WASHINGTON STATE UNIVERSITY
SNOHOMISH COUNTY EXTENSION

Community Horticulture Fact Sheet # 39
Container Vegetable Gardens

Are you a frustrated gardener living in an apartment or house without a speck of yard to garden? Do not despair! You can grow almost any vegetable in containers on a balcony, patio or doorstep. Growing food in pots, boxes or other containers is easy and offers advantages over growing in the ground. Many gardeners with plenty of garden space still grow certain things in pots. Containers expand "tillable" land onto paved areas. They allow the positioning of heat-loving crops, like tomatoes and peppers, in full sun or where they will get reflected heat.

CONTAINERS Any container used for growing plants must have holes to allow excess water to drain away. Holes should be on the container's sides, near the bottom, but not on the bottom itself. They should be at least ¼ inch in diameter. If the basic need for drainage is met, any container that will hold soil can be used to grow plants.

Some commonly available, cheap containers include: plastic or metal buckets in which restaurants get vegetable oils or other foodstuffs, old leaky pails, fruit boxes lined with plastic (remember to poke drain holes); plastic garbage cans and nursery pots. Clay pots are often available, but they will require water much more frequently, since they dry out quickly. Heavy plastic bags of varied capacity can be used to grow plants. In Britain, tomatoes are commonly grown in soil-filled plastic bags.

Generally, large plants require wider and deeper growing spaces than small plants. Large containers make more efficient use of space and protect plants from freezing in winter or baking on warm summer days. Smaller containers are easier to move and may be better for warm-season crops that you want to start inside or move to protected areas occasionally. Shallow containers, 8-10 inches deep, are fine for most vegetables, but they dry out faster than deeper ones. Some crops, like tomatoes, peppers and carrots, need deeper containers.

Starting plants inside early and moving them outside as weather permits is a good way to get early harvests. Remember, plants must be conditioned for the harsh weather (cold and wind) outside or they will suffer permanent damage from the change. This "hardening" is usually done by putting them out in a protected area and bringing them back inside at night for several days. Withholding fertilizers, reducing watering and moving plants into a cooler intermediate place for a few days before putting them out, can help harden them.

SOIL AND FERTILIZERS Commercial potting mix has many advantages over garden soil for containers. It is light, drains easily, holds moisture and nutrients well and is disease-free. Potting mix can be home-made from equal parts of coarse sand or perilite, peat moss and vermiculite. If you have well-rotted manure, compost or leaf mold, substitute it for the peat moss. You can extend the mix with a good garden soil (not clay), but it should make up no more than a third of the total volume. Mix and moisten the ingredients thoroughly before use.

Potting soils are very low in nutrients, so fertilizers must be added. To each 16 gallons or 2.5 cubic feet, add 1 cup dolomite lime and 1 cup 5-10-10 fertilizer. In place of the 5-10-10, a complete organic fertilizer can be made from:

- 1 cup cottonseed meal or 2/3 cup blood meal and
- 2 cups bone meal and
- 1 cup kelp meal

Organic fertilizers release nutrients slowly. They will not be available to your crop quite as fast, but they are less likely to burn plants and they feed them over a longer period.

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While crops are growing, additional fertilization is done most easily with liquid fertilizers such as fish emulsion or a soluble chemical fertilizer. If you over-apply fertilizers (scorched leaf edges are a common symptom), wash out the excess by watering using three times as much water as the volume of soil to be cleansed.

Each time you harvest and replant a container, mix in a complete fertilizer. Lime needs to be replaced only once a year, as does compost, leaf mold or manure.

Potting soils are very loose and light, but will compact when watered. To make sure you have enough soil in a container, gently push the soil down, especially around the edges, as you fill it. If using plastic containers, you may pick them up and gently drop them to firm the soil. When settled, the soil should come to about an inch below the container's rim, to allow room for watering.

CROPS Choose your crops by what you like to eat and what your site allows. Light is the most limiting factor. Most vegetables require a minimum of six hours of direct sunlight a day. Leafy vegetables (lettuce, spinach and other greens) can stand more shade than root crops (beets, carrots). Fruiting crops (tomatoes, peppers) will not thrive at all in a shady spot. It is important to grow varieties adapted to our cool, cloudy climate, especially of such heat loving crops as tomatoes and peppers. See Community Horticulture Fact Sheet #25 "Recommended Vegetable Cultivars."

One factor to consider when growing in a limited space is what crops will produce the most food. Crops trained up trellises or strings dangling from eves, are a very productive way to use a small space. Crops which can be trained up include tomatoes, peas, beans and cucumbers. If you cannot provide supports, be sure to grow bush varieties of these crops. Cherry tomatoes can also be grown from hanging pots and allowed to dangle over the edges.

Crops should be grown successively. Keeping your containers full all year gives you more food from the same space. Beans or squash can follow an early crop of spinach or lettuce, for example. See the Cultural Requirements Chart for information on when to plant a crop and how long it will take until harvest.

To get a lot of good with little labor, grow crops that you can harvest continually over a long season. Leafy plants like chard, spinach, mustards, collards and kale can be harvested this way. You can also prolong the harvest by sowing crops very thickly and thinning them for salads as they grow crowded. Thinning allows the remaining plants room to grow and they can be thinned again each time they become crowded. Grow green onions, leeks, mustards, lettuce, spinach, turnips, beets and carrots this way.

Yields of all crops will be increased by closer spacing (up to a point). A good rule to follow is to grow plants at the distance recommended for space "in rows" on seed packets and ignore the recommendation for space "between rows." (Example: a beet seed packet says to space plants 3 to 4 inches apart in rows 12 inches apart. You can grow them spaced 3 to 4 inches apart in both directions.) Generally, spacing plants closely results in a higher total harvest of slightly smaller individual plants.

<u>In a 6-inch or 1-gallon pot you can grow</u>:

- 1 lettuce or chard plant, or
- 6-8 radishes or green onions, or
- 3 spinach plants, chives, or parsley

<u>In a 5-gallon bucket you can grow</u>:

- 1 tomato, pepper or zucchini, or
- 3-4 lettuce, or
- 1 cabbage or broccoli (with 15 radishes or 8 spinach), or
- 15 carrots or beets, or
- 6 bulbing onions, garlic or leeks, or
- 8 mustards or turnips for greens.

<u>In a half whiskey barrel you can grow</u>:

- 10-12 lettuce, or
- 60 radishes or green onions, or
- 50 carrots or beets, or
- 3 broccoli or cabbage (with several spinach), or

- a whole salad: 4 lettuce, 1 tomato, 8 carrots, 12 radishes and 12 green onions.

Most vegetables can be sown directly into the container. Follow seed packet instructions for planting depth or figure roughly three times the diameter of the seeds (e.g., tiny seeds like lettuce, 1/8-1/4 inch deep and big seeds like squash, ½-1 inch deep).

Many crops can be started in small pots indoors and transplanted out when they are well established. Starting plants this way lets you keep limited growing space full and more productive, gives crops a head start, and makes it easier to take care of young plants. Two WSU Extension bulletins offer good information on starting seedlings: "Home Gardens" (EB0422), and "Propagating Plants from Seed" (PNW0170).

WATERING Irrigating container-grown plants is a little tricky. Overwatering and underwatering are the most common causes of failure. Remember that irrigation water is all the moisture container plants get; they cannot send their roots deeper to find water. Large plants drink a lot on warm days, so water them often. Check plants every day. On the other hand, don't drown plants either. If you have a saucer under the container, drain away any water that isn't absorbed in a couple of hours.

The best guide to whether or not a container planting needs watering is to stick a finger down 2 or 3 inches into the soil and see if it is moist. If it is dry, water! (Of course, in newly seeded or transplanted containers, the soil should be moist all the way to the surface.) Check every day until you get a good sense of how often your plants need water. They may need it every day.

Water a pot until the water starts to come out the bottom of the container. Potting mixes, especially those with a lot of peat moss, can be difficult to rewet once they dry out. Sometimes water will not penetrate these mixes, but will just drain down the sides and out the bottom. If the soil is still dry an inch or two down even though it is draining out the bottom, break up the top layer, poke some holes in the mix and then water again.

INSECT, DISEASES AND WEEDS
Container grown plants are susceptible to the same insect and disease problems as any other crops. The "Home Gardens" bulletin (EB0422) and "Organic Pest Control in Vegetable Garden" (Community Horticulture Fact Sheet #13) will help you identify and minimize garden pests, diseases and cultural mistakes. Weeds can take over potted plants, robbing your crops of needed nutrients and sunlight. Fortunately, weeds are easy to pull in your containers.

GUIDE TO CULTURAL REQUIREMENTS OF VEGETABLES

CROP	WHEN TO PLANT	WEEKS FROM SEED TO HARVEST	SPACE BETWEEN PLANTS (INCHES)
Beans	May –June	Bush – 8 to 9 Pole – 10 to 11	4 to 6
Beets	March – August	9 to 10	2 to 3
Thin when 6-8" tall for greens. Harvest when 1 to 2 inches in diameter.			
Cabbage & Broccoli	February – July	17 to 18	12 to 16
Start seeds indoors; transplant at 2-leaf stage to pots, with 5 leaves to outside. Plant seedlings deeply.			
Carrots	April – July	10 to 13	2 to 3
Chives & Parsley	February – May	About 12 to first cutting	10
Divide chive clumps every 2 years. Parsley germinates slowly; soak seeds overnight before planting.			
Greens: Mustard, Collards, Turnips, Chard, Kale & Choy	March – April July – September	6 to 10	6 to 10 (or 3 to 4 to eat thinnings)
To prolong harvest, pick leaves without cutting entire plant. Good for successions; may over-winter.			
Lettuce (leaf) and Romaine	March – September	9 to 10	6 to 10
Lettuce likes cool weather. Start it early inside; sow more every few weeks for continuous harvest.			
Onions	Sets: March – April Seeds: March – April	12	green: 1", bulbing: 5"
Peas	February – July	About 16	2 to 3
Edible-podded peas are the most productive. Plant enation mosaic virus resistant types May – July.			
Peppers & Tomatoes	Set out May or June	4 to 6 months	1 plant per 2-3 gallon container; peppers can grow in a 1 gallon
Start seed indoors 6-8 weeks earlier. These plants need heat; put container against south or west-facing wall. Avoid tomato late blight disease by keeping foliage dry under house eaves or plastic tent.			
Radishes	February-September	4 to 5	1 to 2
Require constant moisture. Harvest when 1 inch or less in diameter.			
Spinach	February-May, Sept.	6 to 9	3 to 4, scatter sow
Eat thinned seedlings. With protection, spinach can over-winter for early spring harvest.			
Summer Squash & Cucumbers	Set out May-June	8 to 9; 10 to 12; for cucumbers	1 plant per 3-5 gallon container (2 gallon okay for cucumber)
Sow indoors 3 weeks before transplanting. Need heat; cover with clear plastic on cool spring nights.			

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