



COVER CROPS

(information sourced from Mother Earth News and NBCHG Garden Director, Carol Muncer)

There are three main ways to improve soil: grow cover crops, mulch the surface with biodegradable mulches, and/or dig in organic soil amendments (such as compost, grass clippings, rotted manure or wood chips). Also be aware that many cover crop plants can become weedy, so they should almost always be taken down before they set seed.

**** marks the best options for late September**

How Cover Crops Help

A cover crop is any plant grown for the primary purpose of improving the soil. Since the early 1900s, farmers have used cover crops to restore fertility to worn-out land. In addition to helping bulk up soil with organic matter, cover crops prevent erosion, suppress weeds, and create and cycle soil-borne nutrients using the power of the sun. Recent advances in soil biology have revealed two more ways cover crops can improve soil.

Rhizodeposition is a special advantage to working with cover crops. Many plants actually release sugars and other substances through their roots. They are like little solar engines, pumping energy down into the soil. With vigorous cover crop plants, this process goes on much more deeply than you would ever dig — 6 feet for oats and rye! If you are leaving your garden beds bare in winter, you are missing the chance to use cold-hardy crops such as cereal rye or oats to solar-charge your soil. Thanks to this release of sugars, the root tips of many plants host colonies of helpful microorganisms, and as the roots move deeper, the microbes follow.

Bio-drilling is what happens when you use a cover crop's natural talents to "drill" into compacted subsoil. For example, you might grow oilseed or daikon radishes as a cover crop where their spear-shaped roots will stab deep into tight subsoil. Bio-drilling action also takes place when deeply rooted cover crop plants penetrate subsoil and die. Then, the next crop grown may actually follow the rooting network mapped out by the cover crop. These plants also bring up nutrients from deep down in the soil to nearer the surface.

How to Take Cover Crops Down

Traditionally, cover crops are plowed under, some gardeners chop, cut, or pull them, and use them for mulch or compost. If you mix in fresh cover crop residues, just plan to wait two to three weeks before sowing crop seeds to allow the crop to decompose. Some cover crops die over winter and are easily mixed into the soil, others should be dug in before they get too big in the spring.

Top Cover Crop Options

DURING THE SUMMER: **buckwheat** (*Fagopyron esculentum*) is in a class by itself as a cover crop. Seeds sown in moist soil turn into a weed-choking sea of green within a week, with many plants growing 2 feet high or more and blooming in less than 30 days. You can let the dead plants die into a surface mulch and plant through them, gather them up and compost them, or chop them into the soil.

IN LATE SUMMER: while the soil is still warm, you have a fine opportunity to try **barley** (*Hordeum vulgare*), a fast-growing grain that's great for capturing excess nitrogen left over from summer crops, which might otherwise leach away during the winter. Barley often suffers from winter injury in Zone 6, and is often killed altogether in Zone 5 and above. This is good! The dead barley residue shelters the soil through winter, and dries into a plant-through mulch in spring in cold zones.

EARLY FALL: the best time to grow the dynamic duo of soil-building cover crops — **oats** (*Avena sativa*) mixed with cold-hardy **winter peas** (*Pisum sativum*). When taken down just before the peas start blooming in spring, an oat/pea combination cover crop is the best way to boost your soil's organic matter and nutrient content using only plants. Both make a little fall growth when planted in September, and in spring the peas scramble up the oats. On the down side, one or both crops can be winterkilled before they have a chance to do much good north of Zone 5, and in more hospitable climates it will take some work to get the plants out of the way in spring. Do it by mid-April, because the job gets tougher as the plants get older. Cut or mow them down first, and then pull and dig your way through the planting. A heavy-duty chopping hoe works well for this.

****Hairy vetch** (*Vicia villosa*) needs a good head start on winter, too, but it's hardy to Zone 4 and gives a huge payback in terms of soil improvement, and saved time and labor. Unlike many other cover crop plants, you can quickly kill hairy vetch by slicing just below the crown with a sharp hoe. When hairy vetch is beheaded about a month before it's time to plant tomatoes and peppers, you can open up planting holes and plant through the dried mulch — no digging required. This adds nitrogen to the soil. Any hardy legume like peas, clover or fava beans can also be used.

****Winter Rye** will sprout after the soil has turned chilly, but be sure to take it out early in spring, before the plants develop tough seed stalks. If you're looking for a cover crop you can plant in October for cold-season poultry greens, cereal rye is probably the best choice.

****Oil Seed Radish or Daikon Radish** Fast growth in spring or fall provides quick ground cover to protect against soil erosion and smother weeds. Thick, deep taproot can break up compacted soil layers and scavenge nitrate from deeper soil layers. May have an allelochemical effect following decomposition that can help control soil-borne pests, including insects, weeds and nematodes.