

### **How to Make Traditional, Hot Compost**

- 1 'green' (fresh organic/salad, grass clippings) to 3-4 'brown' (dry leaves, twigs, manure, etc.)
- Turn every week
- Throw in a few worms from garden to speed process
- Keep out cooked foods as they attract vermin
- Keep moist but not wet by adding water or more ingredients to right consistence
- Chop ingredients to 1-2 square inches
- Add animal manure if available up to 30%  
(cow, sheep, chicken, rabbit, horse but not pig, cat or dog because of disease and parasite transfer)
- Let cool when finished (looks like lumpy dirt)
- turn, (usually a day or two) if pile is still hot. Or spread if already cool.

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### **Transcript clip from PBS TV program, NOVA, Can We Cool the Planet?** PBS Airdate: 10/28, 2020

WHENDEE SILVER: We all eat food every day. We have to grow that food. And we create a lot of organic waste in the process.

NARRATOR: When organic waste sits in a landfill or slurry pond, it creates an oxygen-deprived environment, favorable to certain microbes, which, in turn produce methane, a greenhouse gas 34-times more potent than CO<sub>2</sub>.

WHENDEE SILVER: We're trying to tackle three big problems: waste, degrading soil health and climate change. We came up with something relatively simple: composting.

NARRATOR: In composting, food waste is regularly turned, adding oxygen to the mix and keeping the methane-producing microbes at bay.

WHENDEE SILVER: It creates this organic and nutrient-rich resource, like a slow release fertilizer that helps plants grow.

WHENDEE SILVER: We now have 10 years of data, showing that just a one-time dusting of compost onto the soil surface can have a long term impact on plant growth and increase carbon storage in soils.

NARRATOR: Whendee's research shows that a single layer of compost can increase plant growth by up to 78 percent and increase soil carbon by up to 37 percent, for three years to 37 percent, for three years.

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### **D-Y-I Worm Bin: Horizontal Style**

- 2 Totes 7-10 gal, heavy, rectangular, not too deep, outer tote larger than inner tote, so one nests deep inside
- Small drill or hammer and large nail to poke holes
- Bricks or wood blocks in outer to hold inner tote up from bottom
- Bag of glacial rock dust, rock phosphate or gypsum
- Bedding: coir fibre, finely shredded mulch, cardboard, newsprint (no colour, no shine), manure, weed tops
- A few handfuls of garden dirt in first batch

1. Poke inner tote w/ many small holes in bottom for drainage & air. Worms crawl out of big holes

2. Place inner tote on blocks inside big tote ... leaves room for tea to drain, insulates against heat and freezing

3. Inside inner tote: Add soil to cover bottom (this is only first time, to give a good mold base for worms)

**To start:** fill tote ¼ to ½ full with 50% kitchen scraps, 50% bedding a couple of tablespoons of gypsum

- Go easy on the citrus peel, worms' least favourite food. I stopped adding them, but good in garbage kraut

#### **NOTES:**

-Always include lots of shredded newspaper ... they eat it; it aerates bin and keeps bedding moist, like sponge

-Add worms, cover with sheet of moistened newsprint: stops worms crawling out, keeps environment wet

-Put tote lid back on ... stops vermin (bears, racoons, rats, ravens) ... I've never had a problem with pests

-As worms digest food, move finished compost to one side, add new scraps with new bedding one other side

☀ Remove castings as needed, put most worms back. Okay to store in bag or bucket, but if it dries out will kills worms in castings

☀ If bin contents get sloppy wet, add more dry bedding. Mix in until contents like wrung out sponge

*on-line instructions: <http://whatcom.wsu.edu/ag/compost/easywormbin.htm>*

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## Article: A Quick Primer on Mulch – the Gardener's Best Friend

By Jo-Ann Canning

Plants feed from the soil, and mulch develops the kind of soil that makes healthy plants. When we force our plants to rely on fertilizer rather than healthy soil for food, they become stressed from forced growing, incorrect balance of nutrients, and drought at the air-soil barrier. Relying on fertilizer is like relying on candy for nutrition: a short-term buzz, but a long-term problem.

There are four aspects in gardening. Mulch addresses the improvement of all of them.

### 1. The Soil:

- Improves structure (i.e. balance of sand, organic materials, bio-available minerals)
- Controls moisture levels. Studies show moisture retention at 6, 18, and 36 inches is higher with much than without. Highest moisture is at 6 inches, where most of the delicate and feeding roots are found.
- Improves drainage while controlling movement of water so it releases nutrients as it moves rather than allows water to rush away, carrying nutrients into sewers and ocean
- Prevents erosion
- Prevents compaction of soil: plant roots continue to grow as needed and take in nutrients
- Moderates temperature

### 2. The Plants:

- Provides nutrients as it slowly composts, giving your plants a season-long smorgasbord they can choose from.

### 3. The Landscape

- Directly suppresses and smothers pathogens and pests
- Enhances and feeds beneficial micro-organisms and insects
- Neutralizes pollutants (studies on land reclamation, Washington state, and Stanley Park in Vancouver, BC)
- Ease of weeding: Mulch kills many weeds., and the more vigorous that sometimes grow through it are easy to pull because they have little in the dirt below. Weeds that propagate by root runners move up into the mulch so are easily pulled out to their full length.

### 4. Humans

- Economic: recycles organic green waste so it is less costly to maintain landscape, and conserve water
- Health: decreases need for pesticides
- Aesthetic: provides a uniform, clean, tended, look to your landscape
- Ease of application: throw it down, walk away, fluff/turn annually or when more is added.

## Mulch is classified into three main types.

1. Landscape mulch. Also called arborist wood chips, is composed of naturally combined freshly chipped or shredded bark, woody chops, leaves, needles. A study in 1990 tested 15 different landscape mulches, including bark, sawdust, compost, grass clippings, leaves. Arborist wood chips performed best in every category. Contrary to some opinions, walnut tree and oak tree clippings make excellent arborist mulches as does cedar tree and hedge trimmings. Cedar kills many common garden pests and pathogens.

2. Food crop mulch ("feed and doctor" mulch for the home gardener). The main one in this type is compost (combo of kitchen waste, grass, leaves, very small twigs, etc). Other crop mulches are composted manure, and dug-in cover crop. Top this type of with arborist mulch or coir fibre for moisture and pest control.

### 3. Specialized mulches:

- Rock mulch . Sometimes combined with oyster shell. Enhances reflection and ground heat for cactus and succulents. From hot desert cacti, rock mulch also collects dew, and drips it slowly over root ball. Turkey grit is used to create lime leaching for specialty plants like hardy cyclamen This is used in some types of alpine troughs. #10 size is most used, and is available in feed stores.
- Sheet mulch. This is used mostly for weed suppression as an early stage of soil reclamation.
- Acid mulch for rhododendrons, Pieris, hydrangea, camellia, etc. This will include grass, evergreen needles, coffee grounds. Acid mulch works well on vegetables needing higher nitrogen, like oriental greens and lettuces.
- Feed and doctor mulch. This is an enriched mulch that is combined with manure, rotted leaf mold and finished compost for spring time feeding beneath annual spreading of arborist mulch.

**How do the other mulches compare?** Studies showed other mulches used alone in tests behaved as follows:

- Sawdust: too fine, so it compacts and creates a barrier to nutrients. Use only with other materials, as a part of an arborist mulch mixture. (NB: NEVER use wood shop scraps, as they are often treated with chemicals).

- Cosmetic bark mulch. Use with caution, as many brands use dye, and it provides very few nutrients while encouraging certain "wood eaters" like sow bugs. It does compost, however slowly, so can make a pleasant top decoration for areas that look better with a coarse groundcover.

- Landscape cloth. **DO NOT USE EXCEPT AS NOTED.** This mulch creates several problems while not really solving any. It can create a film of water to sit around tender roots, causing rot or air pockets. Small pest can nest in this film. It breaks down and rips within 3 to 4 years, the remnants soon becoming a nuisance by tangling in and damaging root growth. Like cardboard and newsprint mulch, it creates a barrier that discourages the transfer of food and water. It does block some types of weeds for the first year that are already beneath the barrier, but after that, weed seeds that drop from the surrounding areas simply take hold on top of the cloth. Heavy-duty, industrial thickness landscape matting designed to be a base for sand under walkways lasts much longer, and suppresses weeds caught beneath for longer. But the result in the landscape is the same. In addition landscape cloth encourages many noxious weeds, like English Ivy, wild sorrel, Himalayan blackberry and morning glory, all of which put out runners which travel much further unimpeded, and spread through your garden rapidly wherever the cloth is broken. Note: useful when using a rock/gravel mulch. You can roll it back and feed the soil underneath when needed, then roll back and spread gravel again.

- Straw and straw-based rotted manures. Straw is often a base for chicken manure, mushroom manure, and horse manure. Useful as part of a compost-based soil food. Cow manure is usually sawdust –based, so can add tilth to a soil that needs it. Caution: pig manure is not recommended because it can contain pathogens that are transferrable to humans.

### **What Not to Use**

1. Newspaper & cardboard sheets. Only good to blanch stems of leeks, chicory or cardoon, and become pest havens. Like landscape cloth, creates a barrier to water and air exchange when wet, soaks up water when dry.
2. Recycled rubber. This was once touted as being permanent, but it actually breaks down like any other organic material. It releases toxins, and is flammable when it gets dry in summer,
3. Coffee grounds alone. It is a good combo with other materials, but will compact as it is too fine, so creates a barrier. Use 5% maximum in compost.
4. Sawdust from wood shop/carpentry shops, unless you know the source wood. Mix 5% into compost.
5. Landscape cloth alone.

### **When and How to Apply Mulch**

#### **Spring:**

When you trim all the trees, perennials, and hedges, chop up the trimmings and put them around your plants immediately. Studies have shown that "aging" or composting your landscape mulch is not only unnecessary, but removes nutrients that the plants will use as the mulch composts in place. The myth that "raw" mulch steals nitrogen from a plant or soil in the composting process has been debunked in scientific field studies. When you are ready to add your compost and seasonal amendments mixed with fresh compost, pull back the mulch, mix the compost into the soil, and pull the old mulch back over top.

#### **Autumn:**

Rake up the leaves, mix into the mulch around the plants. For areas with evergreen shrubs, be sure to include the needles and cones. If you have more leaves than you can use, bag them and let them rot over winter. A bag next to the compost bin makes it easy to mix into your kitchen green waste layers, then lay over top to increase rain run-off. By spring the bagged leaves will be partially rotted, and contain worms and wonderful leaf mold that is perfect to mix back into the mulch that will be slightly depleted from the heavy winter rains.

#### **Method:**

Remember Tim Horton's and Iceland: do-nuts good, volcano bad! Apply the mulch around each plant in a do-nut shape, allowing a little (no more than an inch) of bare soil around the stems or stalks of the plant. A mounded shape (the volcano) holds dampness against the plant right at ground level. This is a vulnerable area for many plants, and constant moisture attracts molds, pill bugs, and damping-off rot.

#### **How much?**

- 6 inches for ornamental areas
- 2 - 4 inches on top of compost for small food gardens
- 8 -12 inches for restoration sites
- 12 inches for restoration sites where weeds are a major problem

### **Sources:**

Washington State University, Puyallup Extension Centre publications  
Washington State University, Master Gardener Magazine, summer, 2007  
A-Z Encyclopaedia of Garden Plants, Canadian Edition

**Garbage Kraut Compost**  
**(DYI Bokashi-style fermentation)**

1. Rinse rice before cooking (can save milky water in fridge for 3-4 days)  
*These are the enzymes you need to ferment kitchen veggie waste... non-dairy "whey"*
  2. Chop veggie leavings into 1 in cubes before putting in kitchen slop bucket,
  3. Crush egg shells, shred tea bags & coffee filters into tiny strips or pieces (½ sq. inch)
  4. Put 1 – 2 ½ gals. veggies into a rigid-sided 3 gal pail with tight cover,
  5. Pour rice water over veggies, then regular water, enough to cover veggies
  6. Cover top of veggies with plastic bag (old grocery bags works well),
  7. Push down & tuck around bucket edges to help exclude oxygen
  8. Let veggies ferment for at least 2 weeks away from direct light... faster in warm weather
  9. Kraut is ready in maximum 1 month as long as it doesn't freeze ... if so, just let it thaw
  10. It is ready when it is a slimy, gloppy mess, and the smell makes you want to gag
  11. Dig hole or trench or a circle 12 inches deep around shrub drip line
  12. Pour in kraut, cover with dirt. TA DA!!!! In 2 weeks it is worm-filled rich soil.
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