Backyard Composting

Wire Compost
Trash Can/ Bin Composter
Geobin
Pallet Compost System

May 19, 2020
MEET YOUR PRESENTERS

Lindsey Grimm,
Morrow County Recycling / Keep Morrow County Beautiful Director

Carri Jagger-Murphy
OSU Extension – Agriculture/Natural Resource Educator / Master Gardener Instructor
10 REASONS TO COMPOST

1) Improves plant growth
2) Reduces soil erosion
3) Allows soil to retain more water
4) Enhances soil fertility
5) Reduces waste landfilled & burned
6) Benefits soil structure
7) Allows soil to retain more nutrients
8) Stores carbon in soil to protect the climate
9) Builds community resilience & power
10) Is something everyone can do!

Learn how: ilsr.org/composting
A dark, crumbly, earthy-smelling material produced by the natural decomposition of organic materials.

- compost is a living soil amendment
  It is NOT SOIL

- bacteria, fungi, and microbes feed on organic matter

- Microbes use carbon and nitrogen to grow and reproduce

- several cycles of organisms are needed for decomposition.
WHAT ARE MY OPTIONS?

Backyard Composting
METHODS / TYPES

- Open Compost Pile
- Compost Bin style
- Tumblers
- Layer Composting
- Trench Composting
- Your design
OPEN COMPOST PILE OR HEAP

Compost Pile

Sheet or Lasagna Compost

Most common, most familiar composting system

“Open” type of compost bin solution
COMPOST BIN STYLES

Wire Compost
Trash Can/ Bin Composter
Geobin
Pallet Compost System

“Open” type of compost bin solution

Great option for composting leaves, yard clippings, and other large organic matter

While it is possible to compost food scraps, the openness of this compost system may attract more rodents and pests to your pile.
TUMBLER

“In-Vessel” type of compost bin solution

Tumbling compost systems use the force of manually turning the compost bin to easily mix the contents of the composter to aid in faster decomposition.

These systems are enclosed which helps minimize the chances for animals to invade your composting material.
LAYER SYSTEM

“In-Vessel” type of compost bin solution

Layered style compost system

This bin lacks a base which makes it more susceptible to unwanted animals, rodents or pests

This bin heats material up quickly and is better for processing larger quantities of material

If you overload the composter without regularly removing finished compost, you may compromise the integrity of the plastic walls and doors
TRENCH COMPOSTING

POCKET COMPOSTING

Trench Composting
A Simple Method To Add Organic Matter To Your Garden

www.ourstoryacres.com
Convenience is key so that you can easily use the compost.
WHEN TO BUILD A COMPOST PILE

- Spring
- Summer
- Winter
- Fall
HOW MUCH EFFORT/LABOR DO I HAVE TO PUT INTO COMPOSTING IN MY BACK YARD?
COLD VS HOT COMPOSTING

- Passive Composting OR COLD Composting
  - Low effort
  - Little attention to watering or optimizing conditions
  - Slower decomposing (may take up to a year or more)
  - Weed seeds may persist

- Active Composting OR HOT Composting
  - More attention
  - Pile regularly turned
  - Adequate volume needed (1 cubic yard)
  - Moisture maintenance
  - Quicker decomposing (3-5 month)
  - Pathogens reduced
  - Weed seeds killed

![Turning Frequency Effects on Composting](image)
FUNDAMENTALS OF BACKYARD COMPOSTING
Six key factors that break down materials into compost:

1. Heat
2. Nutrient Mix
3. Oxygen
4. Moisture
5. Time
6. Decomposers
HEAT
THE PHASES OF HOT COMPOSTING

- **Mesophilic Stage (50-104°F)**: explosive growth of mesophilic bacteria and fungi; rapid uptake of soluble sugars & starches.
- **Thermophilic Stage (>104°F)**: mixed population of thermophilic bacteria & actinomycetes & the most heat-tolerant fungi; breakdown of proteins, fats, hemicellulose & cellulose.
- **Mesophilic Stage (50-104°F)**: mesophilic actinomycetes, other bacteria & fungi predominate; invertebrates colonize outdoor piles; long, slow degradation of lignin & other highly resistant compounds; formation of resistant organic mixture called humus.

Illustration adapted with permission from Nancy Trausman and Marianne Krasny's Composting in the Classroom: Scientific Inquiry for High School Students.

131 degrees
NUTRIENT MIX
The main ingredients to compost is:
Carbon and Nitrogen (C or N)

Carbon material = BROWN

Nitrogen material = GREEN
CARBON RICH MATERIAL (BROWN)

- Dead leaves and plant trimmings
- Straw
- Newspaper / shredded paper/tissues/napkins
- Wood / sawdust
- Coconut fiber
- Carbon rich material is slow-burning food
- Too much brown, carbon rich material will slow down the composting process significantly, because the nitrogen rich green materials are necessary to speed things up.
Grass clippings

Kitchen scraps

Coffee grounds

Manure

Too much green, nitrogen rich material and you will get a sticky, wet mess!
The optimum mixture goal is **30:1** Carbon to Nitrogen ration

2-3 parts **BROWN** (Carbon) to 1 part **GREEN** Nitrogen (by volume)
CAUTION: remove Plastic/ plastic stickers / plastic or wax coated paper and metals that are on product packaging
OXYGEN
Just like us, decomposer microbes "breathe."

Composting is an aerobic, or oxygen-requiring process.
MOISTURE
**WATER**

Decomposer microbes require a layer of water on organic particles to move around and metabolize dissolved nutrients.

---

**THE "HAND SQUEEZE" MOISTURE TEST**

Take handfuls from different places in your compost pile and give them a squeeze! At the ideal moisture level, a few drops of water should appear between your knuckles and it should feel like a wrung-out sponge.
TIME
The bigger the particle the longer it will take to break down
SIZE DOES MATTER!

- Chop as needed
- Aim for 2 to 6 inches
- Increases surface area

On average, in 8 to 12 weeks you will want to harvest the oldest compost from your composting bin.
DECOMPOSERS
MEET NATURE’S FBI
(DECOMPOSERS)

These decomposers break down organic waste into compost.

Fungi
Bacteria
Invertebrates
Follow these simple steps (compost pile):

1. Make sure to **ALWAYS** bury any greens that are added. This will ensure there is no odor to your compost pile.

2. When possible add a $\frac{1}{4}$-inch wire and a floor (hardware cloth) to your compost pile to help reduce pesky critters being attracted to your pile.

3. Obtain the proper mix of browns (carbon) and greens (nitrogen)

4. Turnover or fluff the pile often to get oxygen into the pile

5. Keep the pile moist but not too wet

6. Make sure your pile reaches the correct temperature to help produce the quality of compost you are looking for in the desired time.
## Troubleshooting

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compost has bad odor</td>
<td>Too much nitrogen or not enough air</td>
<td>Add high carbon material and turn pile</td>
</tr>
<tr>
<td>Center of pile is dry</td>
<td>Not enough water</td>
<td>Moisten and turn pile</td>
</tr>
<tr>
<td>Pile is damp and warm only in middle</td>
<td>Pile is too small</td>
<td>Collect more material and mix into new pile</td>
</tr>
<tr>
<td>Pile is damp but will still not heat up</td>
<td>Lack of nitrogen</td>
<td>Mix in nitrogen source like grass clippings</td>
</tr>
</tbody>
</table>
WINTERIZING YOUR COMPOST PILE

Like us, the microorganisms in your compost pile need winter shelter.

Do not turn your pile in winter.

Simply layer your food scraps (once a week) and leaves until the spring thaw.

Add a blanket or protective layer.
LOCAL OPTIONS TO COMPOST OUTSIDE OF YOUR HOME.

Mount Gilead Yard Waste Facility
273 South Street
Mount Gilead, Ohio 43338
419-946-9101

HOURS OF OPERATION
Mon-Fri 9am-3pm, Sat 8am-10am (weather permitting)

Yard Waste
Morrow County offers local residents to utilize the Yard Waste Compost Facility located next to the Mt. Gilead Water Treatment Plant located near the back entrance of the fairgrounds.

The facility accommodates all yard waste: leaves, grass clippings, trees, shrubs and branches.

Self-service and no machines on site

No commercial use allowed.

NO TRASH! No food scraps, barn or animal waste, or household items are to be dropped off.

Violators will be prosecuted.

Check each spring for free mulch!

Mount Gilead Yard Waste Facility
273 South Street
Mount Gilead, Ohio 43338
419-946-9101

HOURS OF OPERATION
Mon-Fri 9am-3pm, Sat 8am-10am (weather permitting)

Yard Waste
Morrow County offers local residents to utilize the Yard Waste Compost Facility located next to the Mt. Gilead Water Treatment Plant located near the back entrance of the fairgrounds.

The facility accommodates all yard waste: leaves, grass clippings, trees, shrubs and branches.

Self-service and no machines on site

No commercial use allowed.

NO TRASH! No food scraps, barn or animal waste, or household items are to be dropped off.

Violators will be prosecuted.

Check each spring for free mulch!

Mount Gilead Yard Waste Facility
273 South Street
Mount Gilead, Ohio 43338
419-946-9101

HOURS OF OPERATION
Mon-Fri 9am-3pm, Sat 8am-10am (weather permitting)

Yard Waste
Morrow County offers local residents to utilize the Yard Waste Compost Facility located next to the Mt. Gilead Water Treatment Plant located near the back entrance of the fairgrounds.

The facility accommodates all yard waste: leaves, grass clippings, trees, shrubs and branches.

Self-service and no machines on site

No commercial use allowed.

NO TRASH! No food scraps, barn or animal waste, or household items are to be dropped off.

Violators will be prosecuted.

Check each spring for free mulch!

Mount Gilead Yard Waste Facility
273 South Street
Mount Gilead, Ohio 43338
419-946-9101

HOURS OF OPERATION
Mon-Fri 9am-3pm, Sat 8am-10am (weather permitting)

Yard Waste
Morrow County offers local residents to utilize the Yard Waste Compost Facility located next to the Mt. Gilead Water Treatment Plant located near the back entrance of the fairgrounds.

The facility accommodates all yard waste: leaves, grass clippings, trees, shrubs and branches.

Self-service and no machines on site

No commercial use allowed.

NO TRASH! No food scraps, barn or animal waste, or household items are to be dropped off.

Violators will be prosecuted.

Check each spring for free mulch!

Mount Gilead Yard Waste Facility
273 South Street
Mount Gilead, Ohio 43338
419-946-9101

HOURS OF OPERATION
Mon-Fri 9am-3pm, Sat 8am-10am (weather permitting)

Yard Waste
Morrow County offers local residents to utilize the Yard Waste Compost Facility located next to the Mt. Gilead Water Treatment Plant located near the back entrance of the fairgrounds.

The facility accommodates all yard waste: leaves, grass clippings, trees, shrubs and branches.

Self-service and no machines on site

No commercial use allowed.

NO TRASH! No food scraps, barn or animal waste, or household items are to be dropped off.

Violators will be prosecuted.

Check each spring for free mulch!
March 18, 2020

COMPOSTING 101

April 21, 2020

VERMICOMPOSTING

Black Gold: Composting Series 2020

All workshops will start at 6:00 PM
Cost is FREE

May 19, 2020

HOW TO SET UP BACKYARD COMPOSTING

July 7, 2020

Composting Animal Waste!

Aug 18, 2020

How to Harvest your Black Gold Compost!

Participants who attend at least two of the six workshops, will be entered in a drawing to receive a compost bin (various types to choose from). Make plans to attend the last workshop on Aug 18, 2020 as you must be present to win.
Lindsey Grimm
Morrow County Recycling
Keep Morrow County Beautiful
419-947-6400
Recycle@Morrowcountyohio.gov

Carri Jagger-Murphy
OSU Extension - Resource Educator
Agriculture & Natural Resources
Master Gardener Program
419-947-1070
jagger.6@osu.edu

Follow us both on Facebook!
RESOURCE INFORMATION

A simple guide to Composting in your backyard

Recycle your yard trimmings and food scraps into a nutrient-rich compost.

Compost your kitchen scraps using an unlikely eating machine—worms!

Reduce food waste, plus save money and resources.

Put an end to the hassles and costs of bagging your grass clippings.

Hamilton County Hamilton County Recycling and Solid Waste District
TAKE OUR SURVEY

Thank you for helping us continue to obtain funding in the future!