthly budget should work out nicely. And if you're a busy corporate with little or no time to spend on gardening, surely an hour or two a day won't be hard to set aside.

REVIEW OF LITERATURE

Ferdous Farhana Huq, Nidalia Islam (2019) - Dhaka the capital of Bangladesh looks no better than a piece of hardscape from aerial view which justifies the swelling concern of replacing green areas with built up areas to fulfill the demand of briskly growing urban population. Increasing air temperature, changing rainfall pattern and 'unhealthy' air bears the proof of Dhaka city being an urban heat island created by the present development trend. Unrecoverable damage has already been done to the green spaces of this city which has turned this city as the most polluted city in the world. At the edge of the collapse of sustainability of this city new approaches such as 'green roof' can be used to repair its lungs. Although rooftop gardening has been a traditional concept in Bangladesh, in city-wide scale a very few buildings can be seen with green space in roof or balconies.

Akash Patel, Rohit Yadav and Bhagirathi Singh (2019) - In today's urban environment high rise buildings, parking areas, network of roads have acquired major urban land. In such congested environment rooftop and terrace of buildings provide a valuable potential source of outdoor space accessible to users of building. Need of terrace gardens have increased with increasing number of high rise buildings which deprive their occupants of any visual contact with nature. Terrace gardens bring back the missing link between man and nature though on a moderate scale. The factors which make roof gardens important

part of architecture throughout the world is

- Full use of terrace, which is normally a discarded area in crowded cities. Maximum meaningful use of minimum available space.
- An economical way of balancing green space with uncontrolled growth of cement structure in urban areas.

C P Poornima and Pallavi D Suryawanshi (2020) - A study was conducted to analyse the vegetable consumption pattern and health consciousness of urban households practicing terrace gardening at their homes. The survey was conducted among randomly selected 90 households in Pune city i.e., Pune Municipal Corporation and Pimpri - Chinchwad Municipal Corporation. The study revealed that among the urban wellers doing terrace gardening, everyone showed either moderate or high level of health consciousness and no one showed low level. The amount of vegetables consumed per household per day was taken in to consideration while collecting details regarding general consumption pattern of vegetables. As per the study, it was found that, 70 per cent were consuming moderate amount of vegetables on daily basis.

RESEARCH METHODOLOGY

The research design used in the study was descriptive in nature as it evaluates the people's attitude towards terrace gardening in chennai city. Sample size of the study was 120 selected based on convenience sampling in Chennai. Questionnaire is developed for collecting primary data from the respondents. The questionnaire consists of several multiple choice questions and Linkert's scale questions.

OBJECTIVE OF THE STUDY

- Study on People's interest towards terrace gardening.
- To examine the common problems faced in terrace gardening.

RESULT ANALYSIS

6.1 Classification of respondents on the based on demographic variables:

Educational Qualification:

Particulars	Frequency	Percentage
Home maker	27	22%
Retired	6	5%
Self Employed	24	20%
Student	19	16%
Working	44	37%

Source of data – Primary data

Why and when they started up their garden?

Question types	SA	A	N	DA	SDA
Friends relatives influenced you to start up a terrace garden	34%	27%	18%	16%	5%
Influenced through social media	13%	43%	27%	14%	3%
Got the idea of starting terrace gardening during lockdown	28%	43%	21%	4%	3%
Does the hybrid varieties and the adulteration of food etc made you choose terrace farming	55%	23%	14%	5%	3%

Source of data – Primary data

What made you to start up a terrace garden

Question types	SA	A	N	DA	SDA
Because veggies harvested from your garden tastes better than those purchased from market	74%	11%	6%	6%	3%
More fresh, safer and trustable	49%	28%	14%	8%	2%
Health benefits	57%	24%	12%	4%	3%

Interest towards terrace gardening:

OPTIONS	SA	A	N	DA	SDA
To harvest safe,pesticide –free healthy and fresh veggies and fruits.	70%	11%	8%	9%	2%
It works wonders for your physical health and your mental well-being	62%	23%	12%	3%	2%
To reduce the overall heat absorption of the building	28%	52%	13%	4%	3%

Source of data – Primary data

Source of fertilizers

OPTIONS	FREQUENCY	%
Make your own fertilizers	43	36%
Store	77	64%

Source of data – Primary data

What made you to start up a terrace garden?

Question types	SA	A	N	DA	SDA
Because beggies harvested from your garden tastes better than those purchased from market	74%	11%	6%	6%	3%
More fresh,safer and trustable	49%	28%	14%	8%	2%
Health benefits	57%	24%	12%	4%	3%

Source of data – Primary data

It is inferred from the above table that 37% of respondents are working, 34% of respondents strongly agree that they have started because friends relatives influenced them to start up a terrace garden, 49% of respondents have strongly agreed that they are more fresh, safer and trustable, 62% of respondents have strongly agreed because it works wonders for your physical health and your mental well-being, 64% of respondent get their fertilizers from store, .57% of respondents have strongly agreed they have started it because of health benefits.

6.2 CORRELATION

Table 6.2.1 Descriptive Statistics of Occupation and Friends or relatives influenced you to start up a terrace garden.

Descriptive Statistics			
	Mean	Std. Deviation	N
Occupation	3.39	1.563	120
Friends or relatives influenced you to start up a terrace garden	2.75	1.311	120

Table 6.2.1 Correlation of Occupation and Friends or relatives influenced you to start up a terrace garden.

Correlations			
		Occupation	Why and When did you start up your terrace garden? [Friends or relatives influenced you to start up a terrace garden]
Occupation	Pearson Correlation	1	.179*

Friends or relatives influenced you to start up a terrace garden	Sig. (2-tailed)		0.005
	N	120	120
	Pearson Correlation	.179*	1
	Sig. (2-tailed)	0.005	
	N	120	120
*. Correlation is significant at the 0.05 level (2-tailed).			

The p-value is 0.005 which is lesser than the alpha value (0.05), hence alternate hypothesis(H1) is accepted. Therefore, there is a significant difference between occupation and friends or relatives influenced you to start up a terrace garden.

Table 6.2.3 Showing Descriptive Statistics of what made you to start up a terrace garden? [More fresher, safer and trustable] and your interest towards terrace gardening? [It works wonders for your physical health and your mental well-being]

Descriptive Statistics			
	Mean	Std. Deviation	N
What made you to start up a terrace garden? [More fresher, safer and trustable]	2.90	1.318	120
Your interest towards terrace gardening? [It works wonders for your physical health and your mental well-being]	2.26	1.399	120

Table 6.2.4 Showing Correlation of what made you to start up a terrace garden? [More fresher, safer and trustable] and your interest towards terrace gardening? [It works wonders for your physical health and your mental well-being]

Correlations		
	What made you to start up a terrace garden? [More fresher,	Your interest towards terrace gardening? [It works wonders for your physical health and your mental well-being]

		safer and trustable]	
What made you to start up a terrace garden? [More fresher, safer and trustable]	Pearson Correlation	1	.192*
	Sig. (2-tailed)		0.036
	N	120	120
Your interest towards terrace gardening? [It works wonders for your physical health and your mental well-being]	Pearson Correlation	.192*	1
	Sig. (2-tailed)	0.036	
	N	120	120
*. Correlation is significant at the 0.05 level (2-tailed).			

The p-value is 0.036 which is lesser than the alpha value(0.05), hence alternate hypothesis (H1) is accepted. Therefore, there is a significant difference between what made you to start up a terrace garden? [More fresher, safer and trustable] and your interest towards terrace gardening? [It works wonders for your physical health and your mental well-being].

Table 6.2.5: Showing Discriptive Statistics of where do you get your organic fertilizers and what made you to start up a terrace garden [Health benefits]

Descriptive Statistics			
	Mean	Std. Deviation	N
Where do you get your organic fertilizers	1.64	0.482	120
What made you to start up a terrace garden? [Health benefits]	3.11	1.308	120

Table 6.2.6 Showing Correlation of where do you get your organic fertilizers and what made you to start up a terrace garden [Health benefits]

Correlations			
		Where do you get your organic fertilizers	What made you to start up a terrace garden? [Health benefits]
Where do you get your organic fertilizers	Pearson Correlation	1	.222*
	Sig. (2-tailed)		0.015
	N	120	120
What made you to start up a terrace garden? [Health benefits]	Pearson Correlation	.222*	1
	Sig. (2-tailed)	0.015	
	N	120	120
*. Correlation is significant at the 0.05 level (2-tailed).			

The p-value is 0.015 which is lesser than the alpha value (0.05), hence alternate hypothesis (H1) is accepted. Therefore, there is a significant difference between where do you get your organic fertilizers and what made you to start up a terrace garden? [Health benefits].

FINDINGS

- It is inferred from the above table that 37% of respondents are working, 34% of respondents strongly agree that they have started because friends relatives influenced them to start up a terrace garden, 49% of respondents have strongly agreed that they are more fresh, safer and trustable, 62% of respondents have strongly agreed because it works wonders for your physical health and your mental well-being, 64% of respondent get their fertilizers from store, .57% of respondents have strongly agreed they have started it because of health benefits.
- There is a significant difference between occupation and friends or relatives influenced you to start up a terrace garden.
- There is a significant difference between what made you to start up a terrace garden? [More fresher, safer and trustable] and your interest towards terrace gardening? [It works wonders for your physical health and your mental well-being].
- There is a significant difference between where do you get your organic fertilizers and what made you to start up a terrace garden? [Health benefits].

CONCLUSION

There is a great impact towards terrace garden nowadays. People's attitude towards a rooftop garden has changed. People tend to change because in today's world there are more and more of hybrids varieties coming up, they believe rooftop garden helps them in maintaining and improving the overall health. It's a great hobby for many, the suggestions listed above will help them to maintain a good and healthy garden and to get rid of the major problems caused in terrace garden. As the world is heading towards the depletion of natural resources and the loss of forest/garden area due to urbanization, there is a dire need of terrace gardens. Due to the population explosion with a house for every citizen in the country, all the open areas are eaten away by concrete buildings. This has created the ecological imbalance, which can cause tremendous harm to our future generations. When we cannot avoid utilizing open spaces on the ground for the construction of buildings and other utilities, then at least the open spaces available above these buildings can be utilized for plantations and gardens to minimize the ecological imbalance, if not eliminate it altogether. There are many benefits of these terrace gardens, such as waste recycling, ecological benefits, energy conservation, water conservation, decorative enhancement of buildings, occupant's health benefits and attracting birds and insects.

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