

**Save your Soil and the Planet:
Composting and Cover Cropping:
Methods for Sustainable Gardening and Small-Scale
Agriculture**

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Save your Soil and the Planet: Composting and Cover Cropping Methods for Sustainable Gardening and Small-Scale Agriculture

Sustainable Gardening Methods

When I began my time with The Nashville Food Project, I was curious about many different topics related to urban agriculture and community gardens. Food politics, nutrition, and community outreach were all facets that I was excited to learn more about. Yet, personally, I couldn't help but want to dive in and explore the sustainable aspects of gardening and small-scale horticulture practices. As an Environmental and Sustainability Studies minor at my university, I became fascinated by the many sustainable practices that can be implemented at gardens. During my day-to-day work at the community gardens my interests evolved to be particularly focused around the environmentally friendly practices of cover cropping and composting.

There are many ways in which even backyard and community gardeners can sustainably grow food. First of all, growing your own food is sustainable in and of itself. Using natural growing methods and eating locally grown foods greatly reduces your carbon footprint. When people grow more vegetables they also tend to eat more vegetables, and switching to a plant-based diet lessens your environmental impact. Furthermore, there are many methods, including drip irrigation and rain water collectors, that gardeners use to help limit water use, helping the environment and their budgets.

This article will focus on the two Cs of sustainable agriculture: Cover Crops and

Compost. Both of these sustainable gardening methods deal with soil health and longevity. Cover cropping and composting can be used throughout the year or in specific growing seasons. However, I have heavily relied upon these methods during the few months I have spent growing at the Nashville Food Project, as they are commonly used the fall. The information in this article comes from a variety of resources including, but not limited to, my own experience and the expertise of my colleagues.

Cover Crops

When planted, cover crops provide an abundance of benefits to your garden. Cover crops are typically planted between growing seasons to protect and refresh the soil. They are not planted for the purpose of eventual harvest, but they do boost the yield of crops planted after them due to their ability to greatly enhance soil health. Cover crops are a sustainable method because they reduce the need for chemical fertilizers to improve soil quality. Cover cropping also works well with no-till farming, organic growing, and other sustainable methods.

Benefits

The benefits of cover crops include: nitrogen production, nutrient enhancement, weed suppression and prevention, soil erosion control (see figure 1. for a demonstration on how cover crops

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prevent erosion and runoff), pollination attraction and pest management. Cover crops also provide habitat for beneficial insects and other wildlife. Many cover crops have been shown to be effective at controlling disease between generations of crops.

Figure 1.



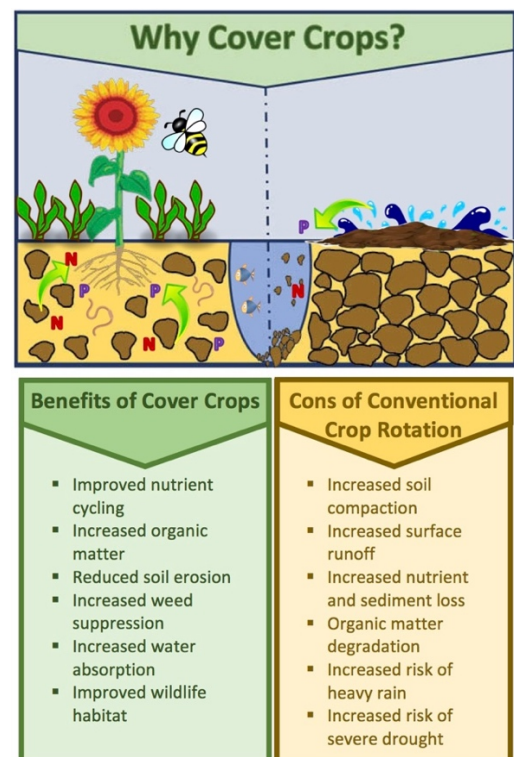
Varieties

Different varieties of cover crops grow better in different seasons and conditions, and it is important to understand what each one needs. Different cover crops also provide various combinations and levels of the benefits listed above. Although they are great on their own, cover crops work best when planted in mixtures.

Thoughtful pairing allows gardeners to match for seasonality and complimentary

benefits when creating their mixtures. When choosing cover crop mixtures look to see what each of them brings to the soil, and choose crops to create a mixture (typically of three crops) that brings all the benefits you are looking for. When pairing cover crops you also want to make sure that they grow well in the same seasons and under the same conditions to maximize your chances at success. Commonly used over crops include: Austrian Winter Pea, Winter Rye, Crimson Clover, White Clover, Sweet Clover, Hairy Vetch, Buckwheat, Cow Pea, Sudan Grass, Pea, and Oats.

Figure 2.



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Cover Crops in Gardening

Cover cropping has been recently coming back as a popular, sustainable practice for farmers. However, it is a good method for both home and community gardeners as well. Cover cropping is also a great option for those with less resources. Whether used by farmers in developing countries or urban gardeners, cover crops can greatly reduce your spending. Cover crops seeds are far less expensive than purchasing synthetic (chemical) fertilizers. Cover crops do the job of synthetic fertilizers by increasing soil fertility while also offering many additional benefits. Cover crops also help increase land yield over time, making them a great budget-friendly tool. Farmers and gardeners in the U.S. and across the globe are starting to realize all that cover crops have to offer to your soil, while reducing the impact on the planet and your wallet.

Compost

Figure 3.



The process of compost takes natural waste, breaks it down, and recycles these organic materials to create a nutrient rich soil conditioner. When done correctly, composting has the incredible ability to turn weeds, leaves, and food waste into fine, rich soil (See Figure 3). The bacteria and fungi in compost work the plants' roots to help plants feed themselves more efficiently. Compost is so rich and valuable to soil health that farmers have come to call it "Black Gold".

Sustainability

Composting is a sustainable practice for many reasons. One main way composting is sustainable is due to the fact that access to compost systems diverts and natural waste from landfills. In a compost system natural waste is actually utilized to breakdown in a way that is beneficial to the earth and its creatures, as compost attracts many insects. Furthermore, compost can be used in place of synthetic fertilizers to increase soil health. Using compost instead of synthetic fertilizers leaves less harmful chemicals in the ground, pollutes less water sources, and lessens the use of fossil fuels, which go into making chemical fertilizers.

When used alone, compost may not adequately supply all of the necessary nutrients. This is particularly true of nitrogen during fast growth phases of plants with high nutrient demands. Therefore, combining composting with

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nitrogen fixing cover crops, can be extremely effective.

Getting Started

Although you can buy compost, the best source is always homemade compost. Compost systems can be as complicated as a staged turning system with a covered section or as simple as a pile outside. The only factor that is essential in all compost piles is size. As a compost pile must be large enough to hold heat but large enough to attract aeration. Typically, a pile that is three feet wide and three feet tall is best. I have learned from my time at The Nashville Food Project, that piles bigger than five feet by five feet do not allow for proper aeration. When piles have gotten bigger than this, I have simply broken them up into smaller piles to allow for proper decomposition.

There is no right way to build a compost pile, just as there is no right list of compost ingredients. However, how you build your pile and what you put into it will affect the properties of the end results. No method or set of ingredients is better than another. The results will just produce compost with different nutrient levels and abilities to help your soil.

Ingredients

The four components that compost systems need in order to decompose correctly are browns, greens, air, and water (as displayed in figure 4). Your compost

system will need all four of these in order to breakdown properly. So as you add weeds and food scraps (greens), it is important to make sure you are adding cardboard, leaves, and straw (browns).

Beyond these essential categories, there tends to be some confusion about what you can and cannot put in a compost system. In terms of food, the rule of thumb is nothing that comes from an animal should enter your compost pile (except eggs). That means no meat, fish, or dairy. Thick citrus peels can also be too hard to break down and should be avoided most of the time. Lastly, any highly processed foods with ingredients you cannot pronounce should not end up in your compost pile.

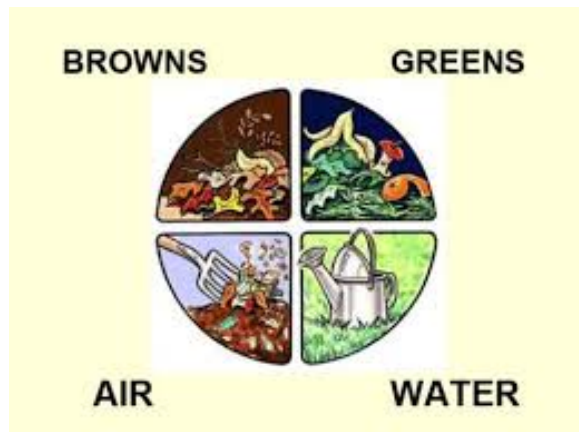
Worms

Adding worms to your compost is called vermiculture. Worms are especially effective at breaking down compost and speeding up the decomposition process. The main issue with using worms in your compost, is that they are not able to withstand hot temperatures. If your compost pile reaches temperatures of over 80 degrees Fahrenheit, then adding worms probably won't work for you.

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Figure 4.



Next Steps

Like many other aspects of gardening, these sustainable methods will vary based on weather, location, soil type, and many other factors. Maintaining patience and responding to your own garden's needs will help you see the best results. These are complicated processes with many intricacies. Nature doesn't always work perfectly, so take the time to dive in and explore these practices. The best part of learning sustainable gardening methods, is that you can feel good about yourself knowing that your hard work and efforts will have a positive impact on not only your garden, but also the planet. These methods are sustainable for the earth and your wallet as natural soil maintenance will keep you from relying on expensive chemical fertilizers and enhancers.

There are plenty of helpful resources listed at the end of this article. However, nothing beats getting your hands dirty by attending a training or giving these methods a try on your own. Good luck and happy planting!

Helpful Resources:

About Cover Crops. (n.d.). Retrieved from http://www.covercrop.com/?page_id=235

All About Composting: Learn how to compost from Gardener's Supply. (n.d.). Retrieved from <https://www.gardeners.com/how-to/all-about-composting/5061.html>

Brust, Gerald. Soil Fertility and Cover Crops. Retrieved from http://extension.umd.edu/sites/extension.umd.edu/files/_docs/programs/mdvegetables/Chap5-Soil-Fertility-Cover-Crops-web-version.pdf

Cover up—it's falltime! (2012, November 18). Retrieved from <https://lmscommunitygarden.wordpress.com/teach-someone-the-lesson-plans/cover-up-its-falltime/>

Natural Resources Conservation Service. (n.d.). Retrieved from https://www.nrcs.usda.gov/wps/portal/nrcs/detail/ny/technical/?cid=nrcs144p2_027252

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What is sustainable agriculture? (n.d.).
Retrieved from
<http://asi.ucdavis.edu/programs/sarep/about/what-is-sustainable-agriculture>