



Growing Vegetables

There's nothing quite like the taste of vegetables harvested fresh from your own garden. And in Sonoma County you can grow vegetables all year.

This publication tells how to plan a vegetable garden and how to prepare and plant the garden. Information about planting specific vegetables — when to plant, recommended spacing within and between rows, average days to harvest and some helpful hints — is given in the Sonoma County Master Gardener Vegetable Planting Summary.

More detailed information on particular problems is available from the Master Gardeners (see the last page).

Choose the Location

The ideal vegetable garden is in a sunny, fairly level location close to the kitchen, with a handy water source and garden tools stored nearby.

Choose a sunny location. Most vegetables need full sun, which means at least 8 hours of sunlight that spans morning through mid-afternoon. Vegetables can be grown year-round in Sonoma County, so try to find a location that is in the sun throughout the year. If you have no spot in full sun, consider gardening in containers so you can follow the sun. Leafy greens require less sun, but they do not do well in full shade.

Avoid competition. Don't plant close to trees and other large plants whose roots may grow into the vegetable garden.

Avoid pollution. Don't plant close to a road or driveway. Keep your vegetables well away from any plants you spray with pesticides, such as roses. If you want to put your vegetables where pesticides have been used, find out how long those pesticides persist in the soil.

Choose an accessible location. You will be more likely to harvest your vegetables at their peak of perfection if the garden is convenient to the kitchen. And you'll remember to do necessary chores like weeding and staking if you see the garden from your deck or patio.

If possible, store your equipment nearby — tools, gloves, twine, etc. And have a convenient place to put the weed seedlings and other plant material from your

vegetable garden that you will be adding to your compost pile.

Choose an area with good drainage. Few if any vegetables like "wet feet". If drainage is a problem, consider using raised beds.

To prevent erosion, the ground should be level or only gently sloped. If it is steep, you can terrace it, using rocks or boards as short retaining walls.

Design the Garden

Plan not to walk where plants will grow. Plants grow poorly in compacted soil. You will be adding soil amendments and tilling or digging them in, which will aerate the soil. Don't waste your efforts by packing the soil down.

Divide your garden into beds (sometimes called "wide rows") 2 to 3 feet wide, so you can reach the middle from either side. The beds can be any convenient length. Leave paths between the beds. Scoop some of the soil from between the beds to make mounded beds several inches higher than the paths. Adding compost to the beds will raise their level further.

If you have very rocky or poorly drained soil, or if you have a severe gopher problem, you may want to build raised beds with permanent sides of wood or masonry, like large containers. Then you can line the beds with hardware cloth or aviary wire, to discourage gophers, and fill the beds with amended soil. Materials and labor to build a large vegetable garden this way can be expensive, however.

Plan on crop rotation. Many problems with vegetables can be minimized by waiting at least 3 years before growing a vegetable or related vegetables in the same place they were grown before. For this purpose, the plant groups are the Solanums (tomatoes, eggplant, peppers, potatoes), Legumes (peas and beans), Cucurbits (cucumber, squash, melon), Brassicas (cabbages, broccoli, cauliflower), Roots (beets, Swiss chard [a beet relative], radishes, carrots, parsnips, turnips), Greens (salads, spinach), Onions (onions, leeks, garlic), and Corn. Keep records of what is planted where.

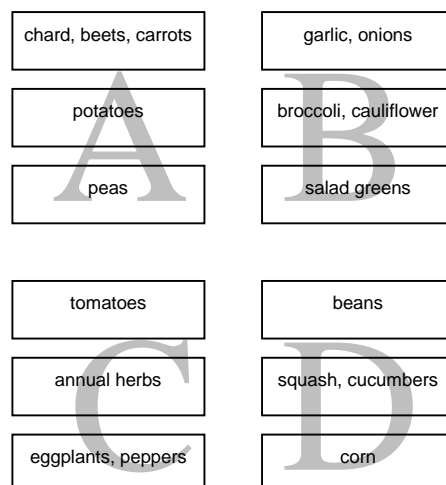
The traditional “four-square” garden lends itself well to rotation. Divide your plot into four squares. Separate the squares with paths wide enough for your wheelbarrow, and sub-divide each square into beds with narrow paths between them. Plan a way to rotate the contents of the beds so that one plant group will be grown in a given bed once every four years. This is easier to do if you grow only one plant group in each bed. The example at the right shows a plan that accomplishes this objective. You can, of course, make your garden any shape you want, but do think about how you can rotate the crops in successive years.

Plan for growing year-round. Plan your planting so you have some space for fall crops to be planted in late summer, when warm weather vegetables like tomatoes and peppers will just be approaching peak harvest. (The Master Gardener’s Sonoma County Vegetable Planting Guide identifies the cool and warm weather crops and gives the best time to plant each vegetable.)

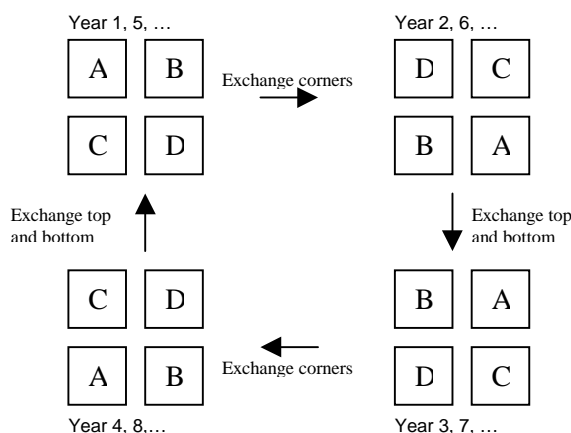
Early spring crops will be harvested by summer and can be followed by cool weather plants in the fall. Alternatively, cover crops may be planted and turned into the soil 2 to 3 weeks before the vegetables are planted.

Provide for irrigation. All warm season vegetables will require some regular watering. The easiest, but most expensive, method is to have drip or overhead irrigation that is controlled automatically by timer(s). Similar systems can be controlled by hand. If you don’t install irrigation, you will need to have a hose that will reach all parts of the vegetable garden. In fact, you should have a hose handy for watering seedlings and newly planted vegetables.

Example A Garden Designed for Rotation



Rotation Plan for the Four Quarters:



Be prepared to protect your plants from animal pests. Birds love tender, baby plants; use bird netting to keep them from eating your seedlings. If gophers are a problem in your area, plant in gopher baskets or in raised beds lined with hardware cloth or trap them. Keep deer out of the garden with a high fence or other deer-proof barrier.

Get Ready for This Year's Planting

Choose what to grow this year (or season).

Consider what vegetables you and your family enjoy and which are noticeably better when eaten fresh from the garden. Are there particular varieties that you like that are hard to find in stores and Farmers Markets? Find out which varieties do best in your area — the Master Gardeners provide a list of recommended vegetable varieties. Each year, more and more

varieties of vegetables are available from catalogs, nurseries, and markets.

Plan to spread out your harvest. There are various methods to avoid having all of a particular vegetable at once. Choose varieties with long harvest periods: indeterminate tomatoes rather than determinate, pole beans rather than bush beans. Plant several varieties of one vegetable that have different maturity periods; this can be done with broccoli, cauliflower, and corn. Save part of the area allotted for one vegetable for later planting, then plant at 2 to 4 week intervals; this works with many vegetables: salad greens, radishes, beets, carrots, potatoes, beans, peas, corn.

Encourage beneficial insects by planting flowers near or in your vegetable beds.

Get seeds or seedlings. In general, big seeds, such as beans, peas, corn, squash, cucumbers, and melons, should not be transplanted, as they grow much better when planted directly in the garden. Direct seeding is also good for vegetables that are grown close together to harvest small, such as salad greens, beets, carrots, and radishes. Other vegetables, such as broccoli, cauliflower, tomatoes, peppers, and eggplant, are best planted as “starts” (seedlings). The Sonoma County Master Gardeners Vegetable Planting Summary provides advice on whether to direct seed or to plant seedlings.

Order seeds early to get the varieties you want and to allow time for delivery. If you are starting plants in containers, plant the seeds 6 to 8 weeks before you will be ready to plant out in the garden. If you grow plants inside, gradually get them accustomed to direct sun and outside temperatures. If you buy seedlings, look for healthy, well-rooted (but not pot-bound) seedlings at the appropriate planting time.

Prepare Beds for Planting

Plant at the appropriate time. Start early crops in February to March, summer crops in April to May. When spring crops are harvested, it’s almost time to sow fall crops — fall and winter crops have to start in late summer and early fall. See the Sonoma County Master Gardeners Vegetable Planting Summary for recommended times for each type of vegetable.

If you have divided your garden into beds, you can prepare only as many beds as you are ready to plant.

Remember that you have to take your own conditions into account. Don’t work the soil when it is too wet.

Plant earlier if you almost never have frost, later if you are in a frost pocket. Wait until after frost for warm season crops such as tomatoes, peppers, and eggplant,. Be sure not to plant seeds too early – warm season vegetable seeds can rot or fail to germinate if too wet or too cold.

Add compost and/or fertilizer. Soil nutrients need to be replenished each year, since vegetable plants are removed from the garden and not allowed to return to the soil. The best approach is to have your soil tested and add only the nutrients that are needed. However, most home gardeners can simply add compost and fertilizer each year. Compost can be applied at almost any thickness, from a light sprinkling to several inches thick. Regular fertilizers are normally applied at the rate of 1 to 2 pounds per 100 square feet. Follow the recommended application rates that are found on the packages of commercial fertilizers, keeping in mind soil and crop needs.

Figure out an easy way to measure the amendment you choose. Calculate the area of each bed (easier if all beds are the same size). Then calculate the amount needed for each bed: multiply the area of the bed by the recommended amount and divide by area given in the recommendation (100 sq. ft.). Choose a convenient container (perhaps an old freezer container or a bucket). For smaller containers, decide how many containers full to use for each bed; for larger containers, mark the level needed for one bed.

Mix in soil amendments and loosen soil. Several options are available: depending on the size of your garden, the condition of your soil, and the strength of your back, you may till with a mechanical tiller or tractor, dig with a spade, or loosen with a fork. Mix the amendments into the top 6 to 12 inches of the soil. Do not over-till. Smooth the top (and sides, if you are not using raised beds with constructed sides).

Plant Seeds or Seedlings

Determine spacing. The Sonoma County Master Gardeners Vegetable Planting Summary recommends spacing for each type of vegetable. Vegetables that will be harvested before maturity (as can be done for beets, carrots, lettuces and other salad greens), can be planted closer than the recommended distance.

You can isolate each kind of vegetable or save space by inter-planting plants that are ready to harvest early (radishes, spinach, lettuces) with plants that mature later. You can even plant vegetables among your

ornamental plants — but be sure not to use toxic products around them.

It is usually convenient to plant in rows. Decide how many rows of each vegetable your beds will hold: use the recommended “in row spacing” and determine how many plants will fit across the width of your bed. You’ll probably want one row per bed of tomatoes and squashes, two of peppers and eggplants, three or more of lettuces. Some plants, like carrots, beets, and lettuces, can be planted at the minimum recommended spacing all over the area allotted for them, instead of in rows.

If you like your rows to be straight, mark each row with string stretched between a pair of stakes. Mark the spacing between plants in a row. Use a tape measure or yard stick. Or, if you are using drip irrigation hoses with regular spacing, use it as a ruler. Or use your own hands (stretch your fingers apart and measure the distance between the tips of your thumb and your little finger).

Plant. Use the recommended spacing for seedlings. For insurance when planting seeds, plant about twice as many as needed and remove the extra plants before they start to crowd one another.

Plant at the recommended depth. For seeds, get the recommended depth from the seed package. In general, seedlings should be planted somewhat deeper than they were in the container. Do not cover the crowns of plants like lettuces. You can plant tomatoes quite deep, so that only a few groups of leaves are above ground, and they will develop roots from the buried stem.

Grow

Provide supports as needed. Pole beans will need poles or trellises. Peas will need pea net or a “teepee” or fence to climb on. Indeterminate tomatoes will need stakes or cages or other supports. See the Sonoma County Master Gardeners Vegetable Planting Summary for recommendations for each type of vegetable.

Water as needed. Don’t let your vegetable beds get too dry or too wet. Water deeply, so that plants will have a large root system and be able to withstand stress. With drip irrigation, plants should be watered every day.

Protect your plants from animal pests. Put your bird net up as soon as you plant, to prevent birds from uprooting your seedlings. If you spot gopher holes in or near your garden, set traps. Keep your gates closed to keep deer and rabbits out.

Thin if needed. If you planted seeds, you may have to remove some of the plants. You can eat the young salad greens, spinach, beets, and radishes.

Control weeds. Weeds are easiest to remove when small; control them with frequent, shallow hoeing, particularly in the spring. In summer, a thick mulch of straw, compost, or decaying leaves will help to control weeds and will also retain moisture in the soil.

Examine your garden for problems regularly. Most problems are easier to handle if you catch them early. Treat the small problems before they become big ones. Well-grown plants resist insect pests and diseases the best.

Learn to identify insect and plant disease damage. Avoid killing beneficial insects when trying to control those that are doing the damage.

If a plant doesn’t look right to you but you don’t know what’s wrong, bring a sample of the affected part to a Master Gardener. You can call the Master Gardener Information Hot-line at 565-2608 (938-0127 in Sonoma), or visit the Information Desk in the University of California Cooperative Extension office (133 Aviation Blvd., Suite 109, Santa Rosa), or ask a Master Gardener at your local Farmers Market or the County fair.

Harvest

Harvest each vegetable at its peak, and enjoy the fruits of your labor!

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