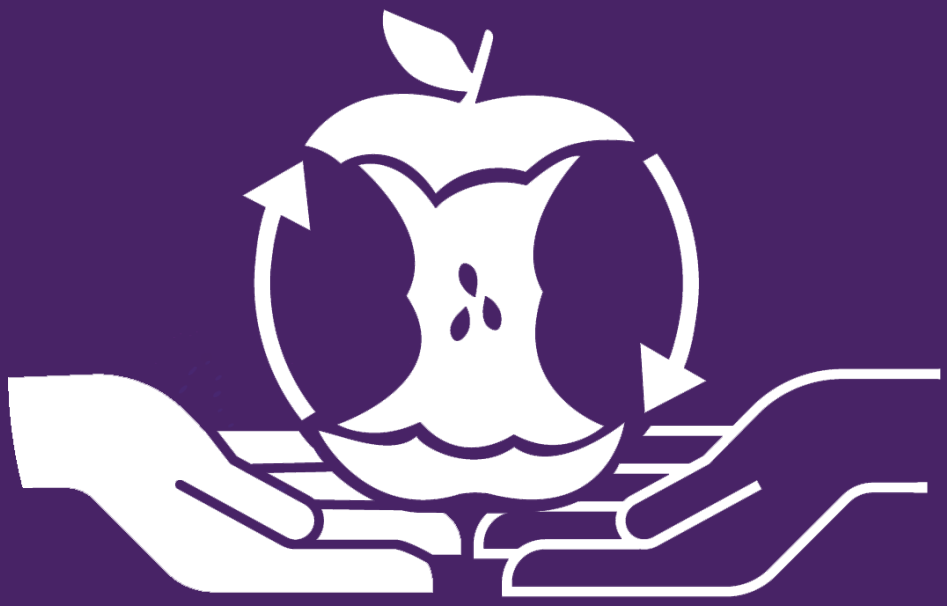
REGIONAL PARTNERSHIP FOR FOOD WASTE SOLUTIONS

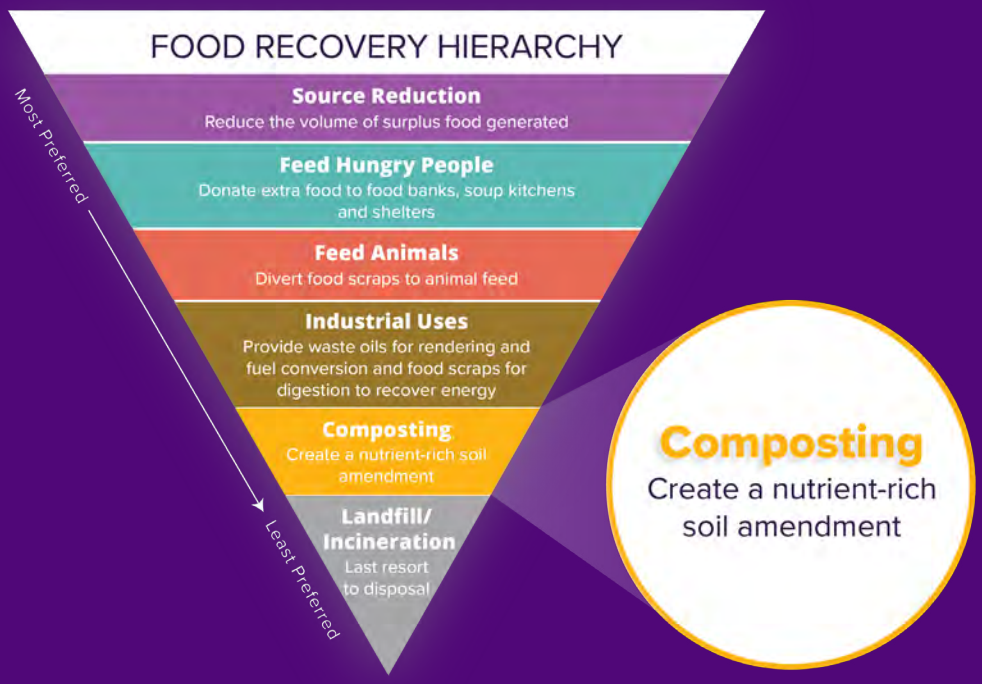
Non-Permitted Composting Regulations and Best Management Practices



Iowa Waste Reduction Center | University of Northern Iowa

Introduction

Composting your organic waste is a great way to develop a product that provides nutrients to your soil, suppresses weeds, maintains moisture, and improves soil texture to keep erosion at a minimum. Not only can you increase the productivity of your lawn and plants, you can save money by making your own compost rather than purchasing expensive chemical fertilizers. Compost also provides a carbon sink; carbon dioxide from the atmosphere is used by plants during photosynthesis. When these plants die, some of the carbon is stored in your soils thus reducing greenhouse gases in the atmosphere that contribute to climate change. Likewise, organic waste in landfills generates methane, another potent greenhouse gas that contributes to climate change. Composting your organic waste and not sending it to the landfill reduces greenhouse gas emissions in your local landfill and provides a carbon sink to further reduce atmospheric greenhouse gases. And let's not forget that diverting organic waste from the landfill by composting can reduce costs associated with landfill tipping fees and hauling.



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Composting Best Management Practices

Keeping a composting operation active during the cold winter months in the Midwest can be challenging. A hot compost pile breaks down much quicker than a cold compost pile and there are best management practices that will help. Moisture, air, temperature and the feedstocks you use all impact the breakdown process of your compost.

SELECTING FEEDSTOCKS

Feedstocks are the materials that are going to be composted. Food waste, leaves, grass clippings, manure, hay, cardboard, and many other organic materials can be composted, however there needs to be a balance of carbon to nitrogen to effectively breakdown materials. The optimal level of carbon to nitrogen is 30:1 and this ratio is expressed as the C:N ratio.

Each feedstock has its own C:N ratio. For example, food waste has an estimated C:N ratio of 20:1 which means food waste has 20 parts carbon to one part nitrogen. Alternatively, pine needles have a C:N ratio of 80:1. As you can see, pine needles have much more carbon than food waste. For simplicity, nitrogen rich feedstocks are generally called “greens” while carbon rich feedstocks are called “browns”. Generally, carbon to nitrogen ratios are estimates and can be further dialed-in with specific characteristics. For example, wood chips from hard wood trees has a C:N ratio range from 450-800:1 while soft wood chips C:N ratio ranges from 200-1,300:1, depending on the type of tree.

MIXING

Mixing your compost is a great way to make certain all bulking agents, carbon sources, and nitrogen-rich organic materials are evenly mixed to limit anaerobic patches and maintain air flow. It is interesting to note that mixing your compost will introduce oxygen into your pile, however this newly introduced oxygen won’t last for long, which is why the proper sized bulking agent is so important. A word of caution that mixing often awakens odors so mixing should be done when prevailing winds are favorable and not directed towards occupied residences or businesses. If this can’t be helped, mixing at night when fewer people will notice offendable odors is a good rule of thumb.

MOISTURE

The moisture content of a compost pile should be about 40% - 60%. Anything less than 40% and your microbial activity will diminish making your compost pile inactive. While anything over 60% will start to cause odor issues within your compost pile. Although you can purchase a moisture meter, gauging whether or not there is enough moisture in the compost pile is simple. Just grab a handful of compost and squeeze it. If water readily runs out of your hand, there is too much moisture and the pile should be dried out a bit. If the compost is completely dry, then add some water. If there are just a few drops of water that run out of your hand during a squeeze test, then you more than likely have the correct amount of water. You can also purchase a moisture meter to find the exact percentage of water in your pile.

AIR

Here is where bulk density and free air space become important. Bulk density is a measurement of compaction while free air space measures exactly that, available pore spaces where air will keep your microbes active. Compaction can lead to anaerobic conditions, bad odors, overheating your pile and possibly fire. A lack of free air space can kill off your microbes as they need oxygen to survive. Food waste alone creates an awful odor and turns into a smelly slop so adding a bulking agent is essential to the health of the microbes in your compost and maintaining aerobic conditions. Bulking agent can be any dry carbon source such as dry leaves, sawdust, wood chips, corn stalks, twigs and etc. that help balance the nitrogen of your food waste with the carbon of your bulking agent. You will want to limit compaction by using various sizes of dry bulking agent that are 1" or less in size so that air can infiltrate through your compost pile and limit bad odors. You will find the Bulk Density Test on page 6 and the Free Air Space Test on page 8 of this guide.

TEMPERATURE

Even backyard composters benefit from owning a compost thermometer to effectively gauge the level of breakdown occurring in the compost pile. The optimal temperature range in a compost pile is 135° to 165° Fahrenheit. Making certain to push the thermometer into the middle of the pile at alternate heights is the best way to get a good representative reading of temperature. Interesting to note, that composting has the potential to kill most pathogens and viruses. For three consecutive days, maintaining a temperature of 131° Fahrenheit is recommended to do just this.

Once a compost pile gets hotter than 165° Fahrenheit, there is a risk of fire while microbes are dying within the pile. An overly hot pile can indicate too much nitrogen, not enough air, or not enough bulking agent at the correct particle size. To reduce the heat, add carbon or bulking agent. You can also mix the pile to help temporarily cool it down by introducing air flow.

Alternatively, if your compost pile is lower than 135° Fahrenheit, this could indicate there is absolutely nothing wrong if your compost pile is on its way to

maturity, meaning the hot initial period of breakdown is winding down. But, this could also mean you need more water, more nitrogen, and less carbon and bulking agent. Adding food waste, grass clippings, and other nitrogen rich feedstocks will heat up your pile. A lack of moisture to keep microbes alive could also be the issue and adding water may help heat your pile up as well.

CURING

Curing generally begins when no more feedstocks are being added to the compost pile and the pile begins to cool after weeks of optimal temperatures. If material is not broken down enough for its intended use, continue adding feedstocks to keep the pile active. But once the pile has broken down significantly and smells like dirt, it's time to let it sit and mature. The time it takes to get to this stage varies depending on feedstocks used, the C:N ratio, moisture, ambient temperature, and many other factors. Also, interesting to note that during composting, the initial volume is ultimately reduced from fresh to the curing stage by an average of 25%, but can be reduced by up to 75% in total.

Checking that your compost is fully finished takes lab testing or a bioassay test. A bioassay test is simply testing your compost as a growing medium for radish seeds. Since radishes grow quickly, fill a couple pots with compost and plant radish seeds within. If ¾ of the seeds sprout into healthy plants and then radishes, your compost is ready to go.

LIMITING ODORS

Odors can shut down your compost operation if complaints are made against you. It's vitally important to keep odors in check. With the proper C:N ratio, moisture content, and bulking agent, odors will be minimal. If odors become obnoxious, then something is out of whack. It has been said that 9 times out of 10, if odors become bad, adding carbon and bulking agent in the proper size will help. Alternatively, if a nitrogen rich compost pile dries out, microbes will die and the breakdown process will halt, leading to odor issues.

It is a good idea to keep a layer of wood chips at the bottom of the pile to pull air into the pile, while the heat generated from the breakdown process will rise as will air introduced into the bottom of the pile. Additionally, adding a 6" layer of compost over the top of the compost pile will help limit escaping odors.

CONCLUSION

Composting is a science, but it is also an art. Experimenting with different recipes and feedstocks will help dial in a mixture that is successful for your operation. It is imperative to control offensive odors to maintain a good reputation and quality product. This is done by making certain the moisture is adequate, bulking agents are the proper size to increase air flow, the carbon to nitrogen ratio is balanced, and optimum temperatures are reached to facilitate breakdown. Composting organic waste into a quality product helps protect the environment and benefits soils and plant growth while reducing costs of conventional fertilizers.

Composting Best Management Practices

BEST MANAGEMENT PRACTICE	REASONABLE RANGES
Carbon-to-Nitrogen Ratio	25-30:1
Moisture	40-60%
Bulk Density	800 - 1,200 lb/yd^3
Free Air Space	50%
Temperature	135 - 165° Fahrenheit

ESTIMATED CARBON TO NITROGEN RATIOS

BROWNS / High in Carbon

Leaves	60:1
Corn Stalks	75:1
Straw	75:1
Pine Needles	80:1
Office Paper	129:1
Newspaper (shredded)	175:1
Sawdust	325:1
Wood Chips	400:1
Twigs	500:1
Corrugated Cardboard	600:1

GREENS / High in Nitrogen

Hair/Fur	10:1
Manures	15:1
Seaweed	19:1
Food Waste	20:1
Grass Clippings	20:1
Coffee Grounds	20:1
Fresh Weeds	20:1
Vegetable Scraps	25:1
Clean Wood Ash	25:1
Finished Compost	25-30:1
Fruit Waste	35:1

A simple mathematical formula can help estimate the C:N ratio of combined feedstocks, however there are more precise formulas that can be used to dial in the C:N ratio if necessary. Below is the simplest equation to find your mixed feedstock C:N ratio. All you need to do is look-up the C:N ratio of each one of your feedstocks and know the weight of each as well.

The simplest equation for figuring out C:N ratio of mixed feedstocks is below:

The following example is assuming you will need 50 pounds of wood chips for every 2000 pounds of food waste to get an ideal mixed C:N ratio; close to 30:1.

C:N Ratio Equation

$$\frac{(\text{Carbon Value of Feedstock A} \times \text{Weight of Feedstock A}) + (\text{Carbon Value of Feedstock B} \times \text{Weight of Feedstock B})}{\text{Weight of Feedstock A} + \text{Weight of Feedstock B}}$$

If you have the following:

Feedstock A
/ Food waste | 2000 pounds (C:N ratio 20:1)

Feedstock B
/ Wood chips | 50 pounds (C:N ratio 400:1)

$$\frac{(20 \times 2000) + (400 \times 50)}{2000 + 50}$$

$$\frac{40{,}000 + 20{,}000}{2{,}050}$$

/ C:N ratio = 29

The C:N ratio of wood chips and food waste equals 29:1 at 2000 pounds food waste and 50 pounds wood chips. If you have a third and fourth feedstock, just continue the equation by adding Feedstock C and D with weights and carbon values.

Bulk Density Test

Bulk density of your compost pile can be checked fairly easily. All you need is a 5-gallon bucket with a handle, a measuring tape, a luggage or fish scale, and water. Since most 5-gallon buckets, when filled to the rim, are more than 5-gallons, you'll need to find out exactly where the 5-gallon line is within your bucket.

1 Start by weighing your empty bucket and write down the weight

Weight of empty bucket _____ lbs.

2 Measure out exactly 5 gallons of water in your bucket and mark the inside of the bucket at the exact 5-gallon line. Weigh the bucket with exactly 5-gallons of water in it and record this weight. ***You'll be using this measurement later on when doing the "free air space" test***.

5-gallons of water plus
weight of empty bucket _____ lbs.

3 Subtract the weight of the empty bucket from the weight of 5 gallons of water found in #2 above and write down this weight also.

5-gallons of water minus
weight of empty bucket _____ lbs.

4 Then you'll want measurements marked inside your bucket at the ⅓ line, the ⅔ line, and the 5 gallon line. To do this, measure the distance from the bottom of the inside of the bucket to your 5-gallon line and divide this number by 3. For example, if you measure from the bottom of your bucket to the 5-gallon line and end up with 15 inches, dividing this by 3 equals 5 inches. Mark the inside of your bucket at 5 inches from the bottom to get the 1/3rd line, then mark it again at 10 inches from the bottom to get the 2/3rd line, and finally at 15 inches to get the 5-gallon line.

5 Empty any remaining water from the bucket.

6 Fill your marked bucket to the 1/3rd line with representative samples of compost throughout your pile. Don't use the more dried out compost on the outside of your pile, but rather, take samples from a couple feet within your pile near the bottom, middle, and top to get a representative sample of the entire pile.

7 Once your compost is up to the 1/3rd line, squarely drop the bucket on the ground from approximately a foot high 10 times using gravity, not force.

8 Keeping the compost in the bucket, now fill the bucket up to the ⅔ line with representative samples of compost and do the drop test again, squarely dropping the bucket from a foot above the ground 10 times.

9 Next, fill the bucket all the way to the 5-gallon line with a representative sample of compost. Squarely drop the bucket again 10 times from a foot off the ground.

10 Fill the bucket the rest of the way up to the 5-gallon line with a representative sample of compost. Do NOT drop the bucket this time.

11 Weigh your full bucket in pounds using your fish or luggage scale and record this weight. This will be used later to measure free air space.

Weight of 5-gallons of compost
plus empty bucket weight _____ lbs.

12 Taking the weight of your compost in the bucket from #11 (above), subtract the actual weight of the bucket found in #1 above. Write down the weight and then multiply it by 40 (the volume of the bucket). This is your bulk density in pounds per cubic yard or lb/yd³

Weight compost in bucket[1] – Weight of bucket alone[2] x 40

= Bulk Density in pounds per cubic yard or lb/yd³

Bulk Density = _____ lb/yd³

13 Keep your bucket full of the compost and move on to the "**Free Air Space**" test.

Once you have your bulk density measurement, you can gauge the compaction of your compost pile and troubleshoot some potential issues.

- Optimal bulk density is **1,000 lb/yd³** while **800 - 1,200 lb/yd³ is reasonable**
- Anything over **1,200 lb/yd³** indicates compaction, possibly anaerobic conditions and bad odors, and the potential for overheating and fire. You will want to add dry bulking agents to your pile. Dry bulking agents provide carbon for your pile but also permit air in your pile and soak up excess moisture. Dry wood chips, corn stalks, straw, and animal bedding are great bulking agents.
- Anything under **800lb/yd³** indicates moisture will be easily evaporated and the compost breakdown has stalled. Because this measurement indicates the opposite of compaction with too much air space, you will need to keep adding moisture to your pile and possibly some nitrogen (food waste) and finer particle sizes of bulking agent so you won't have to water it as often.

[1] #11 bulk density test / page 6
[2] #1 bulk density test / page 6

Free Air Space Test

You will need to have some measurements handy that you calculated during the **Bulk Density Test** (page 6).

You will need the following:

- Weight of the bucket alone (#1 - page 6)
- Weight of exactly 5-gallons of water in the bucket plus weight of empty bucket (#2 - page 6)
- Weight of compost in the bucket plus weight of empty bucket (#11 - page 6)

1 Using your bucket from the bulk density test, with the compost from the test still in it, fill the bucket with water up to the 5-gallon line.

2 Weigh the bucket and record the weight.

Weight of bucket with compost and water	_____ lbs.

3 Calculate the following:

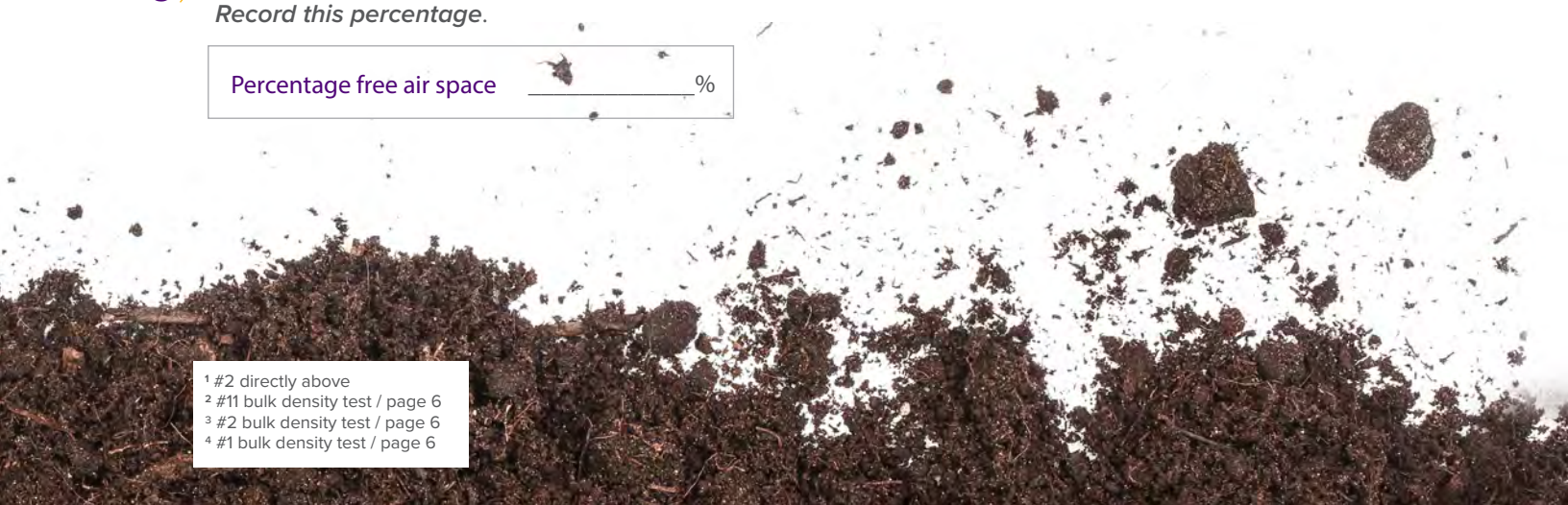
$$\frac{\text{Weight of bucket with compost and water}^{1} - \text{Weight of bucket with compost}^{2}}{\text{Weight of bucket full of just water}^{3} - \text{Weight of empty bucket}^{4}}$$

4 Multiply by 100

5 *This is your percentage of free air space. Record this percentage.*

Percentage free air space	_____ %

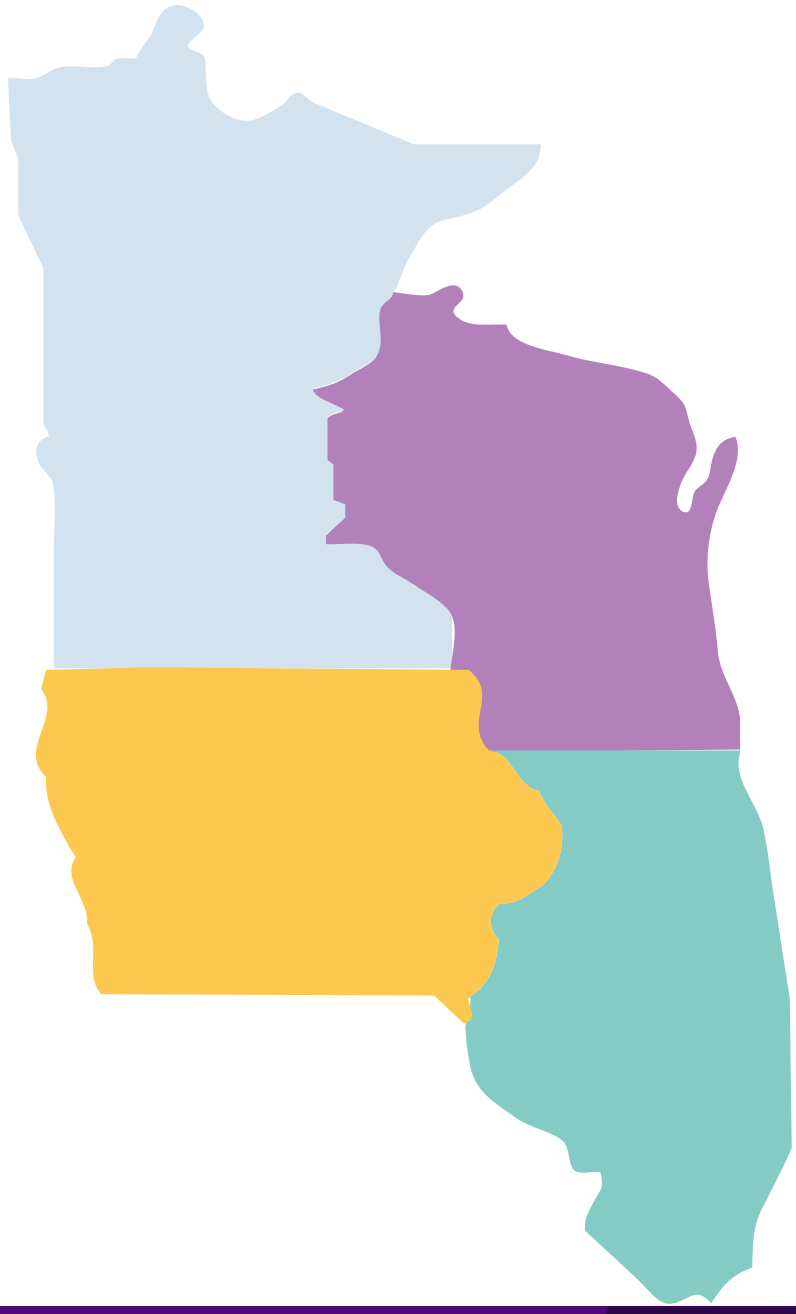
The ideal percentage of free air space is 50%, however a range between 30% and 65% is reasonable. If your compost pile has less than 30% free air space, bulk it up with compostable cardboard tubes, paper towel tubes, twigs, wood chips, or small branches. Putting these at the bottom of the pile especially, will help to pull in air and move it through the top of the pile (since heat rises). Alternatively, if you have too much air, over 65%, add some food waste or other organic matter high in nitrogen to help increase microbes that use up the over-abundance of free air space. Or use smaller sized particles of bulking agent to limit airflow through the pile such as sawdust, shredded leaves or cardboard.



[1] #2 directly above
[2] #11 bulk density test / page 6
[3] #2 bulk density test / page 6
[4] #1 bulk density test / page 6

Upper Midwest Region Regulatory Requirements

The Iowa Waste Reduction Center is working at a regional scale in the Upper Midwest to promote better uses of food waste. While composting is just one way to put food waste to better uses, there are regulatory requirements that vary from state to state. Additionally, properly managing a composting operation is important to keep materials actively breaking down and odors at bay. Below you will find regulatory requirements when implementing a small composting operation in Minnesota, Wisconsin, Illinois, and Iowa as well as best management practices that will help keep your composting project healthy and active.



Illinois

SITE SIZE:

Illinois allows smaller non-permitted farm compost sites. Compost collection can be operated as either one-day collection events with a 40 cubic yard maximum or as a permanent drop-off location with a 10 cubic yard maximum. Only private individuals can accept compost waste.

All sites must include signage clearly indicating examples of allowable and non-allowable compost items.

ALLOWABLE COMPOST MATERIAL:

- The collection must be limited to compostable waste. *Compostable waste is defined as household waste that is source-separated food scrap, household waste that is source-separated landscape waste, or a mixture of both.*
- Paper, cardboard, paper rolls
- Sawdust, dry leaves, small branches, potting soil
- Yard clippings and pruning waste
- Food scraps like vegetables, fruit, coffee grounds, and tea bags

AVOIDED COMPOST MATERIAL:

- Non-organic trash like plastic, glass, and metal
- Fats, grease, and oils
- Meat
- Dairy
- Pet waste
- Soiled diapers

COMPOST SITE MANAGEMENT:

Compost sites should avoid creating nuisances, as well as environmental and public health risks.

Always check with local municipal administrators to determine if there are any local composting regulations within your region. Written approval is required from the municipality in which the compost site is to be located.

Compostable waste must be secured in non-porous, rigid, leak-proof containers. The total amount of compostable waste that can be located at a collection site at any one time is 40 cubic yards for a one-day collection event or 10 cubic yards for a permanent collection location.

If conducting a one-time collection event, all compostable waste must be transferred off-site to a permitted compost facility within 48 hours of the event date.

ADDITIONAL RESOURCES:

Illinois EPA – Backyard Composting[1]

[1] http://illinoiscomposts.org/wp-content/uploads/2020/03/BackyardCompostGuideEPA.pdf

Farm

SITE SIZE:

Illinois allows smaller non-permitted farm compost sites no larger than two percent of the total acreage of the farm site.

ALLOWABLE COMPOST MATERIAL:

- Yard, field, and landscape waste
- Manure:
  Manure cannot exceed 10 percent of compost site by volume for non-permitted sites.

AVOIDED COMPOST MATERIAL:

- Fats, grease, and oils
- Meat
- Dairy
- Pet waste
- Off-site waste

COMPOST SITE MANAGEMENT:

Always check with local municipal administrators to determine if there are any local composting regulations within your region.

Compost sites should avoid creating nuisances and public health risks. Sites must be at least ¼ mile away from nearest non-farm residence and ½ mile from nearest populated area. The site must be at least 5 feet above the water table, at least 200 feet away from any wells, and located outside of any 10-year flood plains.

Farm sites cannot be operated by a waste hauler or commercial composter and must be registered with the Illinois EPA by January 1 following commencement of operation. Compost sites must be located on the farm where the compost is to be applied and must be operated by the farmer of the property. Farmland on which compost is applied must be in production annually.

If composting from a livestock operation greater than 1,000 head, a National Pollution Discharge Elimination System (NPDES) permit is required. These systems will also require a manure management plan with the Illinois Department of Agriculture. If manure is greater than 10 percent of total compost site volume, an EPA organic waste composting permit is required.

ADDITIONAL RESOURCES:

Illinois EPA – Composting in Illinois[2]

[2] http://sweeta.illinois.edu/pdf/Compost_Facility_Permits.pdf

Iowa

SITE SIZE:

Iowa allows small scale composting without obtaining a permit, however there are still requirements that must be followed. The permit-by-rule, as the exemption is called, is limited to less than two tons of feedstocks (not including bulking agent) per week that is accepted at the composting site. Food residuals may be received from off premises at a total rate of two tons or less per week for composting either singly, in combination, or with agricultural waste; which are defined as organic materials normally discarded during the production of plants and animals from agronomic, horticultural or silvicultural operations. This rule does not apply if only agricultural wastes and/or yard wastes are collected and composted on-site. If composting your own household waste on your own property where the household resides, this rule does not apply and you are exempt from the following requirements.

ALLOWABLE COMPOST MATERIAL

- Yard waste
- Food residuals
- Agricultural waste
- Clean wood waste free of coatings and preservatives
- Other carbon sources are allowed as bulking agents
- Manure
- Crop residuals
- Bedding
- By-products produced during farm processing

AVOIDED COMPOST MATERIAL

Any type of infectious waste is not allowed including but not limited to the following:

- Contaminated sharps
- Cultures
- Stocks of infectious agents
- Blood and blood products
- Pathological waste
- Contaminated animal carcasses from hospitals or research laboratories

COMPOST SITE MANAGEMENT

Site selection needs to be carefully analyzed prior to commencing operations. Site selection must follow the following guidelines:

- 500 feet from any existing inhabited residence (not including the residence of the person owning/operating the compost facility
- Outside of wetlands
- 200 feet from public wells
- 100 feet from private wells
- 50 feet from property lines
- 100 feet from flowing or intermittent streams, lakes or ponds
- Not within the 100 year flood plain
- All weather surface of compacted soil, compacted granular aggregates, asphalt, concrete or similar non-permeable material that allows access during inclement weather and to prevent surface and groundwater contamination

Prior to commencing operation, the Iowa Department of Natural Resources (IDNR) must be notified in writing that includes the following:

- Location of the composting facility
- Legal description of the facility
- Landowner's name, telephone number and address
- Responsible party's name, telephone number, and address
- Annual capacity of the facility
- Method of composting to be employed
- Source of feedstocks and bulking agents

The compost site must have a permanent sign posted at the entrance specifying the following:

- Name of operation
- Operating hours
- Materials accepted or a statement that says, "All materials must have prior approval."
- Telephone number of 24-hour emergency contact person

Composting must be done in a manner that limits the formation of leachate, prevents water from running on the site from adjacent land, and water or leachate from running off the site. Ponding of water or leachate must be minimized through site design and selection. Any ponding that occurs must be corrected within 48 hours.

Conditions such as odors, animal infestations, dust, noise, and litter may create a nuisance condition or public health hazard and must be minimized. Nuisance laws must be followed. Also, contamination is limited to 1.5% by dry weight or less than 13mm in size. Sources of contamination include human-made inert materials such as plastic, metal, and glass. Finished compost can be stored for up to 18 months and the sale of compost must be registered by the Iowa Department of Agriculture and Land Stewardship while following all applicable federal and state laws as well as local ordinances and regulation.

Finally, an annual report is required to be sent to the IDNR each year by July 31 for the previous year beginning July 1 and ending June 30th and includes the annual tonnage of feedstocks accepted at the composting site.

ADDITIONAL RESOURCES:

Iowa Department of Natural Resources - Composting Rules and Forms[1]

[1] https://www.iowadnr.gov/Environmental-Protection/Land-Quality/Solid-Waste/Solid-Waste-Permitting/Composting

Wisconsin

SITE SIZE:

Wisconsin allows smaller non-permitted compost sites no larger than 50 cubic yards as long as the compost site meets certain criteria.

ALLOWABLE COMPOST MATERIAL:

- Yard waste
- Fruit and vegetable scraps
- Coffee grounds, tea bags, and filters
- Egg shells and nut shells
- Non-recyclable paper
- Animal manure

AVOIDED COMPOST MATERIAL:

- Fats, grease, and oils
- Meat
- Dairy
- Pet waste
- Diseased or insect-ridden plant material
- Sanitary products and diapers
- Compostable and biodegradable plastics: *Compostable and biodegradable plastics should go to a composting facility*

[1] https://docs.legis.wisconsin.gov/code/admin_code/nr/500/502/04
[2] cleanuri.com/32jzyd (shortened web address)

COMPOST SITE MANAGEMENT:

Always check with local municipal administrators to determine if there are any local composting regulations within your region.

Compost sites should be operated in a nuisance-free and environmentally sound manner per **Ch. NR 151, Wis. Adm. Code**[1]. Compost sites must not be detrimental to surface waters, wetlands, or ground water. Take measures to prevent leachate from compost site from running offsite. Measures should also be taken to prevent the release of hazardous air contaminates and the buildup of explosive gases. Use composting management strategies which promote aerobic decomposition.

ADDITIONAL RESOURCES:

Wisconsin DNR – Composting in Wisconsin[2]

Farm

SITE SIZE:

Wisconsin allows non-permitted compost farm sites as long as they are no larger than 10,000 cubic yards and the compost site meets certain criteria.

ALLOWABLE COMPOST MATERIAL:

- Farm residue
- Animal manure
- Carcasses

COMPOST SITE MANAGEMENT:

Always check with local municipal administrators to determine if there are any local composting regulations within your region.

Compost sites should be operated in a nuisance-free and environmentally sound manner per **Ch. NR 151, Wis. Adm. Code**[3]. Compost sites must not be detrimental to surface waters, wetlands, or ground water. Take measures to prevent leachate from compost site from running offsite. Measures should also be taken to prevent the release of hazardous air contaminates and the buildup of explosive gases. Use composting management strategies which promote aerobic decomposition.

For manure composting, all confined animal feeding operations (CAFOs) must have a Wisconsin Pollution Discharge System (WPDES) permit. Smaller farms that combine their manure may also need a permit if their combined manure output is equivalent what would be generated by a CAFO.

When composting carcasses, Wisconsin state law prohibits carcass placement in any stream, lake, or swale. Carcasses must be made inaccessible to dogs and wild animals within 24 hours of carcass placement (48 hours in December through March). Hunting carcasses may not be composted at a non-permitted site.

If receiving off-site compost, farm operators must keep record of compost pile temperature and how frequent piles are turned. Storm water control measures must be inspected during storm events. Mixed yard materials may be brought from off-site to increase the carbon to nitrogen ratio and porosity as long as site size does not exceed 10,000 cubic yards.

ADDITIONAL RESOURCES:

Wisconsin DNR – Farms and Composting in Wisconsin[4]

[3] https://docs.legis.wisconsin.gov/code/admin_code/nr/500/502/04
[4] https://dnr.wisconsin.gov/topic/Recycling/Farms.html

Minnesota

SITE SIZE:

Minnesota allows smaller non-permitted compost sites without a permit that are no larger than 120 cubic yards including all feedstocks. The compost site must meet certain criteria however:

ALLOWABLE COMPOST MATERIAL:

- Food scraps
- Yard waste
- Poultry litter generated on-site:
  If poultry litter is added to compost, compost must be used on-site
- Non-recyclable paper
- Compostable materials meeting ASTM D6400 or ASTM D6868.
  These include plastics and products designed to be composted

PROHIBITED COMPOST MATERIAL:

- Fats, grease, and oils
- Meat
- Dairy
- Animal manure
- Sanitary products and diapers

[1] https://www.pca.state.mn.us/waste/small-compost-sites
[2] https://www.pca.state.mn.us/waste/composting-your-backyard

COMPOST SITE MANAGEMENT:

Always check with local municipal administrators to determine if there are any local composting regulations within your region.

Compost sites should avoid creating nuisances and public health risks. Use composting practices which minimize odor. Odor reducing practices include choosing a site location upwind of public areas and using compost management practices that promote aerobic decomposition.

Compost sites must comply with all Minnesota groundwater quality, surface water quality, air quality, and soil protection administrative rules. This mean that all sediment, solid waste and leachate should be contained within the compost site. Locate your compost site so that any compost seepage does not run-off into any public or private streets, storm sewers, drainage ditches, streams, or lakes. Compost should never be burned, and soil contamination should be minimized. Compost sites are also not permitted in floodplains, shoreland, or wetlands.

Compost Sites may not be located closer than ten (10) feet to any rear or side property line, or closer than twenty (20) feet to any residential dwellings, except the dwelling on the property at which the compost pile is located.

ADDITIONAL RESOURCES:

Minnesota Pollution Agency – Small Compost Sites[1]
Minnesota Pollution Agency – Composting in your backyard[2]

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