

Container Gardening for Vegetables

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A micro-farming approach in which a family unit or household produces fruits and vegetables in customised containers for personal consumption in order to improve the family's income, health, and well-being.

Problems regarding vegetable gardening: Limited space, production issues, insufficient resources (soil, water, etc.), weather, nuisances (pests, animals, humans, etc.), contamination, physical challenges, time constraints, property deed restrictions, and other factors limit our ability to grow vegetables.

Container Gardening may be the solution

- I. It's ideal for tiny and varied spaces.
- II. Container gardens can be grown both indoors and outdoors.
- III. Plants can be moved around as needed in it.
- IV. A container garden provides limitless creative possibilities.
- V. Spreading plants benefit from being planted in a container.
- VI. It quickly overcomes soil-borne diseases, nematodes, weeds, and poor soil conditions
- VII. It is easier to manage for a variety of lifestyles, i.e., it requires less work than a huge garden.

Container: A container is a small, enclosed, and usually portable item that is used to hold live plants. Pots, urns, waterproof baskets, washtubs, chimney flues, baskets, crocks, aquariums, barrels, pans, crates, cement blocks, wastebaskets, tubs, hollowed-out logs, bowls, old pair of boots, and so on are all examples of plant containers. Containers for plants have two purposes:

- a. Plant cultivation for transplantation to the field, garden, or greenhouse.
- b. Plant development from seed to maturity.



Advantages of Container Gardening

1. **Maximum space utilization:** Many fruits and vegetables can be grown in various types of settings, vertical or horizontal, with the correct growth containers and growing media. Vegetables can also be grown inside the house with correct planning and design. Another option is to practise multi-story cropping, which may be done even in a small space. Vegetables, for example, can be grown on a high-rise balcony if there is six hours of sunlight.

2. **Convenience and Time:** The majority of city dwellers will agree that food in the provinces tastes better. This is due to the fact that rural residents do not have to travel to obtain their food. A few minutes before cooking, they gather their vegetables fresh from their backyard gardens. Everyone knows that, aside from taste, the fresher the vegetable, the better it is in terms of nutritional value. Imagine how convenient it is to have fresh ingredients at your fingertips whenever you want to prepare a delectable and nutritious meal.
3. **Environment friendly:** Aside from the apparent benefit of saving money for the individual growing the vegetables, container gardening has several other advantages. It has the potential to help the city "green" and reduce pollution. By using used containers as recycled planting pots, it helps prevent irresponsible disposal and minimise rubbish volume. Organic waste, such as kitchen scraps and anything else that decomposes, can be composted and mixed into the growing media. Waste goods are turned into reusable containers and growth media, which will help to beautify the city. People will not just talk about improving the environment, but will really do something about it via container gardening.
4. **Economical:** As previously stated, the majority of the food consumed in cities must be delivered from distant areas. This helps to explain why vegetable costs are steadily rising. Every vegetable grown in a container can lower the amount of money spent on purchasing it from a store.
5. **Personal growth and development:** Anyone who engages in container farming will experience spiritual and emotional renewal. It will make the grower more relaxed and offer him or her a sense of purpose. Container gardening is a great way to turn downtime into productive leisure time.

Types of plant containers

1. **Group containers:** These plant pots were originally used to grow plants in groups. Flats are included in this.
2. **Individual plant containers:** These plant pots were used to raise plants one at a time. Pots and bands are included.

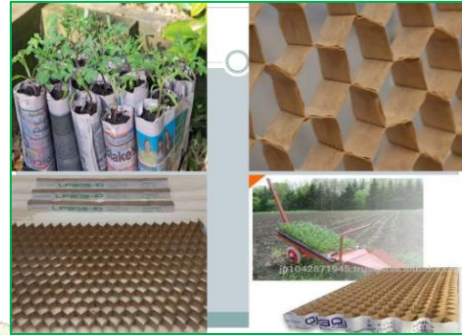
1. **Flats:** Standard measurements for commercial growers are 30cmx59cmx8cm. Flats are shallow trays with drainage holes in the bottom made of plastic, styrofoam, wood, or metal. Because they allow immature plants to be moved easily, they are useful for germinating seeds or rooting cuttings. Flats made of galvanised iron were utilised, although zinc emitted from common flats could be hazardous to plants. Flats are now manufactured of plastic (polyethylene, polystyrene) and are available in a variety of shapes and sizes.



2. **Pots:** Pots are circular and may or may not have a drainage hole in the bottom. Clay or peat fibres are used to make porous. Metal, concrete, and rubber plastic are examples of non-porous materials. Non porous materials demand more moisture than porous materials, however this leads to overwintering. Water can be drained through porous leads. Transplants are raised in pots until they reach full maturity.



3. **Bands:** The bands are square and have an open bottom. Microorganisms can easily attack them.
4. **Clay pots:** These are the most well-known and oldest. The diameters range from 5,10,13,15,25 cm. Earthen pots are what they're called. These are heavy, porous, and quickly lose moisture. Typically used for the propagation of immature plants. Their circular shape is easy to break and takes up a lot of storage space. In commercial propagation, clay pots are rarely employed.
5. **Jiffy pots/fibre pots:** Compressed peat is used to make these pots, which are held together by a biodegradable net. Root curling does not occur because roots easily penetrate container barriers. Because the seedling is biodegradable, it is planted with the pot. Roots will grow through the walls if seeds or cuttings are planted directly into them.
6. **Concrete:** These are used to cultivate plants in gardens rather than nurseries. These are large, heavy, and tough to manoeuvre. As a result, most nurseries have switched to polybags plastic pots.
7. **Paper pots:** Seedling propagation of ornamental and forestry species is more common in paper pots or paper tube pots. Seedling plugs can be put intact into a larger container or into the ground without damaging the root system because the pots are biodegradable. Paper pots are often made up of a number of interconnecting paper cells arranged in a honeycomb design that can be detached before being outplanted.
8. **Rubber pots:** Pots made from recycled rubber pieces. The pot size is consistent. Rubber tyre recycling helps to reduce pollution.
9. **Plastic pots:** These are containers that come in a variety of shapes, including round and square. They're non-porous, reusable, light, and take up very little space. Direct rooting of cuttings, seedling propagation, and tissue culture acclimation and production are all made easier with it. Chemical root pruning treatments, such as copper hydroxide, are used to chemically prune liner roots on the inside walls of the pot. Chemically pruned lateral roots become suberized, but will grow back after transplanted, resulting in a well-distributed root system that reduces transplant shock.
10. **Plug trays:** From expanding, small seedlings are cultivated in trays. Usually made of polystyrene or polythene and filled with peat or compost as a substrate. Young plants cultivated in small, separate cells, ready to be transplanted into containers or a garden, are known as plug plants.
11. **Polybags:** The main advantage of using polybags is that the seedling can be nurtured under controlled settings virtually all year. The plantation programme will not be harmed by the dry period or labour scarcity.



Advantages of plastic pots

- a) They are re-useable
- b) It keeps the right amount of moisture in the air
- c) Pots are not broken
- d) Low price

Problems regarding to polybags

- a) It should never be placed directly on soil since the roots will grow into the earth and the main roots will break off if you lift it.
- b) Polybags are not long-lasting and can break easily. They are usually only used once.
- c) These are an issue for nursery waste management since they do not decompose and frequently burn, resulting in considerable air pollution.

Plant Growing Containers for Greenhouse Production: The duration of a crop in the greenhouse is the key to make the greenhouse technology profitable. Therefore, the use of containers in greenhouse production carries significance. They are used for the following important activities in greenhouse production:

1. Raising of seedlings in the nursery.
2. Growing plants in greenhouses for hybrid seed production of flowers.
3. Growing cut flowers in greenhouses.
4. Growing potted ornamental plants in greenhouses.

Growing Media: The potting material is the material used to grow plants in pots. The growth medium refers to the substrate or material that is used to grow plants. The media provides the plant with mineral nutrients, moisture, and support.

Composition of Media: Many substrates are available that can be used alone or in conjunction with other substrates in certain quantities, depending on the crop's needs for plant support, aeration, nutrient retention, and moisture retention.

Components are often chosen based on their availability and pricing. A standard soilless composition consists of a 3:1:1 volume by volume ratio of coco peat, vermiculite, and perlite. Coco peat alone can be used as a growing media in a seedling nursery after being treated with calcium nitrate (50 g/kg) to lower the electrical conductivity and pH.

If wood is plentiful, using bark as a growing medium is a cost-effective option. Sand is added to bark because it settles in gaps and nests among the bark particles, increasing the surface area available for air and water in a given volume of substrate. Sphagnum peat moss is frequently put to the bark to improve water holding capacity and nutrient retention.

Sterilisation of Growing Media: Sterilisation is the process of eliminating or destroying all kinds of microbiological life. In the microbiological sense, any sterile material must be free of any living microorganisms. Microorganisms can be killed, suppressed, or eliminated by exposing material to fatal agents that can be physical, chemical, or ionic in nature, or by physically removing cells from the medium in the case of liquids.

Vegetables adapted to container gardening:

Bush beans, Beets, Cabbage, Carrots, Cucumbers, Eggplant, Kohlrabi, Lettuce, Green onions, Peppers, Radishes, Bush squash, Swiss chard, Dwarf tomatoes, etc.

Choosing Containers

The design of the containers to use is a reflection of the grower's design aims, which are based on his or her bias as well as the availability of these materials. If the purpose is to highlight the containers, glazed ceramic pots, porcelain pots, and plastic pots of various shapes and sizes can be used. Indigenous materials accessible in the area, such as cut bamboo poles or others, can be transformed into lovely looking containers with a little creativity. Only the grower's imagination determines the boundaries. Old tyres, sacks, tin cans, plastic containers for mineral water, oil, milk, catsup, and other items that are ordinarily tossed into the garbage can all be recycled and put to long-term use.

Seeding and Transplanting: Container culture is best suited for vegetables that can be easily transplanted. Local nurseries sell transplants, or they can be grown at home. A baking pan,

plastic tray, pot, or even a cardboard milk carton can be used to germinate seeds. To ensure optimal germination, fill the container with the above-mentioned medium and cover most vegetable seed with 14 to 12 inches of media. Another option is to use peat pellets or peat pots, both of which may be found at nursery supply stores. In the bottom of the pot, place a landscape cloth or screen to aid drainage and encourage plant development.

Mulch the Seedlings: Mulching, as the name implies, is the technique of covering plant bases with materials such as dried grass, dry leaves, and plastic sheets. Plastic mulching is commonly utilised in commercial vegetable farming. Mulching the plants has the advantage of preventing water/moisture loss and controlling weeds at the plant's base. Aside from that, the dried leaves will decay nicely over time and serve as a wonderful organic manure.

Watering: A thriving container garden requires proper irrigation, and one watering per day is usually sufficient. Poor drainage, on the other hand, will eventually destroy the plants. The plants will die from a lack of oxygen if the mix becomes waterlogged. Wet leaves encourage plant diseases, therefore avoid watering the foliage of your plants. Mulches can also be used to decrease water loss by being laid on top of the soil mix. Because containers dry out quickly, plants cultivated in containers require frequent watering.

Watering is required on a daily basis to ensure appropriate moisture for plant growth. Fill the container with enough water to reach the bottom.

Light: Almost all vegetable plants will thrive in direct sunlight rather than shade. Root crops like radishes, beets, turnips, and onions, on the other hand, may endure more shade than leafy crops like lettuce, cabbage, greens, spinach, and parsley. Cucumbers, peppers, tomatoes, and eggplant, for example, require the greatest sunlight. One of the key advantages of container gardening is that you may position the vegetables in regions where they would have the ideal growing circumstances.

Fertilizer Application: Because of the limited space within the container for extracting nutrients, container-grown plants require more frequent fertilisation than field-grown plants. Fertilizers can be put into the growing medium before filling the container, or used as a nutrient solution. You can make nutrient solutions by dissolving soluble fertilisers like 10-20-10, 12-24-12, or 8-16-8 in water according to the label guidelines. When the plants are watered, the nutrient solution is applied once a day. It's also critical to water plants with a fertiliser solution containing micronutrients like copper, zinc, boron, manganese, and iron on a regular basis, and to follow label guidelines to ensure that plants get the correct amounts.

Cultivating and weeding: Cultivating the soil to a depth of 2 to 3 inches below the surface of the potting media promotes maximum air flow around the roots, resulting in larger, healthier root growth and, as a result, greater water and nutrient uptake. Weeding permits plants to benefit from the medium's nutrients and water without having to compete with other non-productive plants. It must be remembered that weeds grow larger and quicker than planted crops since they are native to the environment.

Insect Pests and Disease Management

Insect pests and pathogens can harm vegetables cultivated in containers. Inspect the plants for insect pests including aphids, spider mites, and white flies, which typically attack vegetables and herbs. Plants that are overwatered are susceptible to damping off disease. Inspect plants for infection on a regular basis. Use insecticides and fungicides as directed.

Harvesting: Harvest the vegetables when they are fully mature and have attained their full flavour. The greatest flavours come from vine-ripened tomatoes, fresh green beans, and crisp lettuce. Remove the plant and soil from the pot at the end of the harvest season. For a second season of production, do not use the same soil. Unless properly composted, disease-infected

soil or mix will spread into the second season. Planting media that has been composted properly can be reused.

Container Gardening Success: Daily plant inspection and, if necessary, watering, trimming, training, or pruning. Check plants on a daily basis for pests and weeds, as well as disease treatment. Continue your study by approaching expert gardeners for suggestions.

