



New England Food Policy: *Building a Sustainable Food System*

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Waste Streams

While organic material is extremely useful for agricultural soil amendments, current waste stream systems lead to excessive discarding of organic material as waste. Organic material can be composted, producing a valuable agricultural commodity: Researchers have found that on average, organic soil amendments like compost significantly improve soil quality and agricultural output. Studies show that organic soil amendments decrease soil bulk density while increasing soil nitrogen content, soil water retention, and even resulting crop yields compared to conventional fertilizers.¹ Organic material can also be “fed” to anaerobic digesters, producing heat, electricity, and biosolids that are also useful as soil amendments. Finally, beneficial reuse of organics keeps huge volumes of organic material out of rapidly filling New England landfills.

Moreover, when food scrap and other organic material are sent to landfills, they decompose and give off methane, a greenhouse gas more than 20 times as potent as carbon dioxide. In fact, landfills are the third-largest source of methane emissions in the United States, responsible for the equivalent of over 100 million metric tons of carbon dioxide per year.² One study has estimated that diverting 75% of organics from the waste stream to composting “would cause a dramatic decrease in methane, to as much as one-quarter the business-as-usual rate.”³ And using compost as an agricultural soil amendment does not just avoid methane emissions from landfills – it actually increases the soil’s capacity to store more carbon, helping to keep it out of the atmosphere.⁴

In sum, the beneficial reuse of organic materials – in particular, composting – allows for healthy soil, less landfilling, and reduced greenhouse gas emissions. This chapter explores policies already in place throughout New England that support beneficial reuse of organics, and actions states can take to ensure that organics are diverted from the waste stream.

Highlights

- As states prepare to enact policies supporting the beneficial reuse of organics, they can identify existing organics infrastructure, including on-farm and commercial composting operations and anaerobic digesters.
- States can also create statewide incentives for local action: Increase tipping fees while providing funds for food scrap pickup.
- Most importantly, to ensure organics are beneficially reused rather than wasted, each state can phase in a statewide ban on landfilling food scrap and other organics.

5.1 BENEFICIAL REUSE OF ORGANICS

Introduction

New England farms can play an important role in, and benefit from, the reuse of organics in the region's waste stream. Reuse of organic material through composting and anaerobic digestion conserves landfill space, reduces emissions of methane (a greenhouse gas more than 20 times as potent a climate-change driver as carbon dioxide) and can result in both healthy soil amendments and clean energy. Compost can help to remediate formerly industrial land reclaimed for agricultural use; quality compost and other soil amendments are particularly necessary in New England, where demand for rich soil is increasing while suitable land is in short supply.

Throughout New England, large-scale composting operations are subject to regulations that increasingly balance promoting beneficial reuse of organics with ensuring that organics reuse is well-managed. Regulations also help ensure that the end product is not contaminated. Most states' approaches to regulating composting operations are in flux, as governmental regulatory agencies try to get this delicate balance right.

Discussion

As landfills fill up and soils become depleted, it is becoming increasingly clear that "throwing away" organic material does not make sense. Throughout New England, states are becoming more aware of the need for increasing the diversion and reuse of organics through composting and anaerobic digestion. Despite this growing awareness, change in New England has varied widely by state. Some states are leading the nation in organics diversion, while others are just beginning a conversation on the topic.

There are two main ways states can support reuse of organic materials to benefit agriculture and the environment. First, by creating a legal and tangible infrastructure for composting, states can make it easier for farmers to buy or produce compost and other soil amendments. Second, by streamlining the regulations that control anaerobic digesters, states can help farms turn organics into heat, energy and soil amendments.

COMPOSTING

Recognizing the need to divert organic matter from landfills, New England states have begun not only to implement organics-diversion programs but also to take action that supports off- and on-farm composting.

In 2011, Connecticut mandated that large generators of food waste separate organic materials from other solid waste and ensure that such source-separated organic materials are recycled at a permitted composting facility not more than 20 miles away.⁵ The law was designed to spur construction of in-state infrastructure to manage food waste.

Vermont enacted a ban on landfill disposal of organic material in 2012.⁶ The Vermont law has initially mandated diversion by the largest producers of organics, including hospitals and grocery stores.⁷ By 2020 the ban will go into full effect, reaching all individuals and municipalities.⁸ This phase-in is important: In anticipation of the 2020 full ban, municipalities and solid waste districts are trying to find the best ways to manage organic diversion and build necessary infrastructure.

In January 2014, Massachusetts joined Connecticut and Vermont by banning landfill disposal of organics from commercial sources, effective October 1.⁹ This ban was the result of careful planning: In May 2012, Massachusetts created an Organics Study and Action Plan, designed to pave the way for the ban.¹⁰ An entire section of this plan was dedicated to regulatory reform, and in accordance with this section, Massachusetts revised its composting regulations in 2013. The new rules aimed to ensure safe composting inputs and outputs while allowing composting operations greater flexibility to take on more food scrap and other organic material.¹¹

Connecticut, Vermont and Massachusetts are national leaders on organics diversion. Similar actions on the municipal level in San Francisco, Calif., have led to robust programs where municipal and commercial food scrap is collected and composted, and the resulting compost is sold to farms and vineyards to widespread benefit.¹² The result has been 80 percent diversion of organics from landfilling and significantly reduced municipal waste.¹³ Connecticut, Vermont and Massachusetts are not only adopting a proven model — they are setting precedent for their neighbors as other states, such as Rhode Island, are in the midst of revising their own organics-diversion laws.¹⁴

Massachusetts's recent and thorough regulatory changes deserve especially close attention. In addition to planning carefully, the state has fashioned well-balanced composting regulations that differentiate among composting sites and among operations of different sizes. Massachusetts has also set policies to ensure that composting inputs and outputs are free of harmful toxins.

Site

Stand-alone composting facilities in Massachusetts are generally subject to robust solid waste regulations requiring a site assessment and a permit.¹⁵ Massachusetts on-farm composting is subject to regulation by the state Department of Agriculture but exempt from solid-waste regulations provided the farm meets certain conditions: It must comply with best management practices and avoid creating nuisance conditions or threatening public health.¹⁶ Farms are therefore free to produce compost without major regulatory oversight, as long as they do so safely.

Size

Small stand-alone composting facilities in Massachusetts are also exempt from solid-waste regulations provided they comply with best management practices and avoid discharging pollutants, creating nuisance conditions or otherwise threatening public health.¹⁷ These facilities can receive no more than 20 cubic yards or 10 tons of organic materials produced on-site per week. They may, however, add off-site "bulking materials," like cardboard, paper and leaves. They must also notify the Department of Environmental Protection and local board of health. Again, this exemption for small operations allows for flexibility in producing compost that can benefit farms.

Input and Output

Composting operations subject to Massachusetts's permitting requirements — but not exempt farms or small operations — must ensure that both composting inputs and composting products are not contaminated with dangerous levels of toxic substances.¹⁸ This screening requirement is important for farms to be confident that compost from these operations is safe and suitable for use in growing food for human consumption.

These new regulatory provisions should help a market develop for food scrap that soon will be banned from landfills. The result should be increasingly available safe and inexpensive compost for local farms.

As states draft or revise their own organics-diversion laws, they should be aware of the potential impact of federal regulations. The Food Safety Modernization Act regulations, in particular, are likely to set requirements for compost materials used on crops and to affect how farms may apply compost to those crops.

ANAEROBIC DIGESTION

On-farm anaerobic digestion is not only helping to reduce the amount of organic matter being landfilled, but also helping to generate energy for on-farm use. These digesters are dealt with in more detail in Energy Efficiency and Renewable Energy, section 2.2, chapter 2.

Action

Policy Options

- Early success in Massachusetts and Vermont has followed careful planning, regulatory changes and the enactment of phased-in organics bans. These states' models suggest that in order to create a robust state-wide infrastructure for the beneficial reuse of organics, states should take several steps:
 - » Analyze their existing legal and physical infrastructure and plan for organics diversion.
 - ~ Identify regulatory barriers to a robust composting infrastructure.
 - ~ Take stock of capacity for on-farm and commercial composting and capacity for feeding organic material to anaerobic digesters to produce heat and energy.
 - » Amend regulations as necessary to prepare for a phased-in organics ban.
 - ~ Reform regulations as necessary to eliminate barriers to composting infrastructure and to ensure quality and protect human health.
 - This may include measures such as easing or eliminating siting requirements for on-farm composting while maintaining or enhancing requirements for screening toxins.
 - ~ Take active steps to implement organics diversion and phase out landfilling, including phasing in bans and incentivizing municipal participation in organics phase-outs.
- Increasing landfill tipping fees and supporting food-scrap pickup programs at the state level can spur municipalities to take creative action.

ENDNOTES

- ¹ S. Brown, K. Kurtz, C. Cogger & A. Bary, *Land Application – a true path to zero waste?*, Washington State University, October 2009, <https://fortress.wa.gov/ecy/publications/publications/0907059.pdf>; see also S Thompson & S Tanapat, *Modeling waste management options for greenhouse gas reduction*, J. of Env. Informatics, January 2005, 6:16-24.
- ² *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990 – 2011*, U.S. EPA (April 12, 2013), <http://epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2013-Main-Text.pdf>.
- ³ See Thompson & Tanapat, *supra* note 1.
- ⁴ See Brown et al., *supra* note 1.
- ⁵ S.B. 1116, 2011 Sess. (Conn. 2011), available at <http://www.cga.ct.gov/2011/ACT/PA/2011PA-00217-R00SB-01116-PA.htm>.
- ⁶ 10 V.S.A. § 6605k(b).
- ⁷ *Id.*
- ⁸ *Id.* at § 6605k(c).
- ⁹ *Final Amendments to 310 CMR 19,000 Regulations*, Mass. Dep't of Env'tl. Protection (Jan. 31, 2014), <http://www.mass.gov/eea/docs/dep/service/regulations/wbreg14.pdf>.
- ¹⁰ *MassDEP Organics Study and Action Plan*, Mass. Dep't of Env'tl. Protection (May 10, 2012), <http://www.mass.gov/dep/public/committee/orgplanf.pdf>.
- ¹¹ See 310 CMR §§ 16.00 et seq. (2012).
- ¹² Jane Kay, *S.F.'s Scraps Bring Joy to Area Farmers*, S. F. Chronicle, Apr. 1, 2009, <http://www.sfgate.com/bayarea/article/S-F-s-scraps-bring-joy-to-area-farmers-3246412.php>.
- ¹³ Jeremy Carroll, *San Francisco Reports Record 80% Diversion Rate*, Waste & Recycling News, Oct. 5, 2012, <http://www.wasterecyclingnews.com/article/20121005/NEWS02/121009939/san-francisco-reports-record-80-diversion-rate>.
- ¹⁴ Draft revised Rhode Island composting regulations are expected to be released for comment later in 2014.
- ¹⁵ 310 CMR § 16.00 et seq. (2012).
- ¹⁶ *Id.* at § 16.03(2)(c)(1).
- ¹⁷ *Id.* at § 16.03(2)(c)(2).
- ¹⁸ *Id.* at § 16.04(3)(a)(5).



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