Container Gardening

Container gardening is ideal for people with limited garden space, or for gardeners who are unable to manage a large garden and the physical work it requires to maintain one.

Soil

Regular garden soil is too heavy and dense for use in container gardening. The ideal soil for use in containers drains well, retains moisture, and provides support for the plants. A recommended mix is to combine one part of packaged potting soil with two parts organic matter such as compost, shredded bark, leaf mold, peat moss, cow or sheep manure, etc. Adding sharp builders sand will help improve drainage. It is important to remember that this mixture may have to be tailored to suit different plants' needs.

Watering

Plants in containers need much more water than those planted in the ground. The smaller the container, the faster the soil dries out, especially on balconies and rooftops where wind exposure tends to increase. It is important to monitor plants carefully. There are ways to protect the plants and save water. Using a good soil mix with a lot of organic matter will help to retain more moisture.

Water plants thoroughly, until water seeps out of the drainage holes at the base of the container. This will ensure that water is getting to where plants need it and can use it, at their roots. It is also best to water plants during the cooler parts of the day, usually the morning or evening. This will also lessen the loss of water through evaporation and ensure that plants remain unstressed into the hottest and/or driest parts of the day.

Finally, spread a layer of mulch such as shredded bark, straw, cocoa bean shells, pieces of black fabric or plastic sheeting, on the soil surface, to insulate the soil, minimize evaporation and keep the soil moist and cool.

Fertilizers

Since container grown plants have restricted space for roots, they can often become nutrient stressed. To maintain vigorous growth, use organic fertilizers such as liquid kelp, fish emulsion, compost tea and worm castings, especially when growing food. A general recommendation is to apply half the recommended strength twice as often.

Containers

There is a range of containers to choose from for container gardening. However, it's important to choose a container that will provide enough room for the roots of the plant. Make a few drainage holes in the bottom of the container. Add a layer of gravel, pebbles or broken clay to keep the drainage holes unobstructed, and line the container with plastic if it is too porous. Using containers for gardening has the added advantage of keeping the plants moveable. For example, if full sun is unavailable, plants may be moved to areas where they can get the most sun during the day.

Crop and Plant Selection

Many plant varieties are well suited to container gardening. Group plants with similar needs in the same container, and place plants in different containers, but with similar needs in the same area. Thus, maintenance such as watering is easily managed. Select plants that have shallow root systems that do not require constant moisture. It is best to plant a combination of plants with different root systems, so that they will not have to compete for the same root zone.

(Adapted from: The Toronto Community Garden Network, Simple Steps to Successful Container Gardening)

Vegetable Varieties for Container Gardening

Tomatoes:	Patio, Pixie, Tiny Tim, Saladette, Toy Boy, Spring Giant, Tumbling Tom, Small Fry
Peppers:	Yolo Wonder, Keystone Resistant Giant, Canape, (Hot) Red Cherry, Jalapeno
Eggplant:	Florida Market, Black Beauty, Long Tom
Squash:	Dixie, Gold Neck, Early Prolific Straightneck, (Green) Zucco, Diplomat, Senator
Leaf Lettuce:	Buttercrunch, Salad Bowl, Romaine, Dark Green Boston, Ruby, Bibb
Green Onions:	Beltsville Bunching, Crystal Wax, Evergreen Bunching
Green Beans:	Topcrop, Greencrop, Contender, (Pole) Blue Lake, Kentucky Wonder
Radishes:	Cherry Belle, Scarlet Globe, (White) Icicle
Parsley:	Evergreen, Moss curled
Cucumbers:	Burpless, Liberty, Early Pik, Crispy, Salty

Planting Information

Crop	Number of days for germination	Number of weeks to optimum age for transplanting	General size of container	Amount of light* required	Number of days from seeding to harvest
Beans	5-8	-	Medium	Sun	45-65
Cucumbers	5-8	3-4	Large	Sun	50-70
Eggplant	8-12	6-8	Large	Sun	90-120
Lettuce, leaf	6-8	3-4	Medium	Partial shade	45-60
Onions	6-8	6-8	Small	Partial shade	80-100
Parsley	10-12	-	Small	Partial shade	70-90
Pepper	10-14	6-8	Large	Sun	90-120
Radish	4-6	-	Small	Partial shade	20-60
Squash	5-7	3-4	Large	Sun	50-70
Tomato	7-10	5-6	Large	Sun	90-130

* All vegetables grow best in full sunlight, but those indicated will also do well in partial shade.

(Source: http://www.aggie-horticulture.tamu.edu/extension/container/container.html, Vegetable Gardening in Containers)

Problems

Symptoms	Cause	Corrective measures
Plants tall, spindly and unproductive	Insufficient light	Move container to area receiving more light
	Excessive nitrogen	Reduce feeding intervals
Plants yellowing from bottom, lack vigor, poor color	Excessive water	Reduce watering intervals; Check for good drainage
	Low fertility	Increase fertility level of base solution
Plants wilt although sufficient water present	Poor drainage and aeration	Ue mix containing higher percent of organic matter; increase number of holes for drainage
Marginal burning or firing of the leaves	High salts	Leach container with tap water at regular intervals
Plants stunted in growth; sickly, purplish color	Low temperature	Relocate container to warmer area
	Low phosphate	Increase phosphate level in base solution
Holes in leaves, leaves distorted in shape	Insects	Use EPA-recommended insecticide
Plant leaves with spots; dead dried areas, or powdery rusty areas	Plant diseases	Remove diseased areas where observed and use EPA-recommended fungicide

(Source: http://www.aggie-horticulture.tamu.edu/extension/container/container.html, Vegetable Gardening in Containers)

Organic Alternatives and Natural Insect Control

A healthy lawn shouldn't need pesticides. To reduce the need for pesticides and maintain a healthy lawn, aerate, overseed, apply mulch, and fertilize naturally.

A garden is like a small ecosystem with living organisms living in balance. If you are able to tolerate some damage, nature may address the problem. Yet, if it becomes necessary to intervene, try to avoid using chemical pesticides. These products may provide effective short-term relief from weed, plant, or insect damage, but they do not help in developing the long-term health of the garden. In fact, chemical pesticides will kill many of the bugs that are beneficial for the garden, including microorganisms living within the soil that contribute to soil and plant health. Use of chemical pesticides can harm the health of children, adults, pets and the land and waterways in our local environment.

Pests and disease occur due to certain events and conditions that enable them to develop and persist. For example, excessive fertilization or too much nitrogen content in soil can cause soft, lush, growth that attracts aphids - aphids encourage the spread of mould and fungus. Stress due to problems with light, temperature, water, and/are nutrients, makes plants more susceptible to pests.

Using plants to protect other plants

Protecting plants from unwanted insects by using other plants is the natural, chemical-free way to remove harmful insects from your garden without eliminating beneficial bugs.

Research indicates that plants produce excessive foliage and can afford some pruning. Natural pruning by insects can improve yields and increase the vitamin content of fruit in certain plants.

Planting practices:

A certain relationship exists between plants, and between insects and plants. Companion planting refers to the practice of planting according to these relationships. There are four different practices involved in companion planting:

Mixed: Planting several different plants together, as in nature, so that insects are confused by the multitude of "smells" and have more difficulty finding the plant they prefer to eat and lay their eggs on.

Repellent: Certain plants such as marigolds, mints and garlic are offensive to some insects, and will deter them when planted near other plants.

Companion: Combinations of plantings produce crops that grow better and are healthier because of their proximity.

Trap: Lure plants are located near a plant you want protected. Insects attack the lure plants and can then be hand-picked and destroyed.

Additional tips:

Learn to identify insects and diseases so you'll be able to detect problems early.

Encourage natural enemies such as toads, birds, ladybugs and praying mantis, who will eat harmful bugs.

Rotate crops to avoid a build-up of pests in any one area.

Companion Planting with Helpful Herbs and Flowers:

When planning your next garden, experiment with these forms of natural plant protection. No doubt you will also come up with your own safe and effective combinations.

Plant	Companion	Advantages
Basil	Tomato	Improves growth and flavour; repels flies and mosquitoes.
Dill	Tomato	Traps the tomato hornworm.

Garlic	Roses, Raspberries	Improves growth and health; deters Japanese beetle.
Lamb's Quarter	Throughout garden, near corn.	Trap for aphids.
Marigolds(smelly types like Mexican, African and French)	Throughout garden.	Discourages Mexican beetles, nematodes and other insects.
Mint	Cabbage, Tomato	Improves health, flavour; deters the white cabbage Moth, ants, aphids and flea beetles.
Nasturtium	Radish, Cabbage, Cucurbits and under fruit trees.	Trap for aphids. Deters squash bugs, whitefly, Striped pumpkin beetles and Colorado potato bug.
Wormwood	In perennial border.	Deters small animals and flea beetle and slugs.

Plants that naturally repel insects:

Pest	**Plant repellent**
Ant	mint, tansy, pennyroyal
Aphids	mint, garlic, chives, coriander, anise
Bean leaf beetle	potato, onion, turnip
Codling moth	common oleander
Colorado potato bug	green beans, coriander, nasturtium
Cucumber beetle	radish, tansy
Flea beetle	garlic, onion, mint
Japanese beetle	garlic, larkspur, tansy, rue geranium
Leaf hopper	geranium, petunia
Mexican bean beetle	potato, onion, garlic, radish, petunia, marigolds
Mice	Onion
Slugs	prostrate rosemary, wormwood
Spider mites	onion, garlic, cloves, chives
Squash bug	radish, marigolds, tansy, nasturtium
Stink bug	Radish
Thrips	Marigolds
Tomato hornworm	marigolds, sage, borage
Whitefly	marigolds, nasturtium

(Source: http://www.toronto.ca/compost/plants.htm, Household Hazardous Waste – Non-Hazardous Alternatives: Using Plants to Protect Other Plants)

Natural Recipes for a Pest-Free Garden

There is a range of non-hazardous alternatives and natural recipes to deter pests in the garden. Consider the following recipes to create safe and effective deterrents to bugs, pets, and other pests.

All-Purpose Insect Spray:

1 garlic bulb
1 litre of water
1 small onion
1 tbsp. Cayenne pepper
1 tbsp. liquid hand soap

Chop or grind the garlic and onion, add cayenne and ix with water.
Leave to steep for one hour, then add liquid hand soap.
Store in a covered jar and refrigerate fro up to one week.
Use spray wherever insects are causing a problem.

Animal Repellent Sprays:

Squirrels	*Cats*	*Dogs*
14ml Tabasco sauce	2 parts cayenne powder	1 garlic
1 tsp. Chili powder	3 parts dry mustard powder	1 medium onion
0.5 litres of water	5 parts flour	1 litre of water
dash of dish soap	add enough water to create spray	1 tsp. Tabasco sauce

Use as a spray on plants and other areas around the yard or garden where these animals are causing a problem.

Traps:

Aphids
use pieces of masonite or other stiff material measuring 25 cm by 25 cm,
paint bright yellow and coat with Tap Trap or Tack Trap or Tanglefoot or petroleum jelly,
place near affected plants.

Earwigs
place pieces of cardboard near lettuce, Chinese cabbage, and other plants or flowers that earwigs are attracted to,
earwigs will hide under the cardboard,
collect a few days later.

Slugs and Squash Bugs
lay boards out near affected plants,
the boards will provide daytime shelter for these nocturnal insects,
inspect regularly and remove harmful insects.
(Adapted from: http://www.city.toronto.on/ca/hhw, Household Hazardous Waste-Natural Recipes for a Pest-Free Garden)

Natural Recipes for Insecticides and Fungicides

Problem	Solution	Recipe
Aphids, thrips	Stinging nettle spray	Cover 1 litre (1 quart) nettles with water, cover container and steep for 3 weeks, dilute with 7 parts water.
Aphids, June beetles, Black Spot, fungus, diseases	Rhubarb spray	Steep 6 rhubarb leaves in 2.3 - 3.4 litres (2 – 3 quarts) boiling water.
Chewing/sucking insects, leaf spot, rust, spore disease	Garlic spray	Steep 3 cloves of garlic, 1 mildew, medium onion and 1 tsp of very hot pepper in 1 litre (1 quart) water for 10 minutes; strain. Can be diluted with water 1:4.
Chewing/sucking insects	Pyrethrum spray	Steep 1 tbsp of dry flower heads in 2.3 litres (2 quarts) hot water. Pyrethrum (Chrysanthemum cinerariaefolium) is an attractive perennial with marguerite daisy-like flowers.
White flies	Mullein spray	Steep 1 part mashed mullein leaves with 5 parts water.
Aphids, asparagus larvae, Black Spot, scale insects	Tomato leaves	Steep 10 chopped tomato leaves and 1 chopped onion in 113 ml (½ cup) alcohol for a few minutes; apply with a swab.
Spider mites, cabbage worms	Salt solution	28 g (1 oz) table salt in 4.5 litres (1 gallon) water.
Mosaic disease on tomatoes and peppers	Skim milk spray	Apply sour milk to rid cabbage worms
Potato blight, Black Spot, yellowing tomato(Liquid)	Manure tea	½ commercial bag of manure or 1 mesh onion mag fill of old manure leaves and straw steeped in a large plastic garbage can half full of water.

(Source: http://www.city.toronto.on/ca/hhw, Household Hazardous Waste- Non-Hazardous Alternatives: Natural Recipes for a Pest-Free Garden)