

# Cover crops nourish soil (excerpt)

Cover crops are essential for building healthy soil—a self-sustaining ecosystem that includes millions of macro- and micro-organisms. Healthy soil teems with several types of beneficial worms, fungi and bacteria. These break down and digest organic materials such as compost, mulch and manures, making more nutrients available to summer-garden plants.

In addition, cover crops improve absorption and retention of water, provide food and shelter for beneficial insects, compete with weeds and so reduce the number of them you must contend with come spring, reduce erosion and—very significantly—reduce the need to turn to the chemicals used when someone tries to grow anything in soil that isn't healthy.

If those advantages aren't enough, many cover crops are prolific, edible and tasty!

In Santa Clara County, we generally try to add nitrogen and loosen up our heavy clay soil. Nitrogen-fixing legumes can fix 100 to 200 pounds of nitrogen per acre, so they are often used as cover crops by local farmers. To add the largest amount of nitrogen, they use vetch and/or cowpeas. The latter can add 100 to 130 pounds of nitrogen per acre in two to three months.

Relatively drought-tolerant legumes such as cowpeas and hyacinth bean generally perform well with as few as two irrigations per season.

Now for some terms: When crops in full bloom are turned under the soil, the process is called adding "green manure" to the

soil. Addition of organic matter to soil is sometimes called "carbon farming." This practice improves the rate at which carbon dioxide is removed from the atmosphere and converted to plant material or organic matter in the soil. Many scientists have said the use of cover crops for carbon farming is the simplest way to slow climate change.

## **Buckwheat in warm season**

Buckwheat is good choice for a quick between-seasons cover crop. It germinates in about five days and is ready to be turned under in about a month. It can be planted during the warm season, and cool-season crops can be planted in the fall. Its white flowers attract beneficial insects, and can be used in cut-flower arrangements. If weed control is a goal, buckwheat is an effective "smother crop." If you grow enough and let it go to seed, you can harvest it to make your own buckwheat flour.

## **Cool-season cover crops**

Another option, crimson clover, is easy to grow and beautiful. It reaches about 18 inches in height and produces large deep-red flowers in the spring. It also provides ample quantities of nitrogen. It is a great option for areas that receive only partial sun, and it can be grown in combination with other grass or legume cover crops. An excellent option for no-till gardeners, it should be cut down two to three weeks before planting crops that will take its place.

Many types of vetch, a vining plant, make excellent cover crops. Vetch generally grows to between 2 and 5 feet in height. The common cultivars for cover cropping are: purple (hairy

silver leaves with reddish-purple flowers), common (bright green leaves with two-toned purple flowers) and hairy/woolypod (early blooming varieties with dark purple flowers).

Fava beans, my favorite, allow you grow a cover crop and eat it too! They're easy to cultivate. You purchase seeds, soak them in water for 24 to 48 hours, plant them in a few inches of soil and water occasionally (if soil dries out). A friend who is also a Master Gardener buys dried fava beans at the grocery store, tosses them on the ground and lets Mother Nature do most of the work.

If your primary goal is adding organic matter to soil for enrichment and/or erosion control, grasses/cereals such as oats, barley or rye are fine choices. However, they make nitrogen in the soil temporarily unavailable to the crop that will follow them, unless extra nitrogen is added. If you want to add both nitrogen and mass, buy a soil-building mix from a local garden center or catalog.

Opinions vary about whether you should turn cover crops into the soil or cut them down and allow the plant material to decompose on the surface. Tilling will disrupt or destroy established micro-organisms. If you are working with an existing garden that has been enriched regularly with compost and mulch for a few seasons, your best option is probably the cut and do-not-disturb method [see information on lasagna gardening and sheet mulching].

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