

# Crop Rotation in the Home Garden

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## A powerful tool

Have you ever had a vegetable garden that was initially very productive but as time passed, it produced less and less and had more insect infestation? Your problem may be that you aren't rotating your crops from year to year. Among other benefits, crop rotation can avoid nutrient depletion in the soil, reduce the spread of soil-borne disease and lessen the need for pest control.

Think of your soil as a web of microorganisms each having their own role to play as they interact with plants. Adding organic material such as compost creates even more soil complexity and an ever-changing environment for your plants to thrive. As plants convert sunlight through photosynthesis into sugars, some sugars are released through the roots and feed the microorganisms there.

Now consider that each type of plant deals with the soil it is planted in differently. A heavy-feeder like tomatoes will deplete nutrients from the soil more quickly than a light-feeder such as turnips. Each plant family takes different nutrients from the soil. Some crops, like those in the legume family, act as a soil builder. Root crops help aerate the soil. Chemicals released by the plants can affect the soil microorganisms to either go to work or go dormant. Right now, you may be wondering what to do with all this information to improve your vegetable production.

Start by making a list of the crops that you generally grow and note how much space is required for each one. Perennial crops such as asparagus, rhubarb and berry crops are often planted separately in their own beds and will not be factored into this planning. Now divide these crops into their respective families. Families are crops that are closely related in their nutritional needs and are prone to many of the same pests and diseases. There are eleven vegetable plant families and the most common fall into these categories:

- Legumes: peas, beans, clover
- Nightshade: tomatoes, eggplants, peppers
- Chicories: lettuce, endive, sunflowers
- Umbels: carrots, celery, anise, coriander, dill, fennel, parsley, parsnips
- Chenopods: beets, Swiss chard, spinach
- Brassicas: cabbage, broccoli, Brussels sprouts, kale, radishes, turnips
- Alliums: garlic, onions, leeks, shallots
- Cucurbits: cucumbers, squash, pumpkin, zucchini

Each family of plants uses and feeds the soil in a different way. The nightshade members are heavy feeders and take up much nitrogen and phosphorus to produce their fruits. Root crops such as carrots and parsnips use a lot of calcium and potassium. By switching the locations of these two you can help balance the nutrients in the soil. Plants in the legume family produce nitrogen and return it to the soil through their roots. Adding them into the rotation with your tomatoes and parsnips adds another dimension to your soil equation.



A simplified approach to rotation is to divide your plants into four groups: legumes, root crops, fruiting plants and leafy ones. Rotate these four blocks in the order listed. *Photo by Nancy Crowell / WSU Skagit County Extension Master Gardeners.*

Each family group can also attract certain pest infestation and soil-borne disease pathogens. By changing the location of your plants from year to year, these pests and diseases will have a harder time multiplying in that area of the soil. Some plant diseases can die in soil over time which is why a rotation cycle of 3-4 years or more is recommended. Remember that even though you pull your plants at the end of the season, many root fragments remain in the soil. Therefore, removing the plant does not negate the need to rotate it out of that space.

Another way you can improve your chances of having a healthier garden is to buy disease-resistant plant varieties that also produce delicious crops. More varieties are available each year to choose from, so go ahead and experiment.

Now that you have your plant list divided into plant families and know how much room each will need, draw a map of your garden area. Each crop family will occupy its own place which will rotate every year. If you have a large garden or multiple raised beds, this might be an easy task. Smaller gardens may prove to be a bigger challenge but are doable. Consider adding some containers and keep that space in mind for your rotations. Or use an alternate simplified approach by dividing your plants into four groups: legumes, root crops, fruiting plants and leafy ones. Rotate these four blocks in the order listed. If this is still not working with your vegetable area, at least make sure your tomatoes are widely separated from year to year.



A heavy feeder like tomatoes will deplete nutrients from the soil more quickly than a light feeder such as turnips. Each plant family takes different nutrients from the soil. *Photo by Nancy Crowell / WSU Skagit County Extension Master Gardeners.*

How to keep track of it all? Garden journals including planting maps for each year are helpful. Or make a habit to take a photo of your garden each month, especially if you plant both summer and fall crops. You can do your rotation as you switch from one season to the other if you like. Line up your crops in the right order and shift them one space over every year. What is the right order? Try alternating a heavy feeder with a light feeder followed by a soil builder such as plants from the legume family.

Still sound like too much work? Don't despair! Remember that crop rotation is not a requirement but a powerful tool to help make your vegetable patch its most healthy and productive.

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