THE CITY OF DAVENPORT
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# Home Composting 101

## Food Rescue Workshop

Thursday, September 26, 2024

# What and Why?

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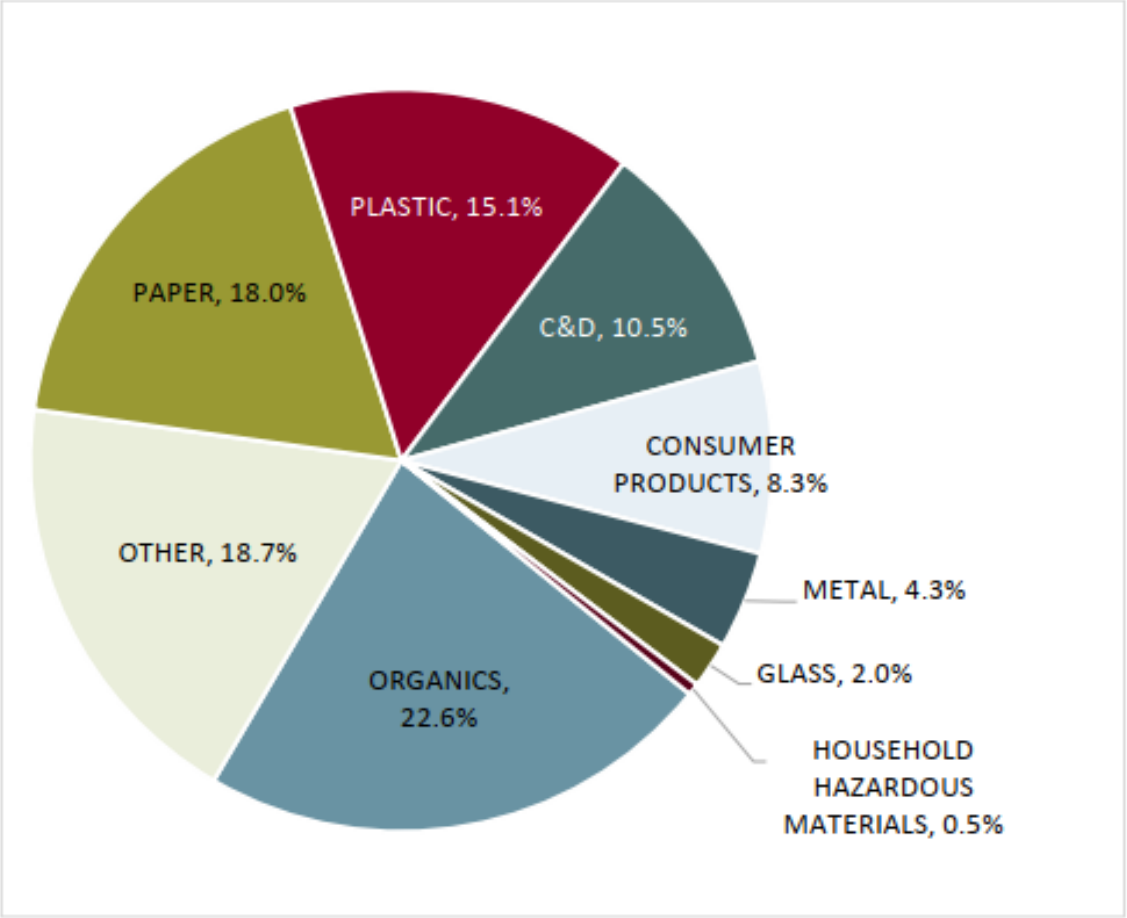
What IS compost?

And why should we care?

Compost is a mix of decayed or decomposing organic matter that can be used to fertilize soils

2022 Iowa Statewide Material Characterization Study

Exhibit 8. Residential Statewide MSW Composition by Material Categories



Over the last 25 years Food Waste is the largest waste stream from the residential setting.

And

The volume is GROWING!

Trending upward in Institutional/Commercial/ Industrial, as well as in Construction & Demo

Table 24. Predominant Material Components – Residential

| 2022 | | 2017 | | 2011 | | 2005 | | 1998 | |
|---|---|---|---|---|---|---|---|---|---|
| Pct. | Material | Pct. | Material | Pct. | Material | Pct. | Material | Pct. | Material |
| 19.1% | Food Waste[1] | 17.9% | Food Waste[1] | 13.6% | Food Waste | 11.2% | Food Waste | 10.8% | Food Waste |
| 7.6% | Fines | 7.6% | Plastic Film[2] | 7.8% | Yard Waste | 7.9% | Mixed Recyclable Paper | 9.6% | Non-Recyclable Paper |
| 7.1% | Plastic Film[2] | 6.8% | Compostable Paper | 6.2% | Compostable Paper | 5.7% | Newsprint | 6.1% | Mixed Recyclable Paper |
| 6.3% | Textiles and Leather | 6.5% | Mixed Rec. Paper | 5.9% | Textiles and Leather | 5.4% | Textiles and Leather | 5.8% | Fines |
| 4.8% | Diapers | 6.4% | Fines | 5.4% | Plastic Film[2] | 5.4% | Construction/ Demolition | 5.5% | Textiles and Leather |
| 4.7% | Mixed Recyclable Paper | 5.6% | Other Organics | 5.0% | Construction/ Demolition[3] | 5.3% | Plastic Film[2] | 5.0% | Wood - Treated |
| 4.4% | Compostable Paper | 5.4% | Textiles and Leather | 4.6% | Other Organic | 5.0% | Other Plastic Products | 4.6% | Other Ferrous Scrap Metals |
| 3.9% | OCC and Kraft Paper | 4.8% | Diapers | 4.5% | Mixed Rec. Paper | 4.9% | Wood - Treated | 4.4% | Other Plastic Products |
| 3.5% | Yard Waste | 4.7% | Yard Waste | 4.5% | Wood - Treated | 4.1% | Diapers | 4.2% | Newsprint |
| 3.2% | Other Inorganics | 3.1% | OCC and Kraft Paper | 4.5% | Other Plastic Products | 3.9% | Other Inorganic | 4.1% | OCC and Kraft Paper |
| **64.6%** | **2022 Cumulative Percent** | **68.8%** | **2017 Cumulative Percent** | **62.0%** | **2011 Cumulative Percent** | **58.8%** | **2005 Cumulative Percent** | **60.1%** | **1998 Cumulative Percent** |

# Soil Health Matters

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By nurturing the land, we nourish our bodies.

Replenishing macronutrients, bacteria and fungi to soils we ensure the food we eat contains nutrients essential for human health.

Healthy soils help keep our waterways clean and helps reduce flooding.

# Compost Considerations

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Location

Containment Systems

The Recipe

# Location

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- Not too far away
- Must be convenient
- Level, well-drained ground
- Not too much shade or sun
- Near a water source

# To Bin or Not to Bin

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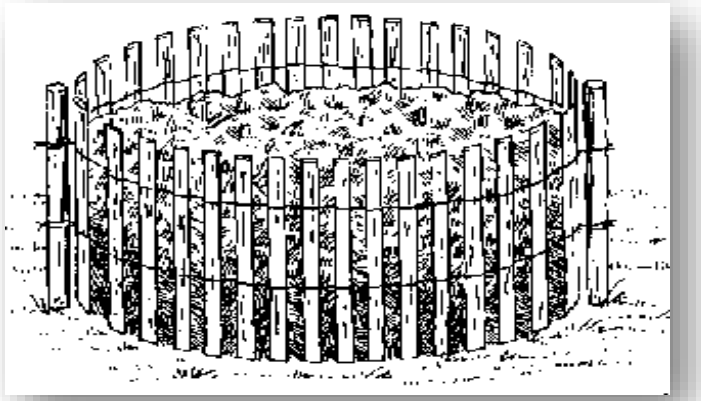

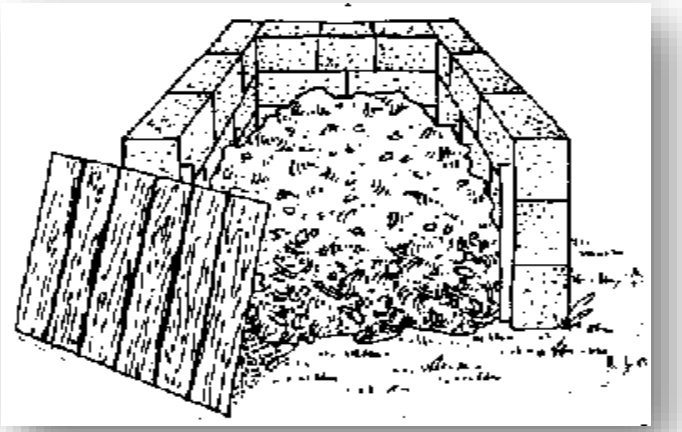

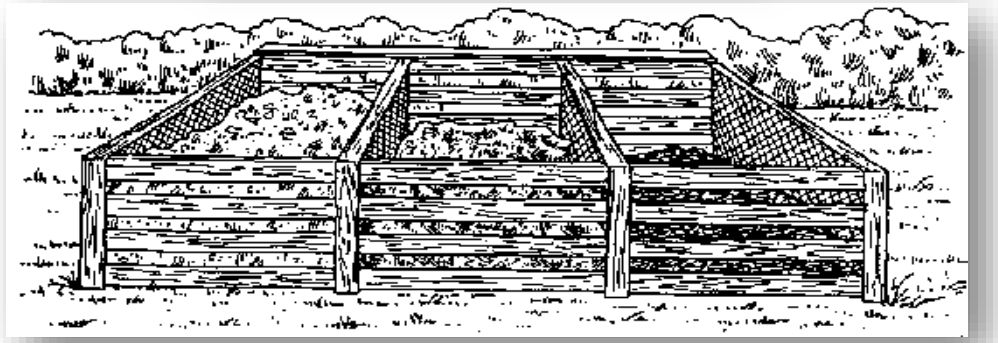

# The Compost Recipe

## The Two Food Groups

- The right combination of organic materials to be composted
- Browns & Greens in a 4:1 ratio

## Air & Water

- The right amount of air and water.

## Time & Nature

- The composting work crew, the microbes (mainly bacteria and fungi) that do the work for you.

# Food Group 1 - Browns

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- Leaves
- Straw
- Paper
- Sawdust
- Cardboard

# Food Group 2 - Greens

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- Fruit
- Vegetables
- Coffee grounds
- Grass clippings
- Certain Manure

A note about manure – Not all are created equal
Herbivore manure – cows, horses, sheep, goats, llamas and
Chicken and bat manure – high in urea nitrogen – need more time
What's not safe : dog, cat, pig and human waste – harmful bacteria

## Browns

- Decay very slowly
- Coarse browns can keep pile aerated
- Tend to accumulate in the fall
- Tie up nitrogen in soil if not fully composted
- May need to stockpile until can mix with greens

## Greens

- Decay rapidly
- Poor aeration – may have foul odors if composted alone
- Tend to accumulate in spring and summer
- Supply nitrogen for composting
- Best composting if mixed with browns

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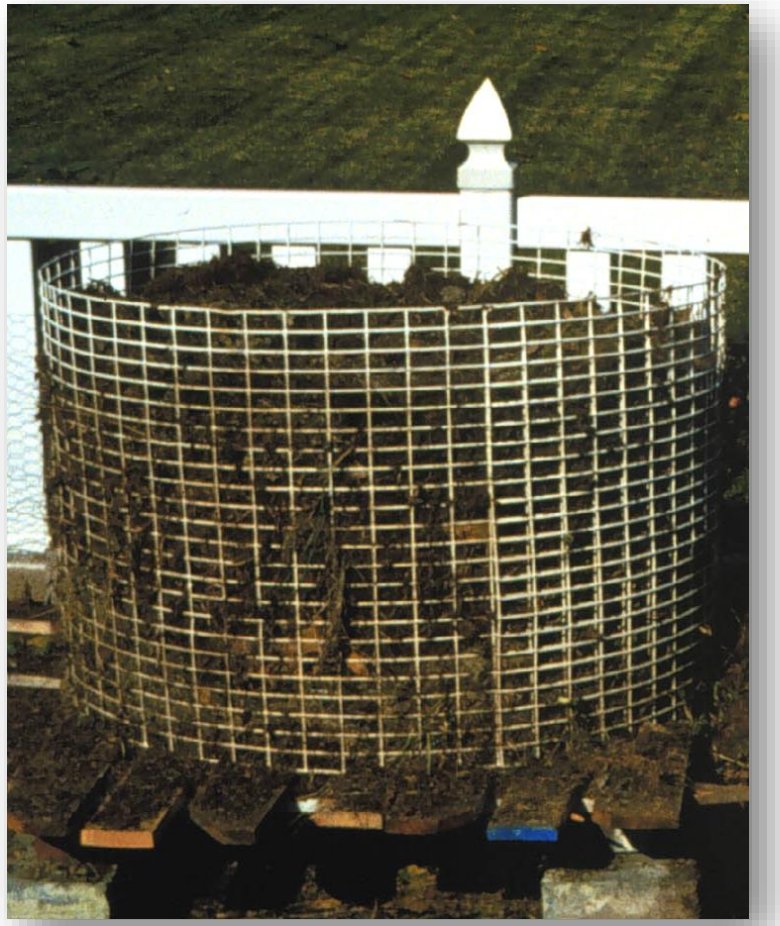
# Where do de-composers come from?

If you build it, they will come…

Leaves / wood chips/ food scraps grass clippings / soils – all have microorganisms already present

Bacteria, filamentous bacteria, fungi, protozoa, rotifers

Different composition during different phases of composting



# Managing the Process

# The most rapid composting is achieved by

- Adding mixed browns + greens
- Regularly turning (mixing) the compost pile
- Controlling water content

When pile no longer heats after mixing, allow it to cure (stand without mixing) for at least 4 weeks before using the compost

# Is Chopping or Shredding Necessary?

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- Smaller particles decompose faster
- Have greater surface area per unit volume
- Allows microbes to get at more of the food
- Not Necessary

# Lazy or Active?

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Good compost can be made in a pile that never gets hot, but…

Lazy or the Dump & Run -

- Slower - it takes longer to make compost
- "Cold" Process – weed seeds and disease may survive

Active -

- Faster - The most rapid composting
- Hot - Ensures weed seeds & diseases are destroyed

Composting & Compost
is like a baby's diaper.

If it smells…
Something needs to be changed.

# Compost Troubles

**Stinky =**

**Not enough air**

**Too many greens**

**Too wet**

**Not Composting =**

**Too much air**

**Too many browns**

**Too dry**

# When is it Done?

**Finished compost will smell like the earth or soil.**

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- Dark and crumbly
- Materials are unrecognizable
- Not soggy and wet
- Finished compost sinks to the bottom of your pile because it becomes heavier than starting ingredients
- Particle size-can be screened

# Test for Finished Compost

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Bag test: sealing compost in a plastic bag for several days should produce no foul odor

Germination test: will seeds germinate in the compost? (good test to use if compost will be part of a potting mix)

# Compost Tea

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**Can replace chemicals**

**Helps suppress diseases**

**Increases plant growth**

Make the most of a little bit of compost by brewing compost tea. It's one of the best natural soil amendments, chock full of microbes that promote a healthy soil ecosystem.

# Steeped Compost Tea

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1. Fill a clean 5 gallon bucket with water. If possible, use rainwater collected in a rain barrel. If using chlorinated water, set filled bucket outside in sunny location for a short while for chlorine removal.

2. Make a tea bag by filling mesh type material with 4 to 6 cups of compost. Materials that work well are old nylons, burlap, cheese cloth or small mesh laundry bags. Suspend homemade tea bag in water.

3. Let tea bag steep for 24 hours. To derive the most benefit, apply tea within 4 hours after steep is complete.

# Using Compost Tea

Full strength compost tea is safe, however, to further its use, tea can be diluted with chlorine free water at a 1:5 to 1:15 ratio (1 gallon of water to 5 – 15 gallons of tea).

**Soil Drench:** For a healthy lawn follow up aeration with a tea application.

**Foliar Spray**: For best results, at least 75% of upper and lower leaf surface should be covered during each application.

# Can’t Make Your Own?

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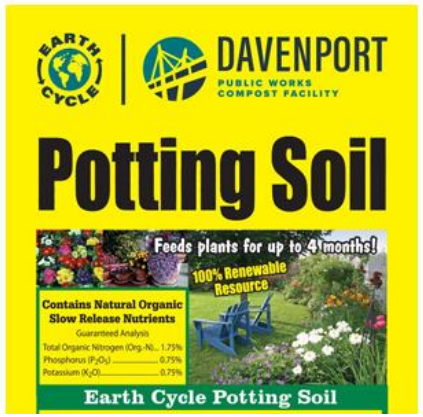
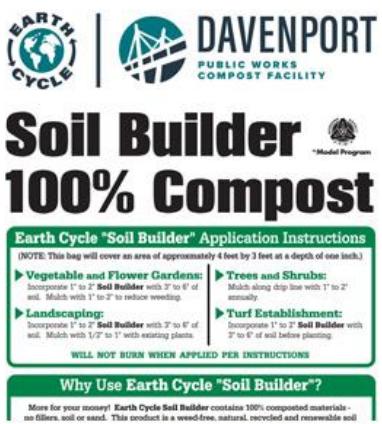
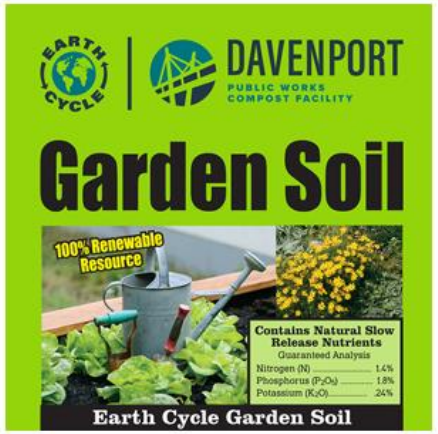
Visit the City Compost Facility at

2707 Railroad Avenue!

They also have compost spreader rental and other available products.




Find the compost calculator and fees at
www.cityofdavenportiowa.com/compost

# Q: Can I compost newspaper?

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A: Yes!

Lay a couple sheets out on the counter and peel vegetables or fruits onto the paper – wrap everything up and add to your compost pile; or if you're lacking a little "brown" shred it up and add to your compost pile.

# Q: Can I compost in winter?

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A: Yes. Most likely your bin will go dormant if internal temperatures drop below 50°F. But if you continue to add to it, the decomposition process will increase again in Spring.

# Q: Do I have to cover my compost pile?

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A: No - but it is recommended.

Covering your pile keeps heat and moisture in and prevents leaching.

# Q: Do I have to turn my compost pile?

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A: Not necessarily – but, turning:

- Speeds up the composting process
- Re-heats pile to keep it in aerobic state
- Creates new passageways for air & moisture
- Eliminates odors & matting

# Q: I'm overwhelmed with too many leaves, what should I do?

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A: Two things you can do here:

1. Shred and store and use throughout the winter to cover food scraps (mixing browns & greens)
2. Shred and mulch your planting beds with them. Pick up the "leaf mold" in the spring to add to your compost pile or let it be and cover with a wood mulch in spring if you prefer.

# Q: I'm overwhelmed with too many greens and grass clippings, what should I do?

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A: Lots you can do!

1. Mulch mowing, so you don't have grass clippings
2. Replace a portion of your lawn with plants, native turf or pollinator plantings that does not need mowing.
3. Use clippings as mulch in gardens

# FAQs

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Q: Can I compost pine needles?

A: Yes! ...level for **pine needles** in a **compost** heap is no more than 10%. **Pine needles** decompose very slowly and should **be** mixed with a good variety of other **composting** material for best results.

Q: Can I compost with grass clippings on chemically treated yards?

A: Not recommended – label information varies. Some state 'clippings safe to use in compost' some state 'after 10 days of application' some state 'do not use'. Check chemical labels.

# FAQs

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Q: Can I compost with wood ash?

A: Yes, in small amounts

Recommended to test the pH of your existing soil first. Wood ash is alkaline, so it can raise pH and neutralize acid soils – not for use near acid-loving plants such as blueberries, rhododendrons and azaleas.

Q: Can I compost with walnut hulls?

A: Yes, if composted for at least three months.

The hulls from black walnut contain a chemical plant inhibitor (juglone) that can restrict the growth of some plants such as tomatoes and cabbage. Compost the hulls for about three months before using them as a mulch. Partial decomposition of the hulls will oxidize the juglone, making them safe to use on plants

# THANK YOU


Partners of Scott County Watersheds


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# Carbon : Nitrogen Ratios

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Earth is a carbon-based planet – all living organisms contain oxygen, carbon, hydrogen and nitrogen.

For composting the carbon : nitrogen ratio is what is important

Browns
High in Carbon

**Leaves (30-80:1)**

**Straw (40-100:1)**

**Paper (150-200:1)**

**Sawdust (100-500:1)**

Greens
High in Nitrogen

**Fruit & Veg (12-20:1)**

**Coffee grounds (20:1)**

**Grass (12-25:1)**

**Horse Manure (25:1)**