

Winterizing Your Garden

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Why is fall a good time to amend vs spring:

- Timing - The sooner you create the “soil food web” the faster it can begin to work...”If you build it they will come”, earthworms and other decomposers need organic matter to survive. If your soil lacks organic matter and a conducive home to microorganisms, your soil health will suffer.
- Uncomposted materials (fresh manure and organic materials) will continue to decompose throughout the winter, becoming less “hot” (overly nitrogen rich) while also providing an important habitat for the “soil food web”.
- As an OK Gardener you will also leave a fully prepped bed that is ready to go in the spring. Although we hope everyone sticks around, we know that schedules may not allow you to renew your plot.

Cleaning up Plant Matter - Why and How

- **Remove** - You must remove all weeds that are flowering. Although it’s hard to not compost these or use them as mulch, you need to get them out of the garden. I like to weed the garden of everything though in order to start fresh.
- **Cutting/Pulling** - Depending on the size of the plant and the root structure you may prefer to cut the plant down leaving the roots as web food and organic matter.
- **Disease and Pest Management** - By removing all plant matter you are eliminating places for your pests to hide and feed over the winter. This is an important step in maintaining a pest free/disease free garden space.
- **Tomatoes** - It’s important to remove tomato debris from the garden because tomato seeds can easily become a weed as they don’t always die in composting. Tomatoes carry many diseases including, wilt, curly top, mosaic viruses. I prefer to toss tomatoes debris in the trash. I know it’s horrible and I hate doing but it will prevent disease.

Vegetables and levels of feeding

Your plants remove important nutrients from the soil, hence they are nutritious for eating!

- **High Demanding crops** - Cole Crops like broccoli, cabbage, brussels, and kohlrabi. Also leeks, onions, peppers, spinach, sunflowers, large turnips, and large winter squash.
- **Medium Demanding crops** - Herbs like basil, cilantro, dill. Also cucurbitis plants like cucumbers, squash, melons. Lettuce, garlic, green onions, radishes, small fall and spring turnips.
- **Low Demanding crops** - Beans, peas, parsnips, carrots, favas, beets, chard, other herbs. You can see that some of these may also serve as a cover crop, particularly leguminous plants.

Soil Health: Replenishing the Soil

- **Compost WHY?** - Compost is the end product of complete decomposition. Compost adds the most beautiful combination of plant matter, microorganisms, manure, and other inputs. Compost, along with other organic matter, improves the capacity of soil to hold nutrients through a complex process. In addition, compost indirectly provides nutrients for plant use when earthworms and other organisms digest the organic matter, producing nutrient-rich castings, or excrement. The web is already started and you are basically moving it to your garden.
- **Manure WHY or WHY NOT?** - When manure is combined with other organic materials it provides a resting place for the nitrogen that is broken down into a plant usable form. Fresh Manure is very high in ammonia nitrates and salts. Ammonia nitrates are not chemically available to your plants and salts deter their growth. Soluble salts are actually chemically charged particles (ions), usually from dissolved

fertilizer and irrigation water, but may come from the composted material itself (manure is high in salts). While not a human health concern, concentrated soluble salts can cause problems in plant growth (Cornell University). I would advise you against adding straight manure to any living organism. Manure provides a readily available source for nitrogen but needs to be combined with other organic matter to effectively help your garden out! Think texture, fluffy. Straight Manure is not super fluffy.

- **Sheep and Peat WHY?** - The definition of compost varies greatly. It is not defined by the USDA or any other marketing agency so people take the word to mean whatever they may want to market to a gardener. Composts are not all alike. That's why it's important to do some research into what you're getting. If each member of the OK Garden were to get something different based on marketing or price there would be a lot of variables throughout the garden. Quality varies depending on maturity, pH, presence of weed seeds, concentration of toxic substances, and the population of soil-dwelling organisms, such as earthworms, insects and microorganisms (Cornell University). We know what is in the sheep and peat, we have used it and it has been a readily available (tons of it at DNS) and higher quality compost.
- **Mulch, mulch, mulch!** - It's important to add mulch on top of the compost in order to create a moist and dark habitat for your web. The mulch also smothers any weed seeds that may be present. The next section discusses different mulches.

Mulches, Inferior/Superior or a little of both: Cornell University says the best mulches are: economical, readily available, easy to apply and remove, stay in place, supply organic matter, and are free of weeds, insects and diseases.

- **Leaves** -Texture and weight are an important thing to consider when choosing a leaf mulch. Leaves are free (your labor) and everywhere in the fall. On the downside...leaves blow away without frequent watering and may introduce disease. Leaves may also mat together and create a barrier that does not allow water through. When I choose leaves to add to the garden I typically pick something that will break down quickly and one that is available. I prefer to use maple leaves and ash leaves. Walnut leaves have a natural herbicide that will not work well in the garden. Cottonwood and Aspen leaves create the matting and also contain fungal diseases. <http://www.planetnatural.com/leaf-mold/>
- **Grass Clippings** - Adding straight grass clippings to your garden works on par with adding straight manure. Both are considered high nitrogen "green" inputs for your garden. Persistent Herbicides may also be used in lawns to get rid of dandelions and other weeds. I think grass clippings are perfect (minus the herbicide) for your compost pile.
- **Straw** - By far my favorite mulch and the one that we will be using at the OK Garden. This inexpensive mulch is available at Valley Feed in Bayfield and the Basin Coop in Durango. It provides a perfect source for "brown" material in the compost pile and really smothers out weeds in the garden. Certified straw does contain some herbicide carryover and it's best to find non certified or organic straw where available. This does have an obvious negative side, much of the straw contains straw seeds. These seeds germinate and you begin to grow your own straw. Butttt...they are easy to pull as they do not have an established root system and what you pull can be tossed back into your compost pile. I prefer to pull straw out as a weed over pulling more persistent weeds that are smothered by straw.

How to add Compost and Mulch to your plot

- **1-3 inches of Compost** - I typically add around 1-3 inches of compost to the top of the soil and then work it into the top foot of garden soil. Because we are purchasing compost to amend our soil, the compost should be used sparingly. 2-3 wheel barrow loads per plot should be adequate for each OK Garden plot.

- **Straw Flakes** - These should be delicately flaked out where you still have a thick mat but you can spread it a bit further. If you keep them slightly flaked together it eliminates the issue of your straw blowing away in the wind.

Benefits of tilling:

- You expose overwintering pests to the cold, they are more likely to die without the warmth
- It's easy to amend soil with compost and other nutrients, the tiller really mixes the soil and helps you avoid uneven nutrient pockets

Dangers of Tilling and why it's better to leave the soil structure intact:

- Tilling kills earthworms and disrupts the "soil food web", millions of microscopic organisms are working together to build this web and it is surprisingly fragile
- Tilling brings weed seeds to the surface of your soil where it then has the proper environment to germinate, without tilling weeds are taken care of by smothering in mulch or pulling and remain on the surface, slowly improving and disappearing over time
- No till introduces less air to the system, air equals water pathways and water pathways leach Nitrogen (NO₃) which is a water soluble element out of your soil - The "soil food web" is partly made up of bacteria which through decomposition makes the Nitrogen available to your plants.
- Feeding bacteria (present in the "soil food web" produces ammonium ions, the ammonium ions are then used by other bacteria that then produces (NO₃) nitrate ions. Nitrate ions are available to your plants. Ammonia ions (in an incomplete bacterial system) drift into the atmosphere as a gas (think stinky barn smell). So long story short, you need to protect the bacteria that is present in your soil and not introduce new water pathways that lead to Nitrogen leaching.

Plants that can overwinter and what to expect from them in the spring

- **Why overwinter?** - You can get a head start on the season if you decide to start some plants in the fall. By the time you return to the garden there is already something to snack on. **Kale, parsley, spinach, and lemon balm** are my favorite plants to overwinter. Some people overwinter carrots but I find that they have become so much a part of the web that there isn't a ton left for the humans by the time spring rolls around.
- **Why not overwinter?** - Your plants will go to seed very early because they have already endured the tough winter. Sometimes there isn't much left to eat, thanks a lot roly polys! They also won't have any water at the OK Garden and they may provide a space to overwinter pests.

Alternative option for OK Garden to straw- Heavy fencing on top of leaves