# THE SMALL – SCALE CULTIVATION OF VEGETABLES AROUND THE HOME

There is a variety of vegetables with small root systems that can be grown in containers such as pots and window boxes. It must be remembered that as a rule vegetables are more demanding than house plants when grown indoors. Core information only is given here; one or two gardening books will be needed to provide broader information. Aim for, and expect, modest-sized vegetables. It is perhaps best to try just a few vegetables until experience is gained. There is scope for companion planting, where some plants are mutually more productive when grown together. The methods described here are not carved in stone; feel free to adapt them as you see fit.

## THE GROWING ENVIRONMENT

The most important factor in growing healthy plants is to provide the right environment for the vegetables to be grown. The main factors to consider are air temperature, air humidity and quality, light, water and soil or compost quality.

The air temperature indoors is likely to be too high for most vegetables. Some, such as capsicum peppers and tomatoes will need a large South-facing window as they need a very warm environment. The most comfortable relative humidity range for humans is some 50 to 60% and for plants is some 55 to 75%. A hot, stuffy room can be as low as 40% - too low for the vast majority of vegetables. Regarding air quality, plants need ventilation but not cold draughts. Good ventilation promotes good growth and reduces the risk of fungal attack.

Light level is most important, and is perhaps the biggest single problem with growing vegetables indoors. It is easy to be deceived into thinking that an area is brighter than it really is by eye. For “patio growing”, a simple cold frame can be constructed from surplus materials for growing smaller vegetables. Cloches can be made up or purchased. Root vegetables such as beetroot and radish require slightly less light than leafy vegetables, and can be grown on an unobstructed East or West facing windowsill. Plants need a good balance of heat and light to grow well. Too much heat and too little light will result in weak, spindly growth.

Vegetables will not normally thrive in the low light levels that many house plants will tolerate. There is about twice the light available to plants grown in a window box as there is to those grown on the inside windowsill. Reflective material placed behind indoor plants will help, but will exclude some light from the room. Window boxes need to be easily and safely accessible. Effectively, the growing season for indoor windowsill cultivation lies between late March and late September.

Vegetables generally need more careful watering than most house plants. As a rule, the soil or compost must be moist at all times, but not overwatered. The best way to avoid this is to have drainage containers such as saucers with a shallow layer of fine gravel to drain surplus water from pots. Many factors determine how much, or how little water to give to the plants. Different species have different water requirements, some composts hold water better than others, plants need more water during hot weather, etc. It is best not to expose small flower pots to the Sun in warm weather; shade the pots to prevent the risk of the roots overheating.

Good cultivation is the best defence against pests and diseases, especially with indoor cultivation. Check the vegetables every day for health, and that the soil is moist.

## THE GROWING MEDIUM

Compost bought ready made from shops is the "safest" with regard to soil-borne pests and diseases and is the most convenient growing medium. However, over the long term it would probably be the most expensive item. Peat-based composts can be ecologically unsound in that their widespread use can lead to the depletion of peat bogs and the habitat they provide for wildlife. There are ready-made eco-friendly composts available. Good home-made compost is ideal.

One approach is to buy compost for growing seedlings, as little is used and the possible presence of pests is avoided at the most vulnerable stage of plant growth. A mixture of topsoil (check for slugs) and home-produced compost could be used for growing the young plants to maturity. Soil can be sterilised by baking in an oven at about 150 degrees C (300F) for 10 or15 minutes, if this is felt to be necessary. A good gardening book will give details on compost making and soil fertility.

## EQUIPMENT

The minimum tools required are a small trowel and fork for "working" the growing medium, a small watering can and a pencil-sized dibber for sowing seeds. A pair of tweezers will help when handling seeds individually. For outdoor cultivation a full-size set of tools will be required. Also, a few seed trays (without drainage holes) and the small square starter pots (called "minipots" from now on) that fit 24 to a seed tray will be required. These are supplied joined together for ease of handling, and can be placed in the seed trays as one unit. They are fragile, but can be separated by cutting carefully apart with scissors if required. Pot labels will be needed; these can be cut from old margarine cartons or similar.

Containers must be large enough to accommodate the vegetable and its root system. Generally the minimum size needed for growing vegetables in flower pots is 150mm or 6 inches high and the same in depth. Old plastic containers, chimney pots, old sinks, polythene-lined wooden boxes or even old lavatory cisterns can be used. The minimum internal dimensions for a window box would be 200mm wide, 200mm deep and at least 200mm long. If made of wood, growing containers need to be coated with non-toxic wood preservative. They also require drainage holes to prevent the roots from becoming waterlogged in wet weather. Using removable containers such as flower pots or plastic troughs inside window boxes can be more convenient and flexible. Any supports must be strong for safety in high winds; in addition wet soil or compost is surprisingly heavy. Vegetables can be grown in small patches of soil around the home. Hanging baskets are not recommended as they need very frequent watering during hot weather and tend to be too shallow.

.

Vegetable containers can be placed on the ground, wide steps, balconies, patios, or walls for outdoor cultivation. Shelves can be erected on the inside of windows and plant containers placed on these, but light to the room will be lost. Plant pots can be placed on furniture next to windows. Plants grown indoors are best equipped with very deep

drainage “saucers” at least 50mm (2 inches) deep to minimise the risk of water spillage on furniture and carpets. Attractive plant pot holders can be purchased from garden shops, or far more cheaply from car boot sales. Growing containers can be obtained from these sources.

## PREPARATION

Any garden needs to be organised and this is essential in order to make the best use of very limited space, particularly for those with little or no experience. Decide what is to be grown, how many of each vegetable is to be grown (bearing in mind available room) and where to grow them, depending on light requirements, etc. Allow sufficient room for the plants when they mature. As few seeds are likely to be used it is worth sharing seeds with friends where possible. Most vegetables can be germinated anywhere in the home if the temperature is in the range 15 to 21 degrees C (60 to 70F). Capsicum peppers and tomatoes germinate best at some 18 to 22 degrees C (65 to 72F). A heated propagator could be used – they use only some 10 to 20 watts of power. Place in the light as soon as the first shoots appear.

Fill as many minipots as required with compost and water thoroughly. These are normally arranged in six rows of strips of four. Label each minipot or strip to avoid confusion later. If different seeds are being planted in the same tray, separate the strips with scissors beforehand to enable each strip to be easily removed as the seedlings germinate; these can then be placed in the light.

## SOWING

Vegetables such as radishes, beetroot and carrots do not tolerate root disturbance and it is best to sow these seeds straight into their final containers. Use fine, perhaps sieved, compost for all seeds and sow indoors if possible. Large seeds such as beetroot can be sown individually; small seeds such as carrot can be mixed with sand and sown thinly. Always sow a few extra and select the strongest seedlings for growing to maturity. Harvest before they reach their full size if grown indoors on a windowsill; for example aim for finger-sized carrots.

When sowing different seeds, close each packet in turn and ensure no seeds are sticking to the fingers before opening the next packet. When the seeds have been sown the trays can be covered with a layer of newspaper and put away to germinate. Check daily for germination and that the compost is moist. Do not overwater as this will encourage fungal attack. When the first seedlings have germinated remove the newspaper, move the tray or pot(s) to a North facing windowsill for a day and then place in their final position.

As a rule it is best to sow at the earliest time recommended on the seed packet. Vegetables can be started earlier indoors, but judgement and luck are required to avoid frost damage to any tender plants that are to be grown outside. Where vegetables are to be grown outside and the first true leaves are fully developed, the seedlings are ready for “hardening off” or acclimatisation to outdoor conditions. Start by placing them outside during the day only in a sheltered spot under light shade for 4 or 5 days. Then leave them outside in a cold frame or under plastic for the next 3 to 6 days, depending

on the weather. Then plant out, or alternatively remove the cover and leave them in place.

Slugs are particularly fond of young plants, so keep an eye on them. It has been found that eco-friendly methods of discouraging slugs, such as beer traps or using soot or sharp sand as a barrier, have only limited effectiveness. Hand collecting slugs at dawn or dusk still gives them plenty of time to wreak havoc, particularly during wet weather, and it's easy to miss some. A whole crop can disappear overnight. If using slug pellets (a poison) cover the plants with wire or plastic mesh to prevent birds or animals from eating them and being poisoned, and remove the dead slugs daily. Removing caterpillars from brassicas, such as lettuce and cabbage, by hand is tedious but reasonably effective. They can be covered with mesh with a maximum hole size of 8mm instead.

The seedlings are ready for transplanting when the first pair of true leaves has developed. Thin if necessary by removing the weaker seedlings. When transplanting seedlings, they should be gently handled by the leaves, not the stems to avoid damage to the stem and the risk of fungal infection. When removing the seedling from the pot, place the fore- and second finger either side of the stem. Invert the pot and gently ease the rootball out, keeping it as intact as possible to minimise root disturbance. The seedling can then be placed in its final position. Water the seedlings when transplanted and keep a close eye on them over the next few days. The minipots are flimsy but can be re-used if handled carefully.

## CLOCHES AND COLD FRAMES

Plastic cloches are cheaper, safer and lighter than glass, but are slightly less efficient. A typical plastic cloche comprises a long, clear plastic cover supported by semicircular hoops made of thick wire. The ends of the hoops are pushed into the ground to a depth of about 150mm (6 inches) to prevent the cloche from being blown away. The ends of the cloche are then tied down to prevent strong draughts from blowing along the tunnel. Ventilate during sunny weather. Any transparent cover to suit the size of the plants being grown and which can be opened for ventilation will provide frost protection and speed up growth.

A typical cold frame is an unheated box with no bottom and a hinged, sloping glass top inclined at some 20 degrees to the horizontal. The top faces South and can be propped open or removed for access and ventilation. When going away during Summer, it is safest to open or remove the cover. These can be home-made - old windows can be used for the top and timber for the sides. Protect the wood with plant-friendly wood preservative. Ordinary chipboard, Samson board or blockboard are unsuitable for outside use as they will not tolerate damp conditions for long, and will disintegrate. WPG grade plywood should last for some years.

Lean-to structures or enclosures of various types are available from garden shops, from the size of a large suitcase upwards. These are convenient and relatively inexpensive but are usually not very robust. Even a simple plastic windbreak will give plants shelter. There is no need to ventilate and some rain will find its way in. The clear plastic supplied is often lightweight and not very resistant to ultra-violet or frost and can disintegrate after a year or two. The better material is the heavy-duty ultra-violet resistant type; it is also more resistant to high winds.

# THE VEGETABLES

Following is a selection of suitable vegetables. The list is not exhaustive, but those described here are not difficult to grow.

**TOMATOES AND CAPSICUM (SWEET) PEPPERS.** These require a greenhouse, conservatory or a large South-facing window. Sow one seed per minipot and put in a warm place (18 to 22 degrees C). Transplant the stronger seedlings, one to a 300mm (12 inch) pot or a 10 litre (2 gallon) container. Feed with liquid manure every 2 weeks or apply organic slow-release fertiliser when they begin to fruit. Mist regularly when flowering to encourage the fruit to set. The plants will need support as they mature. It is best to harvest peppers whilst still green, but just beginning to turn red. They taste the same and it may be too late in the year to allow the extra time for them to turn red.

**BEETROOT AND CARROT.** Both of these like cool growing conditions and seeds can be sown in a cool part of the home. Both will need to be sown in their final containers to avoid transplanting them and disturbing their roots. Sow beetroot seeds individually about 25mm (1 inch) apart and remove the weaker seedlings such that the remainder are about 100mm (4 inches) apart, or about 6 to a 300mm (12 inch) pot. Harvest when they are about the size of a golf ball.

Small varieties of carrot are best for container growing. Mix the seeds with sand and sow thinly into fine compost with sand added, as carrots like a well drained, sandy soil. Thin to about 100mm (4 inches) apart, or about 8 to a 300mm (12 inch) pot when the seed leaves are fully developed. Cover with a piece of net curtain if outside to deter the carrot fly, which has an acute sense of smell and can smell the damaged, thinned plants. Remove the net curtain after a few days. Harvest when they are the size of a large finger. Growing onions or garlic nearby helps to deter the carrot fly throughout the rest of the growing season – this is a form of companion planting.

.

**CABBAGE.** Try only the miniature varieties as cabbage has a lower tolerance to root restriction than many plants. Sow about 3 seeds per minipot, in pre-watered compost as usual. Transplant into their final containers; a 200mm (8 inch) pot per plant or a window box will suit. To deter cabbage root fly if grown outside, cut 150mm (6 inch) squares from an old piece of carpet, cut a slit from one edge to the centre and cut a 20mm (3/4 inch) hole in the centre. Slide the stem of the plant through the slit to the centre. This prevents the fly from laying its eggs, which develop into larvae which then attack the roots of the plant.

**DWARF FRENCH BEANS.** These can be started indoors by planting one seed in each minipot. When they are ready, transplant and place on a sunny windowsill. Alternatively, harden off and plant out, one to a 150mm (6 inch) pot or about150mm apart. Late frosts can kill the plants, so do not sow too early.

**LEEKS.** These hardy, pest-resistant vegetables can be grown from seeds sown two to a minipot and transplanted into pots, a cold frame or outside when about 100mm (4 inches) high. Use 300mm (12 inch) pots, filled only to 200mm (8 inches) deep, 4 to a pot and about 150mm apart. The remaining room in the pot can be used to “earth up” the plant by progressively adding compost as the plant develops to blanch the stem. They can be moved from a West- or East-facing window to a South- facing window when the tomatoes have finished if grown indoors, in order to receive the best light during the Winter months.

**LETTUCE.** They are a useful salad crop where sowings can be made every 8 weeks or so through the late Spring and Summer for a more or less continuous supply. Sow thinly in minipots and transplant into 150mm pots, or window boxes, when ready. Lettuce grown indoors needs good ventilation and needs regular watering during hot weather. An unobstructed West- or East-facing window will suit them.
Sow during August or September and cultivate as for lettuce for a late Winter crop. Pick leaves as required (new ones will grow), or harvest the whole plant. Grow on a West- or East-facing windowsill. They can be moved to a South-facing windowsill after the tomatoes or capsicum peppers have been harvested, to get the best light during the dull months.

**ONIONS.** Spring onions are the more suitable for small-scale cultivation as they take up little room and a dozen can be grown in a 200mm pot. Sow seeds thinly in their final container in fine compost and thin later. To grow full-sized onions, try onion sets (onion bulblets ready for planting), one per 150mm pot. They give a head-start over growing from seed and are said to be more resistant to onion fly. Onions like plenty of light and cool conditions. Towards the end of August bend the tops over and leave for about 2 weeks to ripen before harvesting.

**GARLIC.** Perhaps the easiest way to produce garlic is to buy a bulb from a greengrocer and plant individual cloves. Plant 50mm deep, one to a 150mm pot or 130mm apart in late March. Lift when the foliage turns yellow during late Summer and allow to dry indoors. Store in a cool, dark, dry and frost-free place.

**RADISH.** These are quick growers and easy to cultivate. They can be grown with slow-growing crops and harvested before the other crop has matured and needs the space (intercropping). Sow the seeds thinly in their final container or position, and thin when ready. Sow a few seeds about every 2 months and keep well watered.

**SPINACH.** Sprinkle a few seeds in minipots and transplant into 200mm pots. They will be smaller than when grown in the garden. Spinach will stand light shade. Water well in dry conditions to discourage them from going to seed. Outer leaves can be removed as required.

**SWISS CHARD.** Sow and thin as for spinach. They yield well and are easy to grow. Transplant from minipots, one to a 200mm pot. Harvest by carefully removing leaves and stems as both can be eaten; new ones will grow in their place. Swiss chard needs liberal watering and will stand light shade.