LESSON 1 DECIDING HOW TO GROW

Vegetable leaves are an important part of the human diet. They are eaten fresh in salads or on sandwiches. They may be preserved (e.g. Sauerkraut) or cooked and eaten as a hot vegetable. Leaves provide a wide range of critical nutrients in the human diet which are generally not found in adequate quantities in other types of food. They also provide fibre which is critically important to the health of the digestive system.

What Leaves are Edible?

While a lot of plants are edible, many of those are not palatable because of taste or texture. A lot of other plant leaves contain toxic chemicals which can upset the human body, cause illness, or cause long-term damage or death.

Every human who eats leaves (i.e. most humans) should know how to differentiate between palatable, edible, nutritionally beneficial leaves and those that are not those things. With some plants, flower petals are also edible. Sometimes flowers are mixed into leafy salads to add colour and to provide different tastes and textures.

Suggested Tasks: ▼

Throughout this course you will be provided with suggested tasks and reading to aid with your understanding. These will appear in the right hand column.

Remember: these tasks are optional. The more you complete, the more you will learn, but in order to complete the course in 20 hours you will need to manage your time well. We suggest you spend about 10 minutes on each task you attempt, and no more than 20 minutes.

A biodiverse garden is less exposed to pest and disease than a monoculture

How to Grow Leaf Vegetables

There are a number of choices to be made about how to grow leaf vegetables:

- Growing medium – soil or soilless medium (i.e. in-ground, in raised garden beds, in containers, or in hydroponics)?
- Monoculture or polyculture (i.e. one species or many species together)?
- Scale – mass planting and production or subsistence/ sustainable farming?
- Unprotected or protected growing conditions (e.g. in a greenhouse)
- With or without synthetic pesticides (inorganic or organic)?

Growing In-Ground

It is important to prepare the soil properly prior to planting. The following will help establish the best soil conditions from the outset:

- Thoroughly cultivate the soil and mix in compost to a depth of 15 cm.
- Leave for a week ideally, then test the pH (simple pH test kits are available from your local nursery). The ideal pH for healthy vegetables is between 6 and 8.
- Correct the pH if necessary by incorporating lime or dolomite into the soil to raise pH, or sulphur to lower it.
- Continue cultivation with a fork, cultivator or rake to kill all weeds and produce a fine crumbly textured soil.
- In poor soils it is beneficial to grow and incorporate a cover/green manure crop to improve the soil fertility and structure.

Don't overcrowd plants! Resist the temptation to plant small seedlings too close together as this will result in less than satisfactory growth, even with good soil preparation. Plants starved for space and light will rarely produce a good crop. Spacing is important for sunlight and for root spread. Overcrowding will also reduce ventilation around the plants, making them more susceptible to diseases, such as fungal rots.

Commercial row crop production of lettuce

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Suggested Tasks

Before you start reading and working through this course, take 10 minutes to think about why you enrolled in this course.

Write it down.

Secondly, list 5 reasons why you think this subject is important generally?

Lettuce grown in a moveable container

Growing in Containers

Most leaf vegetables grow well in containers. It is important to select a container large enough to contain the plant. The container must also have drainage holes so that excess water can escape.

Type of Containers

Terracotta - terracotta containers are the classic choice for gardeners. They are relatively inexpensive and durable. They are, however, rather heavy and often not frost-proof. Plants grown in unglazed terracotta (clay) containers generally require more frequent watering, due to the porous nature of the terracotta.

Plastic - plastic containers are inexpensive, light and come in a wide range of shapes and colours. Because they are not porous, they do not need to be watered as frequently. Plastic containers may become brittle over time.

Wood - wooden containers are ideal for larger plantings. Containers made of treated wood may contain toxic chemical compounds that can be absorbed by the vegetables grown within.

Size, Shape and Colour of Containers

Large containers can hold more soil and therefore more moisture, so they do not need to be watered as frequently as smaller containers. For most vegetables, the container should be at least 25 cm wide and 30 cm deep.

- Tall containers are more likely to fall over in strong winds. It is therefore advisable to choose a container with a wider base.

- It is easier to plant and water plants in containers with wide necks.

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Suggested Tasks

Brainstorm reasons why people choose to grow edibles. What do you think and pros and cons. Talk with people who have grown their own leafy vegetables about their experience.

Make comparisons and make a voice recording of your findings.

- Dark colours absorb more heat than lighter colours. Dark-coloured containers may therefore cause the soil to become too warm for some vegetables in the heat of summer.

Filling the Container

Fill the pot with a high quality, well-draining potting mix, preferably organic. Fill to approximately 5 cm below the edge of the container to allow room for water.

Growing in Hydroponics

Leafy salad vegetables, such as lettuce, rocket and spinach do well in hydroponics. The most commonly used hydroponic growing systems are:

Deep Water Culture (DWC) - DWC (also known as raft or pond culture) involves planting seedlings into polystyrene rafts which are floated on a pond containing nutrient solution. Water is circulated through the pond via a pump. The pond is kept aerated using an air pump or an oxygen injector.

Nutrient Film Technique (NFT) - NFT involves planting seedlings into channels through which a thin film of nutrient solution (less than 1-2 mm deep) is continually circulated. A pump is used to pump the nutrient solution from a tank into the channels. The channels slope gently at a 1-4 degree angle, and at the ends they drain back into the tank.

Benefits of Hydroponics

- Hydroponics systems can be set up on stony and other problematic sites.
- Soil-borne diseases or weeds are not present.
- Because nutrients are delivered directly to the roots, up to four times as many plants can be grown in the same space as conventional in-ground systems.
- The nutrient mix can be adjusted to suit the specific crop and thereby increase yields.
- Water consumption can be reduced by up to 90% because hydroponics uses water more efficiently.

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Suggested Tasks

Conduct an online search for the phrase “leafy salad greens grown hydroponically”.

Spend up to 20 minutes looking at the listings you find, with a view to broadening your perspective on hydroponic growing.

Hydroponic Lettuce Farm