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Agriculture & Natural Resources
COOPERATIVE EXTENSION • SACRAMENTO COUNTY
Environmental Horticultural Notes

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COVER CROPPING IN HOME VEGETABLE GARDENS

What is a Cover Crop?
A cover crop is a crop that is planted for the purpose of improving soil quality and nutrition, and/or for attracting beneficial insects. A cover crop that is planted in the fall and tilled under in the spring is often referred to as a "green manure" crop.

Benefits of Cover Cropping	**Drawbacks of Cover Cropping**
Addition of nitrogen	Seed can be difficult to find
Addition of organic matter	Cannot grow winter crop in that space
Improved soil tilth and water penetration	Requires chopping and rototilling in spring

Selection of Cover Crop

The choice of cover crop depends on the main benefit you are hoping to obtain from the cover crop. A primary benefit in a garden is the addition of nitrogen, in which case legumes would be used. For an upright cover crop that is easy to cut down in the spring, use bell beans, or faba beans. The large, round, flat-seeded "horse bean" or fava bean plants are nearly identical to bell bean plants, but bell beans are usually planted as a cover crop because the seed is smaller and therefore cheaper. Of course, you can use horse beans as a cover crop, but remember that a fair amount of nitrogen (in proteins) will be removed when you harvest the seed, making less available for the succeeding crop.

For extra nitrogen, use a mix of bell beans, common vetch, and peas. The vetch and peas are trailing, so they need to be cut into small pieces before incorporation or they will wind around the tines on the rototiller. If your main interest is in building organic matter, use cereals, such as oats or barley, but remember that their incorporation will make nitrogen in the soil temporarily unavailable to the succeeding crop unless extra nitrogen is added. For both nitrogen and organic matter, use a mixture of legumes and cereals.

Inoculating Legume Seeds

Specialized bacteria on the roots of legumes take nitrogen from the atmosphere (78% N) and "fix" the nitrogen in nodules that the bacteria create on the roots. In order to ensure that this fixation occurs, and that maximum growth takes place, it is important to attach the bacteria to legume seeds before planting. So when purchasing seeds, also buy "inoculant," that contains the bacteria in a peat moss base. Use at a rate of at least 1 oz. per 10 lbs. of seed. To help the inoculant adhere to the seed, mix 9 parts hot water (non-chlorinated) with 1 part corn syrup (10% solution), let cool, and add a small amount of this solution to the seeds. It is even advisable to inoculate peas and beans that are to be planted for the purpose of harvesting, such as snow peas and string beans.

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When to Plant and Rototill the Cover Crop

Cover crops are usually planted from late September through late October. If the cover crop will be incorporated in late February or early March, such as for early tomato planting, sow the cover crop in September or early October. If it can be allowed to grow well into April, such as for planting corn, the cover crop will put on most of its growth in the spring, so it can be planted in late October. The cover crop is incorporated into the soil about 3 to 6 weeks before the spring crop is to be planted. Do not plant seeds into soil in which the cover crop has been freshly incorporated because soil-borne diseases, such as Pythium and damping-off, may be more infective and because soil nitrogen may be "tied up," or unavailable.

How to Plant

A good seedbed should be prepared by rototilling and raking, however, if soil was deeply rototilled in the spring, it may not be necessary to rototill again. The seed can be scattered on the ground and then raked in, or planted in rows or on beds. The legumes and grasses discussed above should be planted about ½ to 1½ in. deep. After planting, sprinkle thoroughly and be sure to keep the top of the soil moist for up to a week to ensure that seeds receive continual moisture, however, the soil should be well drained. It helps to lightly cover the bed with leaves or straw to keep moisture in, but be sure not to introduce weed seeds. When weather is warm and/or windy, daily watering may be necessary. Use the following seeding rates (per 100 sq. ft.): bell beans – 5 oz.; cereals and bell bean/pea/vetch mix – 4 oz.

Irrigation and Fertilization

It is usually best to provide additional irrigation after germination, although it is not necessary to keep the top of the soil moist at all times. Remember that young plants need more frequent watering, whereas older plants need deeper watering. If there is little or no autumn or spring rainfall, weekly watering may be necessary. During the winter, no irrigation is necessary if rainfall is normal. A cereal cover crop usually benefits from nitrogen fertilizer (organic or chemical) at planting, but legumes and legume/cereal mixes should not be fertilized. If weeds are present, remove them or rototill them in early spring to prevent them from going to seed.

Source of Seed and Inoculant

Cover crop seed and inoculant is available at some retail nurseries in October each year; call around to see who carries them. Perhaps the largest selection can be found at Peaceful Valley Farm Supply, P.O. Box 2209, Grass Valley, CA 95945; Phone: (530) 272-4769; E-mail: contact@groworganic.com; web site: http://www.groworganic.com/.