

Protect Your Soil and Improve Water Quality by Planting Cover Crops

Did you know that you can improve the health of your soil and the quality of the lakes and streams in your watershed or neighborhood, by adding a simple agricultural practice to your urban and suburban autumn lawn care regimen? That practice is the planting of cover crops. At the end of the summer growing season, when you are ready to take a breather from gardening and yard work, your soil is not yet ready to rest. One final effort to plant a cover crop in the fall can make a huge difference over the winter toward improving your soil and helping to reduce soil erosion, stormwater runoff, and non-point source pollution entering our streams and rivers in the spring.

Cover crops, also known as green manures, are an excellent tool for vegetable gardeners, especially when manure and compost are not available. Even small gardens will benefit from the use of cover crops. The tilling, weeding, harvesting, and foot traffic of most home gardens tends to destroy the structure of the soil. Planting cover crops is an easy way to revitalize the soil and promote subsequent plant growth. Cover crops are planted in vacant space and instead of being harvested, are worked into the soil after they mature. They provide a number of advantages to the otherwise unhealthy condition of bare soil during your garden's off-season.

Cover crops help to retain the soil, lessen erosion, and decrease the impact of rainfall on the garden by slowing the runoff of the rainwater. They also reduce soil compaction, suppress weed growth, and reduce the leaching out of nutrients from the soil. Cover crop top growth adds organic matter when it combines with the soil. The root system also provides organic matter and opens passageways that help improve air and water movement in the soil. Scientific studies have shown that cover crops actually drill down into the soil, some as much as six feet. When they decompose, the next crop planted will follow the rooting network laid out by the cover crop.

If you think that you might like to try planting cover crops this fall, here are some suggested steps to follow:

- ✿ Decide which cover crops to plant. Combine legumes (nitrogen-fixing plants from the pea and bean family) with non-legumes when possible. Sow oats if this is your first time trying a cover crop or if you want to be able to plant early spring vegetables. Oats are killed by the first hard freeze and leave a brown decomposing mat in spring.
- ✿ Purchase seed locally from a farm supply store or garden center, or you can order cover crop seeds from a retail seed company. Click [here](#) to see a list of recommended cover crops for our area from the United States Department of Agriculture, Natural Resource Conservation Service.

- ✦ To sow a cover crop over an entire bed, prepare the soil by removing plant wastes and mulch left over from the summer and raking the area smooth. (You can use the waste material on your compost pile.)
- ✦ To sow a cover crop while vegetable crops are still producing: Remove mulch from around plants, smooth the area with a rake and plant in between your crops. The cover crop will get a good start but will not interfere with vegetable plant growth.
- ✦ When you plant your cover crop make sure that the seed makes direct contact with the soil so that it will germinate. You can broadcast (spread) the seed by hand, or with a hand-held broadcast seeder, preferably before a rain, and then gently rake the seeds into the soil. Mixing the seeds with soil or compost will make it easier to distribute the cover crop seeds evenly by hand. After the seeds have been spread, walk over the area to press the seeds into the soil.
- ✦ When choosing cover crops also consider your soil type. If you have difficult clay soils, then use the winter wheat and winter rye because they develop massive root systems which are great for breaking up the tight clay soils.

Here are some top cover crop options from *Mother Earth News* that work well in a wide range of situations and are not hard to take down in the spring. These crops are easy to manage using hand tools, grow during different seasons, and provide multiple benefits in the garden.

- ✦ 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. If you need to reclaim a space that has been overtaken by invasive plants, planting buckwheat will do the trick. Buckwheat also has the added benefit of attracting a wide variety of pollinators to your ecosystem. The buckwheat plants are similar to succulent impatiens and very easy to take down in the spring, by simply pulling out or cutting off with a hoe. Then you can let the dead plants become surface mulch and plant right through them, or gather them up and compost them.
- ✦ Later in the summer when the soil is still warm, you can plant **barley (*Hordeum vulgare,*)** a fast-growing grain that captures excess nitrogen left over from

summer crops which would otherwise leach away during the winter. Barley often dies off in the cold in hardiness zone 5 and above, and then the residue shelters the soil through winter and dries into plant-through mulch in spring.

- ✿ One of the best soil-building combinations of cover crop varieties is that of **oats (*Avena sativa*)** mixed with cold-hardy **winter peas (*Pisium sativum*)**. The best time to plant this combo is early in the fall season. If you take these plants down just before the peas start blooming in spring, this oat/pea combination cover crop is the best way to boost your soil's organic matter and nutrient content, using plants exclusively. When planted in September, both of these plants gain some growth before winter and then in spring, the peas climb up the oat stems. The downsides for using these crops are that they may both succumb to winter-kill if they are planted north of zone 5. (Most of Summit County is in zone 6a and 6b. For a map of hardiness zones in Ohio, click [here](#). For a new update on hardiness zones, go to www.cleveland.com/insideout/index.ssf/2012/02/what_new_hardiness_zone_means.html.) Also, these plants need to be removed by mid-April or else they become very difficult to take down. 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.
- ✿ Another good choice is **hairy vetch (*Vicia villosa*)** which is hardy to zone 4 and provides a big payback in terms of soil improvement and saved time and labor. Unlike many other cover crops, you can quickly remove hairy vetch by slicing just below the crown with a sharp hoe. When hairy vetch is cut back about a month before time to plant tomatoes and peppers, you can open up planting holes and plant through the dried mulch with no digging required.
- ✿ If you wait until very late in the fall to plant cover crops, your best bet to plant is **cereal rye (*Secale cereal*)** because it is the most cold-hardy of the cover crops. Rye will sprout after the soil has turned chilly, but you have to take it out early in the spring before tough seed stalks develop. This is a great crop if you happen to have a flock of "City Chickens," because the chickens will eat these "cold season poultry greens" and take them down for you.

As you consider possibilities for cover crops to plant, think about plants that quickly produce an abundance of leaves and stems and are easy to pull up or chop down when you are done with them. You can even use your leftover summer garden seeds to plant short-term cover crops. Combinations like bush beans, leafy greens, and sweet corn can be teamed up with annual flowers such as marigolds and sunflowers for added

beauty, soil protection, and rainwater penetration. Whatever cover crop you choose to plant this season, remember that you will be acting as a good “Steward of the Earth” in your own backyard. For more information on cover crops, soil health, and water quality, contact Summit Soil & Water Conservation District at (330)-929-2871, or go to www.summitswcd.org.

Resources:

Ohio State University Extension
University of Maryland Extension
Walnut Creek Seeds
Mother Earth News
Farm and Dairy
USDA/NRCS
University of Minnesota Cooperative Extension
University of Wisconsin Extension
Iowa State University
Cornell University Horticulture Department