Urban Agriculture and

Backyard Composting

March 2016

A Blueprint Developed by the Cass Clay Food Systems Initiative

Backyard Composting

This issue brief provides background information related to backyard composting and addresses the common concerns and benefits from health, environmental, social, and economic standpoints. Appendices have been provided to share how regional jurisdictions are managing their backyard composting as well as example policy language from other jurisdictions.

Background

Backyard composting is the controlled decomposition of specific organic materials into a usable soil-like material. These organic materials can be grass, leaves, food scraps, paper products, and more. The process is an easy and economical way for residents to dispose of their household compostable waste (see Appendix C).

Communities with many residents composting in their backyards save money because they do not have to add these materials to their waste stream, which leads to filling local landfills at a slower pace and lowers the cost of waste pickup. Residents who compost can save money on waste collection and on garden resources, like fertilizers, pesticides, and water.

Not only backyard gardeners, but everyone impacts the waste cycle:

- **650 pounds**: the compostable materials generated by the average U.S. household each year[1]
- **4 pounds:** the amount of trash the average person generates *per day*[2]
- **1.5 tons**: the amount of solid waste the average person generates *per year*[3]
- **200 million tons**: the amount of garbage Americans produce in a year[4]
- **60 percent**: the organic waste (food scraps, yard trimmings, paper, etc.) going into landfills that could be composted[5]

With the many benefits for municipalities and residents (see Table 2), more cities are encouraging their residents to compost their organic waste. In the Fargo-Moorhead area, yard trimmings can be processed into compost, and the Fargo composting site has begun collecting methane from this decomposition process to use for energy. Metro area residents benefit from being able to compost yard trimmings, but these compost sites preclude other organic materials, like food waste and paper.

Table 1 provides a summary of composting ordinances in local jurisdictions. Although the City of Fargo does not address backyard composting in its municipal code, the Solid Waste Department sells backyard composters to residents and promotes using them to compost vegetable scraps, egg shells, tea bags, coffee filters, and more.

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[1] Penn State Extension. 2013. Some Composting Facts. [accessed 29 Sept 2015] http://extension.psu.edu/plants/gardening/news/2013/some-composting-facts

[2] U.S. Environmental Protection Agency. Municipal Solid Waste [accessed 29 Sept 2015]. http://www3.epa.gov/epawaste/nonhaz/municipal/

[3] Ibid.

[4] U.S. Environmental Protection Agency. 10 Fast Facts on Recycling. [accessed 29 Sept 2015]. http://www.epa.gov/reg3wcmd/solidwasterecyclingfacts.htm

[5] Penn State Extension. 2013.

Table 1. Summary of backyard composting approval in local jurisdictions (as of September 2015)

Moorhead	Dilworth	Clay County	Fargo	West Fargo	Cass County
Permitted*	Not addressed	Not addressed**	Not addressed	Not addressed***	Not addressed

**Sections 3.4.10 states composting is permitted within all residentially zoned districts. Enclosed containers cannot exceed 250 cubic feet and 4 feet in height, must be placed in the rear yard with a 20 foot setback to any habitable building. Public nuisance regulations per 3.3.2(B)(6) would apply which specifically restrict "any use of property, substance or things...emitting or causing foul, offensive, noisome, nauseous or disagreeable odors."*
*** Yard waste composting (community or neighborhood) addressed as an Accessory Use.*
**** Yard waste composting is allowed per Chapter 15 nuisance clause, precludes vegetables and other compostables.*

Table 2. Framework for evaluating backyard composting

DOMAIN	BENEFIT	CONCERN
Health	Creates a rich fertilizer to improve health of garden	Attraction of pests or vermin
Environment	Reduces garbage going into the waste stream Reduces methane gas, which is a potent greenhouse gas Enriches the soil, reducing the need for pesticides and herbicides Reduces groundwater pollution and toxicity in landfill runoff Increases water retention and moderates soil pH Promotes beneficial soil microorganisms Suppresses plant diseases & pests Can prevent & manage soil erosion problems	
Social	Increases awareness of food cycle and waste Reduces smell of kitchen garbage	Odor Appearance Possible effects on nearby property and property value if compost pile not managed
Economic	Saves landfill space and delays building a new one Saves residents money if it leads to a smaller garbage bin for trash collection Conserves resources, like store-bought fertilizers and water (gardens fed with compost material require less water)	Jurisdiction cost of administering the composting system or monitoring and addressing issues

Resources

If you have questions, please contact Kim Lipetzky with the Fargo Cass Public Health Office at 701-241-8195 or klipetzky@cityoffargo.com.

Composting at home:
http://www2.epa.gov/recycle/composting-home

Community backyard composting programs:
http://www.bae.ncsu.edu/topic/composting/pubs/backyard-composting.pdf

Food waste facts:
http://www.unep.org/wed/2013/quickfacts/

MN Pollution Control: Start composting in your backyard
http://www.pca.state.mn.us/index.php/living-green/living-green-citizen/composting/start-composting-in-your-backyard.html

Appendix A: Composting Management in Regional Jurisdictions

Bismarck, ND
Per the Environmental Health Department, backyard composting (including food waste) would be allowed provided it is managed in a way as not to become odorous or harbor rodents. They have one backyard compost ordinance (Title 8-07-04, subsection 12) but it is yard waste specific.

Duluth, MN
Allows backyard composting of food and yard waste (see appendix B).

Grand Forks, ND
Although they do not have a related ordinance, backyard composting is allowed.

Lincoln, NE
Backyard composting is allowed with some common restrictions (see appendix B).

Mankato, MN
Backyard composting is not addressed in their ordinances.

Rochester, MN
Backyard composting is allowed with common restrictions per Olmsted County ordinance (see appendix B).

Sioux Falls, SD
Backyard composting is not addressed in City code, but it is allowed. Environmental Health promotes it and gives out informational material to residents.

Appendix B: Backyard Composting Example Ordinances

Blaine, MN (pop. 60,407)
ARTICLE IV. - COMPOSTING
Sec. 34-91. - Definitions.
The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:
Compost means a mixture of decayed organic matter.
Composting means any aboveground microbial process that converts organic matter to a soil amendment or mulch by decomposition of material through an aerobic process furnished adequate oxygen and moisture.
Yard waste means compostable, organic material consisting of grass clippings and leaves but excluding hedge trimmings and tree limbs.
(Code 1980, § 11-61; Ord. No. 92-1301, 7-16-1992)
Cross reference— Definitions generally, § 1-2.
Sec. 34-92. - Intent of article.
The intent of this article is to promote the health, safety and welfare of the community by regulating the home composting of food and yard waste. Food and yard waste that is not properly composted may create a nuisance to the community through odor and appearance, and be detrimental to nearby property or property values, and may constitute a public health and safety issue by attracting vermin.
(Code 1980, § 11-60; Ord. No. 92-1301, 7-16-1992)
Sec. 34-93. - Penalty for violation of article.
Any person in violation of any of the provisions in this article shall be guilty of a misdemeanor. Each day on which such violation continues shall constitute a separate offense.
(Code 1980, § 11-64; Ord. No. 92-1301, 7-16-1992)
Sec. 34-94. - Declaration of nuisance.
Compost material stored or processed in violation of this article is declared to be public nuisance and shall be removed in accordance with the provisions of the applicable ordinances and state law.
(Code 1980, § 11-63; Ord. No. 92-1301, 7-16-1992)
Sec. 34-95. - Regulation.
Composting is permitted only in residential properties up to four dwelling units, provided that all of the following conditions are met:

(1) Permitted composting materials. Only yard waste, small shrub trimmings or twigs (one-quarter inch diameter maximum), straw, fruit and vegetable scraps, coffee grounds, egg shells generated from the site on which the composting is located. In addition, commercially available composting ingredients can be placed in a composting container.
(2) Prohibited materials. The following materials shall not be placed in the composting container: meat, bones, fat oils, whole eggs, dairy products, unshredded branches or logs, plastics, synthetic fibers, human or pet wastes, diseased plants, and any other garbage or refuse except for those permitted above in subsection (1) of this section.
(3) Composting structure. All composting materials must be contained in a bin which may be constructed of wood, wire mesh, a combination of wood and wire or commercially fabricated compost bins designed to contain composting materials.
(4) Composting container size. Composting shall be conducted within an enclosed container not to exceed a total of 100 cubic feet (for example, five feet × five feet × four feet in volume for those lots less than 10,000 square feet. For those lots greater than 10,000 square feet, a total of 150 cubic feet in volume will be allowed. The maximum height of the composting container shall be five feet.
(5) Composting container location. Composting containers shall be located at least five feet from the property line and shall be entirely contained with the rear yard.
(6) Maintenance. All composting operations shall be maintained in such a manner not to create a nuisance to the community. This shall include appropriately frequent watering and turning of the compost pile.

(Code 1980, § 11-62; Ord. No. 92-1301, 7-16-1992)

Boston, MA (pop. 645,966)
SECTION 89-8. **Composting.**

1. Accessory Composting.
    a. Use Regulations. Accessory Composting shall be Allowed where any Ground Level Urban Farm, Roof Level Urban Farm is permitted.
    b. State Requirements. Accessory Composting on an Urban Farm is subject to regulation by the Massachusetts Department of Agricultural Resources (MDAR) under 330 CMR 25.00, Agricultural Composting Program.
    c. Maximum Height.
        i. Maximum height of Composting structures or bins shall not exceed ten (10) feet for Ground Level and Roof Level Urban Farms in any District or Subdistrict.
        ii. On a Roof Level Urban Farm, any Composting must be contained within an enclosed bin that does not have direct contact with flammable materials.
    d. Setbacks
        i. Subject to Article 10 (Accessory Uses), compost bins, structures and windrows shall be set back five (5) feet from all property lines on Ground Level Urban Farms in all Districts and Subdistricts.
        ii. Compost bins, structures and windrows shall not be located in the front yard or in a side yard that abuts a street in all residential and commercial Districts and Subdistricts.
    e. Lot Coverage
        i. Composting which is accessory to an Urban Farm shall be used primarily to support onsite operations, and shall comprise no more than seven and a half (7 ½) percent of the Lot area (See Section 89-6.6(a)iii.a.
2. Composting as Primary Use
    a. Use Regulations
        i. When the primary use to be performed on a Lot is Composting, the activity shall be Conditional in all Industrial Districts and Subdistricts and Forbidden in all other Districts and Subdistricts.
    b. State Requirements.
        i. Composting operations are subject to regulations administered by the Massachusetts Department of Environmental Protection (DEP) under 310 CMR 16.00.
    c. Setbacks.
        i. Subject to Article 10 (Accessory Uses), compost bins, structures and windrows shall be set back five (5) feet from all property lines on Ground Level Urban Farms in all Districts and Subdistricts.
        ii. Compost bins, structures and windrows shall not be located in the front yard or in a side yard that abuts a street in all residential and commercial Districts and Subdistricts.

Chicago, IL (pop. 2.7 million)
In June 2007, the Chicago City Council passed an ordinance regulating small-scale compost operations, such as those found in residential backyards. Small-scale compost operations, as defined by the ordinance, are exempt from City permit requirements. The ordinance, however, requires that these compost operations are well-managed. Residents may compost up to 10 cubic yards of lawn and garden waste or up to 5 cubic yards of food and yard waste in-vessel (container with no opening larger than 1/4"). Larger amounts may be allowed with a permit.
7-28-715 Composting standards.
(1) Any composting operation which meets the qualifications of paragraphs (3), (4) or (5) of this section shall be exempt from the permit requirements of Chapter 11-4 of this Code.
(2) *General composting standards.* All composting operations which meet the qualifications of paragraphs (3), (4) or (5) shall promote proper conditions for composting and shall operate under the following standards, in addition to all applicable local, state and federal laws, rules and regulations:
(a) *Nuisance.* In no event shall any composting activities be conducted in a manner which creates an odor, litter, dust or noise nuisance, or attracts vectors or pests.

(b) *Rat and other vector control.* The presence of insects, rodents, birds and other vectors or pests shall be controlled through specific measures. These specific measures may include grinding the ingredients, providing screens or netting, or conducting the composting operation in-vessel.

(c) *Surface water.* The composting operation shall be located or designed and constructed to prevent the composting material and compost from sitting in ponded surface water.

(d) *Mixing.* Composting material shall be mixed or turned at regular intervals as conditions mandate to re-mix ingredients, distribute moisture, rebuild porosity and aid in physical breakdown until composting is complete.

(e) *Moisture level.* The moisture level of the composting material shall be maintained within a range of 40% to 60% moisture.

(f) *Sewage restriction.* The composting material shall not contain sewage, sludge, septage or catch basin waste. For the purposes of this section, “sewage” shall have the meaning ascribed to it in Section 11-4-120 of this Code; “sludge” shall mean any solid, semi-solid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility or any other such waste having similar characteristics or effects; “septage” shall mean the waste found in a septic tank; and “catch basin waste” shall mean the waste found in a catch basin.

(3) *Garden compost operation.* A composting operation that composts only landscape waste shall be exempt from the permit requirements of Chapter 11-4 of this Code if it meets the following criteria:

(a) *Ingredients.* The composting operation composts only landscape waste.

(b) *Noncommercial.* The composting operation is not engaged in commercial activities related to composting, the acceptance of landscape waste or commercial landscaping.

(c) *Size.* The composting operation contains no more than a total of 10 cubic yards of landscape waste, composting material and end product compost on-site at any one time, unless express written authorization has been issued by the commissioner of streets and sanitation allowing a greater volume, not to exceed 25 cubic yards.

(4) *On-site organic waste composting operation.* A composting operation that composts food waste and/or non-hazardous carbonaceous waste, whether or not landscape waste is added to the composting mixture, shall be exempt from the permit requirements of Chapter 11-4 of this Code if it meets the following. criteria:

(a) *Ingredients.* The composting operation composts only organic waste that is generated on-site.

(b) *In-vessel requirement.* Any composting of food waste and/or non-hazardous carbonaceous waste is conducted in-vessel. This requirement also applies to mixtures of landscape wastes with these wastes.

(c) *Size.* The composting operation contains no more than a total of 5 cubic yards of landscape waste, composting material and end product compost on-site at any one time, unless express written authorization has been issued by the commissioner of streets and sanitation allowing a greater volume.

(d) *Compost use.* All generated compost is used on-site.

(5) In addition to those composting operations described in paragraphs (3) and (4), all composting operations which meet the criteria for a permit-exempt facility pursuant to 35 Illinois Admin. Code Section 830.105 shall meet the standards of paragraph (2)(a) through (f) of this section, in addition to all applicable local, state and federal laws, rules and regulations.

(6) *Enforcement provisions.* Any composting operation that fails to comply with the requirements of this section and is not operating under a permit under Chapter 11-4 that permits composting is hereby in violation of Section 7-28-710(a). Each and every violation of a standard set forth in this section or any rule or regulation promulgated thereunder is hereby declared to be a nuisance and a separate violation of Section 7-28-710(a), and shall be punished by penalty pursuant to Section 7-28-800.

(7) The commissioner of streets and sanitation is authorized to adopt, promulgate and enforce reasonable rules and [G4] regulations pertaining to the administration and enforcement of this section.

(Added Coun. J. 4-11-07, p. 102577, § 1)

Duluth, MN (pop. 86,128)

Sec. 24-30 Composting regulations

(a) Any person disposing of yard waste shall do so only at a back yard compost site or a yard waste compost facility;

(b) Back yard compost sites shall be located in the rear yard, as defined in Chapter 50 of this Code, of the property and at least 15 feet from any dwelling;

(c) Compost piles in back yard compost sites shall be enclosed with a rigid enclosure suitable to keep the enclosed compost from escaping and to keep animals out of the pile;

(d) Only yard waste and other vegetative wastes shall be composted. No animal wastes, manure, or petrusible animal or food matter shall be composted;
(e) No back yard compost site shall be operated in a manner that it becomes infested with insects, rodents or other animals or produces offensive odors that disturb other property owners in the area.
(Ord. No. 5618, § 392; Ord. No 8254, 7-26-1976, § 2; Ord. No. 9011, 12-10-1990, § 24.)

Grand Rapids, MI (pop. 192,294)
Sec. 9.107. - Definitions.
The terms used in this Chapter shall have the meanings or definitions provided for below.
5. *Residential Composting* means the collection of organic materials from household kitchen food and yard waste, in a fully enclosed and commercially manufactured compost receptacle.
Sec. 9.108. - Nuisances Prohibited on Public and Private Property.
The following conditions are declared a public nuisance. All property within the City, whether occupied or vacant, improved or unimproved, shall be maintained by the owner free of the following nuisances:
(5) Garbage or rubbish or any other unhealthy, hazardous or offensive condition, object or substance, subject to the following exceptions. Residential composting, as that term is defined in this Chapter, shall be permitted subject to the following conditions:

a. Residential composting is only permitted on the premises of an occupied residential dwelling.
b. The compost may not contain animal waste, meat, bones, grease, oils, fats, or cooked foods of any kind.
c. The compost must be completely contained in a fully enclosed and commercially manufactured compost receptacle.
d. The compost receptacle must be located in the rear yard of the residential dwelling.
e. The compost receptacle must be kept tightly covered except when opened for deposit or removal of compost materials.
f. The compost receptacle shall have a capacity of no greater than 64 cubic feet.
g. The compost receptacle shall be constructed of rigid and durable materials, which shall not include any of the following: burlap, tarp, vehicle tires, wire mesh, chicken wire, flexible fencing material of any kind, or any substantially similar materials.

Lincoln, NE (pop. 268,738)
5.41.190 Residential Composting; Nuisance Conditions.
(a) It shall be the duty of every owner, lessee, tenant, or occupant of any premises in any residential zone within the city, or within three miles of the corporate limits thereof, to conduct any composting upon such premises in a safe and sanitary manner so as not to permit, keep, or maintain thereon any condition detrimental to the public health, safety and welfare.
(b) Conditions detrimental to the public health, safety and welfare related to residential composting shall also include:

1. Composting of any organic materials that are not generated or derived from the same premises.
2. Composting activity within twenty-five feet of any dwelling unit off the premises.
3. Composting that produces any odor that is detectable off the premises by an odor detection and measurement device.
4. Composting that involves human body wastes; fecal or other body wastes from dogs, cats and other animals; meat or dairy organic material; raw sewage or treated sewage sludge; animal or paunch manure; or any other material that is not biodegradable.

(c) Any premises found to be in violation of the above conditions is declared to be a public nuisance and may be abated by the Director in the manner provided in Section 8.26.030. (Ord. 16602 §19; May 2, 1994)

Minneapolis, MN (pop. 400,070)
244.770. - Composting.
(a) Defined. For the purposes of this article, composting is a microbial process that converts plant materials to a usable organic soil amendment or mulch.
(b) Compost containers. Composting shall be conducted within a covered or uncovered container, enclosed on all vertical sides. Containers shall be of a durable material and shall be constructed and maintained in a structurally sound manner. Wood used in the construction of a compost container must be sound and free of rot.

(c) Size. The maximum size for a compost area on lots with a residential structure shall be two hundred forty-five (245) cubic feet for lots smaller than five thousand (5,000) square feet, four hundred five (405) cubic feet on lots five thousand (5,000) to ten thousand (10,000) square feet, and five hundred (500) cubic feet on lots over ten thousand (10,000) square feet. The maximum size on lots without a residential structure shall be four hundred five (405) cubic feet on lots smaller than five thousand (5,000) square feet, seven hundred twenty (720) cubic feet on lots five thousand (5,000) to ten thousand (10,000) square feet, and one thousand, one hundred twenty-five (1,125) cubic feet on lots larger than ten thousand (10,000) square feet.
(d) Location on property. The compost container(s) shall not be located closer than one (1) foot from the rear property line and shall not be located in any required front or side yard as defined in the zoning code, nor closer than twenty (20) feet to any habitable building off of the subject property.
(e) Compost materials. Compost piles shall include an appropriate mix of nitrogen-rich materials (or "greens") and carbon-rich materials (or "browns") to reduce odor and ensure adequate composting. Meat, bones, fat oils, grease, dairy products, diseased plant material in which the disease vector cannot be rendered harmless through the composting process, feces, plastics or synthetic fibers shall not be placed in the compost container(s).
(f) Maintenance. Compost materials shall be layered, aerated, moistened, turned, and managed to promote effective decomposition of the materials in a safe, secure and sanitary manner. Compost materials shall be covered with a layer of material such as leaves, straw, wood chips, or finished compost to reduce odor.
(g) Abatement. All compost containers and/or compost materials not in compliance with this section shall be declared a public nuisance and are subject to abatement as provided in Chapter 227 of this Code. In addition, the director may require individuals whose compost containers and/or materials are not in compliance with this section to attend a master composter or similar educational program as a condition of continuing to compost on a subject property. (90-Or-245, § 1, 9-28-90; 2012-Or-007, § 1, 3-8-12)

Red Wing, MN (pop. 16,513)
Subd. 2. Definitions
The following terms, as used in this Section and Sections 10.02 and 10.03, shall have the meanings stated:
7. “Composting” – The controlled microbial degradation of organic waste to yield a humus-like product.
Subd. 9. Compost Sites and Facilities

1. All Backyard Compost Sites shall be constructed and operated in accordance with the following standards:
    a. Location. The compost site shall be located only in backyards, shall be a minimum of four feet from any lot line and shall be screened from view of the public right-of-way. No responsible tenant shall operate more than one backyard compost site.
    b. Area Specifications. The compost site shall be no greater than ten (10) feet in diameter and five (5) feet in height. All compost sites shall be fenced or enclosed on at least three (3) sides to prevent scattering of compost material unless the dimension standards are varied by permit of the city.
    c. Composition and Operation. Backyard compost sites must be managed in a nuisance-free condition to prevent odor and the stockpiling of material that does not readily decompose within a calendar year, including but not limited to refuse, fibrous material and prunings. To prevent the attraction of rodents and other animals, no meat, bones, grease, whole eggs, or dairy products shall be added to compost sites. The pile must be turned regularly and all inert material must be removed from compost sites at least once every six (6) months.
2. Any compost site other than a backyard compost site as defined in this ordinance must be licensed and constructed in accordance with both the Goodhue County Waste Management Ordinance and any rules and regulations adopted by the City of Red Wing.

Subd. 10. Violations

1. Any person who violates or fails, neglects or refuses to comply with the provisions of this Section shall be guilty of a misdemeanor and upon conviction thereof shall be punished therefor as provided by Minnesota Statutes. A separate offense shall be deemed committed upon each separate day during or which a violation occurs or continues.
2. This Section, in addition to other remedies, may be enforced by injunction, action or compel performance or other appropriate remedies in District Court to prevent, restrain, correct or abate violations.

Rochester, MN

3506.02. Yard Waste.

Subs. 1. On-Site Yard Waste Composting. On-site, or “backyard” compost sites, are allowed if the sites are managed in such a manner to prevent annoying odors, Public Health Nuisances, or unsafe conditions. Compostable organic materials suitable for backyard compost sites include: Yard Waste, straw, vegetable scraps, coffee grounds, and egg shells. Unless special management practices are used, sawdust, wood ash, and newspapers should not be composted. To prevent Public Health Nuisances, avoid composting human and pet feces, meat, bones, grease, whole eggs, dairy products, weeds with seeds and diseased plants. The County accepts the methods and guidelines published by the Minnesota and Olmsted County Extension services as
suitable for on-site composting. On-site composting which does not comply with these methods and guidelines is not permitted.

Appendix C: Composting Educational Material

http://www.pbs.org/wnet/nature/blog/inside-nature-infographic-how-to-compost/