



J&L Garden Center

*The All Season Gift
and Garden Center*

620 North 500 West Bountiful, Utah 801-292-0421

www.jlgardencenter.com info@JLGardenCenter.com

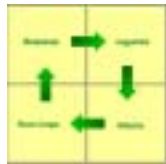
Crop Rotation

Crop rotation is the practice of changing the type of crops growing in a garden each year. Farmers use crop rotation extensively in the management of their fields. Without crop rotation farmers would suffer heavy losses in their harvest. Home gardeners have a much harder time trying to rotate crops because of the limited amount of space and the types of plants desired. However, it is always a good idea not to plant the same type of crop in the same soil year after year. Both insects and diseases multiply in the soil and can greatly affect the productivity of the plants.



History

Crop rotation is one of the oldest cultural gardening practices reported in several early civilizations, such as Rome and in Asia and Africa.



Crop rotation was extensively researched and developed in the 1880's by George Washington Carver. George Washington Carver was born to slave parents and grew up on a farm. After attending high school and college he researched the problem farmers were having with decreasing cotton production in their fields. He developed a rotation schedule of planting peanuts one year and cotton the next. He then discovered over 325 different uses for the unwanted peanuts, ranging from making cooking oil to printer's ink out of the peanuts. He also discovered that sweet potatoes and pecans enriched the depleted soils. Carver found more than twenty new uses for these two crops including synthetic rubber and materials for paving highways.

Reasons

Growing vegetables from the same family, in one area for a long period of time, may lead to higher incidences of insect pests and disease problems. Soil-borne, disease-causing organisms tend to persist in the soil for a long period of time. These disease organisms tend to attack vegetables that are in the same botanic families.



Crop rotation is one way to avoid these problems. Crop rotation simply means growing vegetables from different families in a different area of the garden each year.

Most homeowners tend to grow the types of vegetables they like, year after year. Tomatoes and peppers are two of the most common vegetables grown by home gardeners. Due to the limited space in backyards, the ground cannot go fallow and the gardener must have his favorite

vegetables. Most home gardeners grow these vegetable plants in the same area, or in the same soil, year after year. The gardener may rotate planting tomatoes and peppers every year, but that rotation is not doing any good. After several years, the plants may seem to be weak, they may be short and anemic, they may not produce very much fruit, and they may just die during the growing season.

Diseases

Crop rotation is the only practical way to control many soil borne diseases. Preventing diseases is more important than preventing insects because most insects can still be controlled effectively even if they become overpopulated. Many diseases, on the other hand, can not be controlled once the disease enters the plant. By the time the disease is noticed it is usually too late to control and the plant must be destroyed.



Many soil diseases can not be chemically controlled. **Verticillium**, for example, is a soil disease that affects tomatoes. Because verticillium cannot be controlled chemically, plant breeders have developed varieties of tomatoes that are resistant to it. **Fusarium** and **Tobacco Mosaic Virus** are two other diseases that greatly affect tomatoes.

When you buy tomato plants always look for the "V", "F", or "T" by the name. These letters indicate that tomato variety is resistant to those diseases. The Celebrity tomato, is "V,F,T" rated while the Moscow tomato is not resistant to any of these diseases. Because of these soil diseases the Moscow tomato is not commonly grown, in favor of the new disease-resistant varieties.

Diseases that may only be a small problem one year may become



a major problem the following year if the conditions are right.

Schedule

Crop rotation is a very important factor when planning a vegetable garden. Generally, it is recommended that vegetables from the same family be rotated in an area by growing vegetables from different families for two years, when they can be grown in the same area again. A four or five year rotation is even better.

The choice and sequence of crop rotation depends on personal preference, soil type, and climate. Sometimes it can take several years of trial and error to come up with the right rotation plan.

Although the edible parts of vegetables may be different, botanically, vegetables may belong to the same family. For example, tomatoes and potatoes are in the same family even though they produce completely different types of food. You cannot rotate tomato plants and potato plants and get the desired results.

In order to come up with a good crop rotation program, it is important to know different botanical families of vegetables.

When planning your crop rotation schedule remember that you must plant different types of plants in the soil. You cannot just plant a different variety of squash in the same soil each year, you must plant something entirely different.

Listed below is a partial listing of plant groups. Rotate your crops between these groups and do not plant any of the same group of plants in the same area year after year.

Solanaceae or nightshade family—tomato, pepper, eggplant, potato, tomatillo;

Onion family—onions, garlic, leek, shallot, chives;

Cucurbit or gourd family—cucumbers, muskmelon, watermelon, squash, pumpkin, gourd;

Mustard or cole family—cabbage, broccoli, cauliflower, Brussels sprouts, kohlrabi, turnip, radish, Chinese cabbage, kale, collards, mustard greens, rutabaga;

Legume or pea family—garden pea, snap beans, lima beans, soybean;

Grass family (edible part is seed)—sweet corn, popcorn, ornamental corn;

Carrot family (edible parts are roots, leaves, and leaf-stalk)—carrots, parsnip, parsley, celery;

Goosefoot family—beet, Swiss chard, spinach;

Sunflower family—lettuce, Jerusalem artichoke, endive, salsify;

Bindweed family (edible part is root)—sweet potato;

Mallow family (edible part is fruit)—okra.

Grains and cereals — Corn, rice, sorghum, wheat, oat, barley, millet



It is very important to note that while home gardeners only grow vegetables from a few families, or just one family, such as tomato, pepper, and eggplant, it is necessary to rotate them with vegetables from other families.

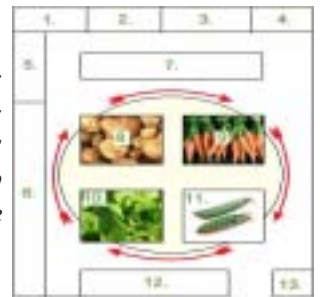
This is also applicable to home gardeners growing vegetables in containers. They must change the soil at the end of the growing season in order to plant the same type of vegetable in the same container.

Flowers have similar problems as vegetables and need to be rotated just the same. Do not plant petunias and geraniums in the same spot year after year, or you will notice the plants do not bloom as nicely, and the plants tend to die prematurely, before the summer is over. Try something new and different each year, *even if you only like petunias and geraniums.*

Benefits

1. Increased yields of rotated crops. *Scientific evidence confirms the yield is much greater when the crop is rotated than by growing the same crop, in the same soil, year after year.*

2. Residues from previous crops can also influence soil properties that improve soil drainage and aeration.



More resources:

<http://utahpests.usu.edu/plantdiseases/htm/general/controllingpd>

<http://www.yankeegardener.com/resource/croprotate.html>

<http://www.helpfulgardener.com/organic/2006/crop.html>

<http://www.cefs.ncsu.edu/PDFs/Organic%20Production%20-%20Crop%20Rotations.pdf>

<http://www.gardenorganic.org.uk/factsheets/gg19.php>

