Department of Horticulture

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Small Plot and Intensive Gardening

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In these times of rising prices, more people than ever are returning to growing their own garden vegetables. And they are discovering or rediscovering that vegetables harvested from the garden at their peak of quality are more nutritious and tasty than those purchased in stores.

With today's lifestyle, many homeowners have limited space available for a garden compared to the more traditional sprawling country garden. Some would-be gardeners have no home garden space at all. As a result, garden plots are springing up in back yards and front yards, on balconies, and in container-planters, as well as in rental plots in urban areas and on sites surrounding factories. Although space may limit the amount of vegetables you can grow, you can stretch the space you do have with intensive gardening techniques.

This publication will help you get your garden off to a good start and guide you to maximizing the rewards from your gardening efforts.

Site Selection

Try to select a site which has at least 6 hours of sunshine each day. Vegetables grown in shady locations usually have poorer quality and lower yields. A space along a garage or house can be useful, and rental plots in community gardens often are available. Garden sites which have had a sod cover or been grown in weeds for several years should be turned the fall preceding planting to reduce spring weed growth.

Preparation

Decide which vegetables you want in your garden. Learn how much space they will need and how many seeds or plants are necessary (see Table 1). Then plan your garden on paper, so that when it is time to plant, you will know exactly what to do .

Gather gardening materials early. Secure a spade or shovel, rake, hoe, garden hose or sprinkling can, string, stakes (both large and small), fertilizer, and the desired seeds and plants.

If possible, turn the soil in the fall. If not, then rototill, spade, or plow the area to a depth of 6-8 inches as early in the spring as the soil is workable. Do not turn soil when it is wet, because it will remain hard and lumpy all season. After soil has dried, remove all sod clumps, sticks, stones, and other debris, and level the area with a rake.

Just before you level the soil for the last time, spread a balanced analysis fertilizer such as 10-10-10 evenly over the garden area. Use 3-4 pounds per 100 square feet (10 ft. x 10 ft.) and rake it in. For very small beds, use 3-4 teaspoons of fertilizer per square foot.

Plastic mulch, like other mulches, will prevent weed growth and conserve soil moisture. Additionally, black plastic will speed up warming of the soil, which is desirable for warm season crops such as tomatoes, peppers, and vine crops. The plastic must be spread out and anchored down along the edges before planting time. Holes are then cut through the plastic for planting either seed or transplants.

Cool season crops are better served by applying an organic-type mulch after the soil has warmed in early summer. Summer mulch will help control weeds, conserve soil moisture, and lower soil temperature.

Planting

For best production, plant vegetables at the proper time, i.e. cool season crops early and warm season crops after danger of frost is passed. Mark out seed and transplant rows with stakes so that they are as evenly spaced as possible. This not only looks better, but it also allows easier maintenance.

While many crops can be directly seeded into the ground, some crops are best started as transplants or from other plant parts (see Table 1 for recommendations). Transplanting gives those crops which require a longer growing period a head start on the season.

Table 1. What to Expect From Your Garden

Vegetable	What to plant	Potential yield per 10 ft. of row	Approximate amount of fresh vegetable needed for 1 quart (canned or frozen)
Asparagus	Crowns	5 lb.	2 1/2 - 4 1/2 lb.
Bean, lima	Seed	2 lb.	3 - 5 lb.
Bean, snap	Seed	6 lb.	1 1/2 - 2 lb.
Beet	Seed	10 lb.	2 1/2 - 3 1/2 lb.
Broccoli	Transplants	10 lb.	2 lb.
Brussels sprout	Transplants	8 lb.	
Cabbage	Transplants	10 heads	
Carrot	Seed	10 lb.	2 - 3 lb.
Cauliflower	Transplants	10 lb.	
Chard	Seed	7 lb.	3 lb.
Cucumber	Seed or Transplant	10 lb.	
Eggplant	Transplant	10 lb.	
Kohlrabi	Seed or Transplant	8 lb.	
Lettuce, leaf	Seed or Transplant	5 lb.	
Muskmelon	Seed or Transplant	10 melons	
Okra	Seed	14 lb.	1 1/2 lb.
Onion	Seed, sets or Transplants	10 lb.	
Parsnip	Seed	10 lb.	
Peas (pods)	Seed	3 lb.	3 - 6 lb.
Pepper	Transplants	6 lb.	1 1/2 lb.
Potato, Irish	Tuber (seed) pieces	10 lb.	
Pumpkin	Seed or transplant	40 lb.	1 1/2 - 3 lb.
Radish	Seed	10 bunches	
Rhubarb	Crowns	10 lb.	1 1/2 lb.
Spinach	Seed	5 lb.	2 - 6 lb.
Squash, Summer	Seed or Transplant	16 lb.	2 - 4 lb.
Squash, Winter	Seed or Transplant	40 lb.	1 1/2 - 3 lb.
Sweet Corn	Seed	13 ears	3 - 6 lb.
Sweet potato	Slips	10 lb.	2 - 3 lb.
Tomato	Transplants	60 lb.	3 lb.
Turnip	Seed	10 lb.	
Watermelon	Seed or Transplants	7 melons	

Seeds

To prepare seed furrows, mark out each row with twine tied tightly between two end stakes. Open the furrow to the proper depth with a hoe, and sow the seeds, trying to space properly. Follow directions for seeding found on most seed packets.

Do not sow seeds too deeply or they may not germinate. Place carrots, radishes, and lettuce no deeper than 1/4 inch. Large seeds such as peas, beans, and cucumbers can be sown 1 to1-1/2 inches deep. Vine crops can be planted six seeds in a cluster or hill and then later thinned to four plants
per hill.

Cover the seeds and lightly press the soil down with your hands or the rake. Be sure to label the rows.

Thin seed rows to their proper spacing after the plants are 1-2 inches tall. Thin the plants with scissors rather than pulling them so you won't disturb the other plants. Use the thinnings for salads.

Transplants

Secure sturdy transplants of recommended cultivars from a reputable garden supplier. Plant at proper distances, and set all plants at the same level they were growing in the pot. If peat pots are used, be sure to break down the edges and bottoms of the pots to allow root development. All other pots should be removed before planting. Lightly firm the soil around the transplants and water in, using a soluble plant food solution if possible. Be sure to keep transplants well watered and protected from strong winds or bright sun until they are well established. Stakes or cages for plant support should be set at planting time.

Space Saving Techniques

Interplanting. Alternate rows with a fast and slow-growing crop. When the fast crop is removed, the row spacing widens to allow ample space for the slower crop. For example, plant radishes, green onions, spinach, or lettuce between rows of cabbage, corn, Brussels sprouts, and broccoli.

Intercropping. Sow a fast and a slow growing type of seed together. For example, sow radishes and carrots together. When the radishes are harvested, then the carrots will be automatically thinned.

Succession planting. As soon as one crop is finished, plant another. For example, when cool-season crops such as lettuce, spinach, radish, and peas are harvested, replant with beans, beets, or turnips.

Band planting. Plant crops in bands of double or triple rows instead of single rows where practical. Where mechanical equipment is not being used, wide paths between rows waste valuable space. Smaller crops such as lettuce, spinach, beets, and radishes are especially suited to band planting (see Table 2 for approximate spacings).

Short row planting. Don't plant more than you will be able to use at one time, e.g. planting a long row of lettuce or two dozen cabbage plants which you can't possibly use at once. In small plot gardening, it is advisable to plant only the amount needed.

Vertical training. Many vegetables, including peas, pole beans, cucumbers, squash, melons, and tomatoes, will naturally climb a support or can be trained to grow upwards, leaving more ground space for other crops. Support structures include cages, stakes, trellises, strings, teepees, chicken wire, or existing fences let your imagination take over!

Mini Gardening. Vegetable breeders have been emphasizing smaller plants for container and small plot gardening. Although some of the dwarf or mini plants produce smaller fruits, often a greater number of fruits are produced, yielding a good total harvest. Tomatoes, peppers, eggplant, and peas are just a few examples from the mini ranks. Some new cultivars of vegetables such as tomatoes and cucumbers have compact, trailing growth habits ideal for growing in hanging baskets.

Table 2. Spacing for Band planting

Vegetable	Approximate number of plants per square foot
Bean	3 - 4
Beet	25
Broccoli	3
Brussels sprout	2
Cabbage	2
Carrot	100
Cauliflower	2
Chard, Swiss	9
Cucumber (standard)	1
(dwarf)	2
Dandelion	6
Eggplant	1
Endive	4
Garlic	36
Kale	4
Kohlrabi	4
Leek	64
Lettuce (leaf)	6
Muskmelon	1
Mustard greens	9
Onion (cooking)	16
(hamburger)	9
(green bunching)	100
Parsley	16
Parsnip	25
Peanut	4
Pea	25
Pepper	4
Potato	1
Sweet corn (dwarf)	4
Sweet potato	1
Radish	144
Rutabaga	5
Spinach	4
Summer squash (bush)	1
Winter squash (bush)	1
Tomato (regular)	1
(dwarf)	2
Husk tomato (Physalis)	2
Watermelon (dwarf)	1

Summer Care

Supplement natural rainfall to supply 1 inch of water per week. Use soaker hoses, trickle irrigation tubes, or sprinklers to soak the soil to a depth of 6-8 inches. Watering by hand from a hose seldom supplies a thorough watering and may damage soil structure as well. Frequent light sprinkling encourages shallow root development, making plants more susceptible to drought.

Be sure to remove all weeds. Weeds can be easily pulled when they are small, while larger weeds require a hoe. Use a shaving stroke so as not to dig more than 1/4-1/2 inch deep. Be careful not to injure crop roots or shoots. You do not have to loosen the soil if there are no weeds.

Where plastic mulch is not used, apply a 2-4 inch layer of organic or other summer mulch to help conserve soil moisture, control weeds, and lower soil temperatures. Organic mulch can then be turned under and mixed with the soil in the fall. Plastic mulch must be removed at the end of the season.

Check vegetables daily to detect and remedy insect and disease problems promptly. Remember that healthy, vigorously growing plants are usually much less subject to attack, but that certain vegetables are just naturally more vulnerable than others. For instance, such vegetables as cucumbers, melons, and cabbage are quite consistently pest-prone. Consult your local county Extension office or garden supplier for recommended control measures.

Harvesting

The proper time to harvest vegetables is not necessarily when they are at their largest stage. Some vegetables produce tough fibers or off-flavors as they mature. Learn the optimum harvest stage for all of the vegetables you've planted. Proper harvesting ensures that the vegetables will be enjoyed at their best, whether they are to be eaten fresh or stored, canned, or frozen for later use (see Table 3 for suggested uses).

Table 3. How to Use Vegetables From Your Garden

Vegetable	Salad	Cooking	Canning	Freezing	Storing	Other Remarks
Bean	yes	yes	yes	yes	yes	Dried beans store well for winter use.
Beet	cooked	yes	yes	yes	yes	Will store through winter in a box of moist sand in cool basement.
Broccoli		yes	yes	yes		Plants grow on main head,and side shoots grow smaller heads.
Brussels sprout		yes	yes	yes		Best grown as a fall crop; lasts well into winter.
Cabbage	yes	yes	yes	yes		Makes good sauerkraut for freezing.
Carrot	yes	yes	yes	yes	yes	Will store through winter in a box of moist sand in cool basement.
Cauliflower	yes	yes	yes	yes		Best grown as a fall crop.
Chard	yes	yes		yes		Very hardy; lasts into winter months.
Cucumber	yes		yes			Especially good as pickles.
Green Onion	yes	yes	yes	yes		Dried, will keep during winter in a cool dry place.
Leek		yes			yes	Will store through winter in a box of moist sand in cool basement.
Parsley	yes			yes		Used mostly as garnish.
Pea		yes	yes	yes		Edible podded peas alsogood to grow.
Pepper	yes	yes	yes	yes		Especially good stuffed with meat.
Spinach	yes	yes		yes		Grows quickly during cool weather of spring and fall.
Squash, Zucchini	yes	yes	yes	yes		Can be used as substitute for cucumbers in salad.
Radish	yes	yes				Can be braised to make a cooked vegetable.
Tomato	yes	yes	yes	yes		Picked green before frost, will ripen indoors during winter.