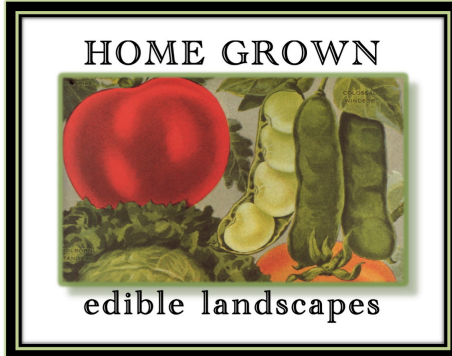


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# A Quick Guide to Composting

## How NOT to stink at it

# What is Composting

- Composting is a natural process of recycling organic material such as leaves and vegetable scraps into a rich soil amendment that gardeners fondly nickname Black Gold.
- Bacteria, fungi, and worms are what break down dead plants, animals, and insects. The bacteria, fungi, and worms are called decomposers.
- Decomposition happens when these organisms are exposed to a **balance** of oxygen, moisture and nutrients.

# ***Aerobic* and *Anaerobic* Composting**

- Aerobic = 'in the presence of oxygen (> 5%)'. A faster and preferred method as it smells better and is more efficient. Generates heat 140-160 degrees or higher which is hot enough to kill most pathogens and seed seed.
- Anaerobic = 'in the absence of oxygen'. Slow and can smell. Stink is caused by hydrogen sulfide (rotten egg smell) along with others.

Composting organisms require four equally important things to work effectively:

- Carbon — for energy; the microbial oxidation of carbon produces the heat, if included at suggested levels.
  - ***High carbon materials tend to be brown and dry.***
- Nitrogen — to grow and reproduce more organisms to oxidize the carbon.
  - ***High nitrogen materials tend to be green (or colorful, such as fruits and vegetables) and wet.***
- Oxygen — for oxidizing the carbon, the decomposition process. ***(Turn the tumbler everyday)***
- Water — in the right amounts to maintain activity without causing anaerobic conditions.

# Carbon:Nitrogen Balance C:N

A compost pile that heats up properly and decomposes rapidly depends on a number of factors.

- Balance of carbon and nitrogen within the wastes added to pile. A 30:1 carbon:nitrogen ratio is optimal

**Table 1. Carbon:nitrogen ratios for selected organic wastes (by weight).**

Material	C:N Ratio
Low C:N materials	
Grass clippings	12–15:1
Food scraps	15:1
Vegetable wastes	11–20:1
Coffee grounds	20:1
Cow manure	18–20:1
Horse manure	25:1
Poultry manure	15:1
High C:N materials	
Leaves	30–80:1
Straw	40–100:1
Corn stalks	60:1
Paper	170–200:1
Sawdust	200–500:1

# Moisture Content

- For aerobic composting moisture content should be 40-60%.
- A higher moisture content will increase anaerobic decomposition.
- A lower moisture content will slow down decomposition.
- Squeeze compost in hand – should feel like a damp sponge with only a few drops of liquid.

# What to Compost...What NOT to Compost

- Do not place diseased plants and weed seed in your composter.
- Whenever possible, select plant materials that will balance high C:N ratio materials with low C:N ratio materials.

**Table 2. Wastes to include in or exclude from the compost pile.**

<b>Include</b>	<b>Exclude</b>
Leaves	Weeds (perennials)
Sawdust	Diseased plants
Grass clippings (except Bermuda sprigs)	Pig manure
Weeds (annual)	Pet manure (cat and dog)
Vegetable wastes	Meat
Fruit wastes	Fat
Straw	Oils and lards
Tree and brush trimmings (shredded)	Milk and cheese products
Paper	
Egg shells	
Coffee grounds	
Chicken manure	
Rabbit manure	
Livestock manure (except pig)	

# Troubleshooting

**Table 3. Troubleshooting composting problems.**

Symptom/Problem	Solution
<i>Rotten egg smell</i>	
Insufficient air; excess moisture	Turn pile and incorporate coarse organic matter (sawdust, leaves)
<i>Ammonia smell</i>	
Organic material too high in nitrogen	Add coarse organic material (sawdust, leaves)
<i>Pile does not heat up</i>	
Pile too small	Add more organic matter
Insufficient moisture	Turn pile and add water
Lack of nitrogen	Incorporate manure, fertilizer or low C:N ratio plant material (lawn clippings)
Poor aeration	Turn pile
Cold weather	Increase pile size or insulate with straw