



CROP ROTATION

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What is crop rotation?

Crop rotation is the practice of changing the plant family that you plant in a certain portion of your garden after each crop. Each type of vegetable is part of a larger group of vegetables referred to as a family. The goal is to plant at least 4 different families in a row. Some of the common families are listed below but there are also other minor families.

1. Leguminosae (legumes: beans, including fava and lima beans, and peas)
2. Cruciferae (cruciferous vegetables: cabbage family plants, most Asian greens, radishes, and turnips)
3. Umbelliferae (carrot family: carrots, celery, parsnips, parsley)
4. Cucurbitaceae (cucurbits: cucumbers, melons, and all types of squash)
5. Solanaceae (nightshade family: tomatoes, sweet and hot peppers, eggplants, potatoes)
6. Amaryllidaceae (onion family: onions, garlic, leeks, asparagus)
7. Chenopodiaceae (spinach family: spinach, beets, chard)

What are the benefits of crop rotation?

There are at least four ways in which crop rotation is beneficial in the home garden; crop rotation can help prevent disease and insect problems, increase productivity, and improve the soil.

1. The first is controlling pathogens. Each plant family has certain soil-borne diseases and pests that are specific to that plant family. By continuously changing the plant family in a given location, you make it harder for these family-specific diseases and pests to become well-established.
2. Studies of farming practices, comparing fields where one crop is grown continuously versus fields where crop rotation is practiced have shown that overall yields of crop are higher when crop rotation is utilized.
3. Crop rotation has a beneficial effect upon soil structure. Varying the kinds of plants and roots grown in a plot allows for a variety of relationships between the soil and plants. Roots help to stabilize the soil aggregates (the way the soil clumps) in positive ways. Roots are largely left in the soil when the plant is removed, helping to maintain good soil structure.
4. Crop rotation can improve soil fertility. Because different types of plants use nutrients in different ways, specific soil nutrients are not used up at the same rate. Additionally, use of specific plants as cover crops or “green manure” crops (crops which are grown to be turned back into the soil rather than harvested) can actually add nutrients to the soil. The legume family of crops are particularly valuable for these purposes.

How to implement crop rotation:

Because home gardening plots are often fairly small, crop rotation need not be complicated. An ideal plan would allow for at least four growing cycles before planting the same plant family in a given location. In addition to considering the plant family, you also need to consider whether the plant is a cool-season or warm season plant, to make sure you plan your rotation correctly.

If both warm season and cool season vegetables are grown, there will be two to three growing cycles in a calendar year. Because the legume family of plants is so beneficial, try to include beans or peas in your rotation plans. Don't forget to keep records of your plantings.

Here are some examples for crop rotation in a single bed over the course of about 12 months (as you can see, you have a lot of options!):

1. Late-fall-planted fava beans (legumes) → spring-planted beets (chenopodiaceae) → summer-planted corn (other) → fall-planted cabbage (cruciferae)
2. Fall-planted to winter over broccoli (cruciferae) → late spring planted tomatoes (solanaceae) → fall planted carrots (umbelliferae)
3. Spring-planted spinach (chenopodiaceae) → summer-planted summer squash (cucurbitaceae) → fall-planted lettuce (other)
4. Wintered-over green onions (amaryllidaceae) → spring-planted snow peas (leguminosae) → mid-summer corn (other) → fall-planted Asian greens (cruciferae)
5. Summer-planted carrots (umbelliferae) → November-planted garlic (amaryllidaceae) → late-spring-planted winter squash (cucurbitaceae) → fall-planted lettuce (other)
6. Late summer planted cabbage (stands into late fall) (cruciferae) → spring-planted peas (leguminosae) → late-summer-planted corn (other)
7. Winter-planted bulb onions (amaryllidaceae) → summer-planted beans (leguminosae) → fall-planted broccoli (cruciferae)
8. Winter-to-spring repeat planting of chard (chenopodiaceae) → late-spring-planted tomatoes (solanaceae) → fall-planted fava beans (leguminosae)