

GROWING LOCAL FERTILITY: A GUIDE TO COMMUNITY COMPOSTING

A COLLABORATION OF
HIGHFIELDS CENTER FOR COMPOSTING
AND THE INSTITUTE FOR LOCAL SELF-RELIANCE



GROWING LOCAL FERTILITY: A GUIDE TO COMMUNITY COMPOSTING

April 2014 | Hardwick, Vermont

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ACKNOWLEDGEMENTS

Thanks to the many practitioners in the field demonstrating the viability of community-based composting! We appreciate all who took the time to participate in our survey, and answer multiple emails and questions. We are grateful to the significant research contribution made by Lore Rosenthal. Bobby Bell of the Institute for Local Self-Reliance also assisted with some of the research, as did intern Kaleigh Gregory. Many thanks to our reviewers, Maia Hansen, Karen Wiseman, and Tom Gilbert, of the Highfields Center for Composting; Pat Sagui of the Composting Association of Vermont; Liz Gleason of Vermont Farm Viability; Nora Goldstein of BioCycle; David Buckel, consultant to Red Hook Community Farm; and David Morris of the Institute for Local Self-Reliance. This document was laid out and designed by Kim Mercer. Tom Gilbert and Noah Fishman, formerly with Highfields, deserve significant credit for content and conceiving of this project.

This material is based upon work supported under a grant by the Utilities Programs, United States Department of Agriculture and was produced by ILSR's Composting Makes \$en\$e Project and the Highfields Center for Composting. We thank all of our many funders.

Any opinions, findings, and conclusions or recommendations expressed in this material are solely the responsibility of the authors and do not necessarily represent the official views of the Utilities Programs.



INSTITUTE FOR
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ABOUT HIGHFIELDS CENTER FOR COMPOSTING

www.highfieldscomposting.org

Highfields Center for Composting is a non-profit, mission-driven organization dedicated to closing the loop on sustainable food and agricultural systems, thus addressing soil health, water quality, solid waste, farm viability, and climate change. Highfields conducts research, offers educational resources, develops community-operated composting programs, and provides technical services with the goal of recycling 100% of Vermont's food scraps by 2017.

ABOUT THE INSTITUTE FOR LOCAL SELF-RELIANCE

www.ilsr.org

The Institute for Local Self-Reliance (ILSR) is a national non-profit research and technical assistance organization that since 1974, has championed local self-reliance, a strategy that underscores the need for humanly scaled institutions and economies and the widest possible distribution of ownership. ILSR's Waste to Wealth program focuses on converting waste from liabilities to valuable assets. It is unique in promoting zero waste planning specifically aimed at maximizing the economic development potential for local communities. Under our Composting Makes \$en\$e Initiative, ILSR has documented model composting initiatives, the job creation benefits of composting, and the link between expanding composting and climate protection. More recently it has researched states with model compost facility permitting regulations and other model policies to promote composting, and has led a peer-to-peer technical assistance program for farmers interested in composting in the Mid-Atlantic region.

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Introduction

Almost half the materials Americans discard – food scraps, yard trimmings, and soiled paper – are compostable. While 58% of the 34 million tons of yard trimmings are recovered for composting, the recovery level for the 36 million tons of food scraps remains low at only 4.8%.¹ Municipal and county governments and private food scrap generators increasingly recognize the importance of diverting food scraps from disposal to reach recycling goals and manage solid waste handling costs. More than 180 communities have now instituted residential food scrap collection programs, up from only a handful a decade ago. Countless supermarkets, schools, restaurants, and other businesses and institutions are also source separating their food scraps for composting. One benefit of composting is that it can be small scale, large scale, and everything in between: small backyard bins, on-site campus systems, farm-based operations, low-tech and high-tech regional facilities. While large-scale centralized facilities will undoubtedly be needed in order to reach high recycling levels, close-by locally-based sites are not only viable, but also bring many local benefits.

Locally-based composting circulates dollars in the community, promotes social inclusion and empowerment, greens neighborhoods, builds healthy soils, supports local food production and food security, embeds a culture of composting know-how in the community, sustains local jobs, and strengthens the skills of the local workforce. When materials are collected and transported out of the community for processing, few if any of these benefits are realized at the local level. In addition, these community-based operations can move from concept to operation in a relatively short timeframe, and typically are welcome in the neighborhood where they are started.

Furthermore, the process of siting and permitting larger-scale composting sites can be time and capital intensive (although certainly less than landfills or trash burners). The exciting news is that many community-scale composting operations are flourishing across the country.

Growing Local Fertility: Guide to Community Composting aims to strengthen expansion of community-scale composting by describing successful initiatives, their benefits, how these initiatives can be replicated, key start-up steps, and the need for private, public, and non-profit sector support. We highlight, for instance, the importance of having trained operators, as nothing will doom small-scale composting as much as a perception of odor and critter problems. The guide is not intended as a manual on the science or art of composting. Nor does it address how to reduce food waste at the source or rescue edible food, both of which are priorities over composting. Rather it addresses how to promote locally based small-scale composting programs, the middle of the food scrap recovery hierarchy (see page 6).

There are many models of community composting. Community composting can involve a range of activities: school programs that introduce the importance of composting



¹ US EPA, Office of Resource Conservation and Recovery, Municipal Solid Waste Generation, Recycling and Disposal in the United States, Tables and Figures for 2012, February 2014. Available online: http://www.epa.gov/waste/nonhaz/municipal/pubs/2012_msw_dat_tbls.pdf.

and healthy soil to school vegetable gardens; entrepreneurs offering collection and composting services within certain neighborhoods; farmers accepting materials from their communities; community drop-off networks; demonstration and training sites that engage community leaders to start their own composting, and more. Each type of activity could justify its own dedicated toolkit.

Here we connect these programs by their common threads. The guide addresses, for instance, the types of materials composted, collection methods, common composting systems, operator training, controlling odors and critters, partnerships, managing volunteers, outreach and education, and using compost.

The guide is divided into six parts:

- Part 1 summarizes what composting is and why it is important, and defines the principles of community composting
- Part 2 describes commonly used composting systems.
- Part 3 provides 31 profiles of a wide range of community

Hierarchy of Food Scrap Recovery

- Source reduction
- Edible food rescue
- Food to animal feed
- Residential backyard composting
- Small-scale, decentralized and locally based composting
- Centralized composting (or anaerobic digestion) at far-away sites

composting initiatives. Several of the programs featured are located in Vermont, where the Highfields Center for Composting is based and where it is actively promoting community-based initiatives. The Institute for Local Self-Reliance (ILSR) has augmented the Vermont models with exemplary programs from around the US.

- Part 4 outlines 12 steps to consider when planning your own project.
- Part 5 shares tips for replication from our model programs.
- Part 6 concludes with suggestions for how food scrap generators, local solid waste planners, and other stakeholders can support community-based composting.

Further resources can be found in the Resources section (page 120).

We welcome feedback on this guide and invite community composters to share their lessons learned and tips for replication. We envision this toolkit as a living document to be updated and augmented with web-based resources.

Please send your comments and questions to:
communitycomposting@highfieldscomposting.org or
communitycomposting@ilsr.org

Rot on!

A Word about Our Research & Methodology

The Institute for Local Self-Reliance identified and surveyed more than 40 community composting programs in the US in fall 2013. More than half participated in the online survey, which solicited basic information on programs such as materials composted, composting method in place, number of workers and volunteers, and volume of material composted, as well as challenges and tips for replication. We then followed up with select sites to gather more information on program highlights and lessons learned and to ensure we had a cross section of program types and areas of the country represented. Highfields Center for Composting then augmented ILSR's survey data with its direct involvement in and knowledge of community-based composting programs in Vermont. These latter programs describe a range of model rural programs.

Part 1: Why Community Composting?

Composting can take place at many levels – backyard, block, neighborhood, schoolyard, community, and regional – and in urban, suburban, and rural areas. There are many methods and sizes. Large-scale centralized facilities can serve wide geographic areas and divert significant quantities of organic materials from disposal facilities. Composting locally at the neighborhood or community-level yields many other benefits: improved local soils, more local jobs, greener spaces, enhanced food security and fewer food deserts, less truck traffic hauling garbage, and increased composting know-how and skills within the local workforce that is reinforced in the next generation. When composting is small-scale and locally based, community participation and education can flourish.

In community composting programs, resources are recognized and managed as community assets. These programs are typically characterized by local control and community access but not necessarily community ownership. Organic materials and nutrients remain and are cycled within the community. The composting systems developed are scale-appropriate to a discrete geography. Community composting involves a relatively small-scale system in which material is converted into compost within a local community. The programs featured in this guide range in size but are united in their intent to serve a given community within a closed loop system. Many but not all community composting programs are non-profit mission driven enterprises. The distinguishing feature of community composting is keeping the process and product as local as possible while engaging the community through participation and education.

Community composting programs are those that strive to meet six core principles.

Guiding Principles:

1. **Resources recovered:** Waste is reduced; food scraps and other organic materials are diverted from disposal and composted.
2. **Locally based and closed loop:** Organic materials are a community asset, and are generated and recycled into compost within the same neighborhood or community.
3. **Organic materials returned to soils:** Compost is used to enhance local soils, support local food production, and conserve natural ecology by improving soil structure and maintaining nutrients, carbon, and soil microorganisms.
4. **Community-scaled and diverse:** Composting infrastructure is diverse, distributed, and sustainable; systems are scaled to meet the needs of a self-defined community.
5. **Community engaged, empowered, and educated:** Compost programming engages and educates the community in food systems thinking, resource stewardship, or community sustainability, while providing solutions that empower individuals, businesses, and institutions to capture organic waste and retain it as a community resource.
6. **Community supported:** Aligns with community goals (such as healthy soils and healthy people) and is supported by the community it serves. The reverse is true too. A community composting program supports community social, economic, and environmental well-being.

Community composting programs in rural areas may differ from those in urban or suburban sites. In densely populated New York City, for instance, where a vibrant and diverse community composting network is blossoming, some are defining locally based compost as within 10 square city blocks, meaning you should be able to find a community compost site within 10 blocks of your home.



Compost builds community! (Photo: NYC Compost Project)

“Composting can take place effectively in a wide range of scale and sizes: small backyard bins, community gardens, onsite systems at schools and hospitals, rural and urban farm-based operations, and large low-tech and high-tech regional facilities. Smaller composting facilities have a higher job-to-ton ratio. In Maryland, on a per-ton basis, small-scale composting facilities employ 6 times the number of jobs as landfills and 11 times more than incinerators. Communities embracing a decentralized and diverse organics recovery infrastructure will be more resilient and will better reap the economic and environmental benefits that organics recovery has to offer.”

– Key finding from Brenda Platt et al., Institute for Local Self-Reliance, “Pay Dirt: Composting in Maryland to Reduce Waste, Create Jobs & Protect the Bay” (Washington, DC: 2013).

highly participatory process. Stakeholders across the private, public, and nonprofit sectors came together to form an informal coalition. There were many public meetings to get input from farmers, activists, students, and others in order to build infrastructure and programs around community assets. This groundwork for success was laid by the work of many groups, organizing over a decade, including: Farm to Plate, Rural Vermont’s Council on the Future of Vermont, Zero Waste by Central Vermont Waste District, Toxics Action, Vermont Agency of Natural Resources, and more.

In sparsely populated rural areas, locally based composting could entail producing and using compost within a 50-mile radius of where the materials are generated. The level and flavor of public participation differs too. The emphasis on public participation and recruiting volunteers is strong in urban areas among urban farms and community gardens. Community engagement in rural areas may more typically be characterized by partnerships among farms, schools, food scrap generators, non-profits, and government waste districts.

In rural Vermont, for instance, community composting programs have arisen from a

Community-scale composting will unlikely be able to recover all organic materials discarded. For instance, urban sites may not want food scraps. Organic farmers may not want compostable plastics. Municipal and commercial sites can frequently process a wider range of materials, and may likely be needed to reach high diversion levels. But public policy ought to favor the development of community-based composting sites to recover as much “waste” as possible and to do so in a way that ensures high-quality compost at well-managed sites that pose no public nuisances.

By encouraging locally based composting, policymakers will ultimately strengthen the public’s commitment to all forms of recycling, improve the quality of compost produced, and build support for and proper participation in municipal or county residential collection programs. Educated citizens directly composting and growing local food, and benefiting from greener neighborhoods, will likely sort their compostables with greater care, thus reducing the level of contaminants. Moreover, community-based composting is an ideal form of recycling, approaching the way ecosystems naturally function: few resources are lost from the system, all matter that was once alive is returned to the earth to support new life. It reduces truck hauling for managing garbage and for providing food. By supporting local food production, the distance between the food producer and the eater can be narrowed. Finished compost is more readily available for growing food by households, urban and rural farms, community gardens, and school gardens. It is also available for low-impact development and green infrastructure such as rain gardens, green roofs, green streets, and bioswales – all best management practices for controlling stormwater. In short, community composting builds more resilient and sustainable communities.

What and Why Compost?

Compost is the dark, crumbly, earthy-smelling material produced by the managed decomposition of organic materials. It is a valuable soil conditioner. Compost adds needed organic matter to soil, sequesters carbon in soil, improves plant growth, conserves water, reduces reliance on chemical pesticides and fertilizers, and helps prevent nutrient runoff and soil erosion. It also reduces the volume of materials that might otherwise be disposed in landfills or trash incinerators such as leaves, grass clippings, brush, garden trimmings, wood, manure, and food scraps, and recycles them instead. And it can benefit local economies. On a per ton basis, composting employs four times more people than landfills or incinerators.¹ Advancing composting and compost use in the US is a key sustainability strategy to create jobs, protect watersheds, reduce climate impacts, improve soil fertility, and build resilient local economies.

¹ Brenda Platt and Neil Seldman, *Institute for Local Self-Reliance, Wasting and Recycling in the United States 2000* (Washington, DC: 2000), p. 27; also see, Brenda Platt et al, *Institute for Local Self-Reliance, Pay Dirt: Composting in Maryland to Reduce Waste, Create Jobs & Protect the Bay* (Washington, DC: 2013).

“Local as possible is still best even if there’s no choice but to centralize some of the rest. That does not mean we choose large or small. That means we work hard to develop as much capacity as we can on the neighborhood or community level, and then, for the remaining organics left to manage, we welcome and are grateful for key partners in organics recovery, such as environmentally responsible municipal curbside pickup programs, commercial haulers, and large-scale organics recyclers.”

– David Buckel, Red Hook Community Farm, Brooklyn, NY (BioCycle, June 27th, 2013)

Tom Gilbert checks the pile at Highfields Center for Composting in Wolcott, Vermont.



Benefits of Community Composting

Raises Awareness

- Exposes community members to the concept of source-separation of food scraps
- Educates children and the general public about composting, how it is done, and how it can be incorporated into everyday life
- Creates advocates and the necessary leadership for changes in policies, laws, and regulations
- Prepares the next generation for full-scale composting as part of our way of life

Environmental Benefits

- Creates a rich nutrient-filled soil amendment
- Enhances soil fertility
- Improves soil structure, thus reducing stormwater runoff and soil erosion
- Substitutes for energy-intensive fertilizers, pesticides, and fungicides
- Improves plant growth, and thus carbon sequestration
- Reduces waste
- Protects the climate by cutting landfill methane emissions and creating a carbon sink in soils
- Reduces vehicle emissions by decreasing transportation distances between material generators and compost producers and users

Community Benefits

- Allows for a neighborhood level, local operation
- Builds the culture and know-how of composting in the community
- Keeps resources and money changing hands within the local community
- Builds healthier local soils
- Promotes human-scale technology, instead of large capital intensive systems
- Supports locally-grown, healthy food production, and “closed-loop” systems



Community composting prepares the next generation for full-scale composting as part of our way of life.

Local Government Benefits

- Diverts materials from landfills and incinerators
- Allows management of organic materials close to the source
- Meets local directives for recycling and waste reduction
- Extends life of regional landfills, avoiding cost and environmental impact of new disposal facilities
- Helps reduce public and private sector solid waste management costs
- Builds support for local municipal composting programs
- Offsets stormwater costs (when compost is used in low-impact development)

Local Economy, Jobs Training & Employment Benefits

- Stimulates and diversifies local economies by supporting local small-scale enterprises
- Encourages local training, volunteering, and employment opportunities
- Sustains more jobs on a per-ton basis than landfilling or incineration
- Helps urban and rural farmers diversify farm products and increase farm income
- Supports new businesses in green infrastructure and low-impact development (e.g., rain gardens, green roofs, conservation landscapes, and bioswales)



Highfields Center for Composting in Hardwick, Vermont

Why is community participation and education a necessary component of community composting?

by David Buckel, Red Hook Community Farm, Brooklyn, NY



Involvement of community members in the work [of composting] has many positive features. First, for some sites it may be the only way to get the work done. Second, community composting is an unusual opportunity in the recycling world for individuals to create something of value for their community with their own hands. After seeing up close how food and other discards turn into black gold for greening their streets, parks, school gardens and urban farms, many participants walk away thinking “how can we not be doing this as much as possible?” Thus many community composters believe their work is the gateway to the bigger realms of recycling and sustainability. Working toward this broader goal helps to generate more leaders and helpers in a community willing to give the extra time and effort required for community composting to succeed. Many participants also value the opportunity to build community by forging new relationships at the compost site that can widen support networks and trigger collective action on other issues of concern in the community. And at the micro level, picking through a mass of materials to extract inorganics – like twist ties and rubber bands and stickers – develops a culture of mindfulness regarding source separation for all forms of recycling.

In addition, community participation and education may be instrumental for persuading city officials and foundations that taxpayer and private funds are appropriately spent on community composting, although at the same time it is important for sites also to develop revenue streams to ensure a diversely solid financial sustainability (e.g., charges for inputs or for finished product).

All this is not to diminish the value of a compost site that merely diverts organic resources from landfill, with no community participation and education, because the bare benefit to the environment for future generations is part of the rationale for community composting as well. But to inspire leaders/helpers, persuade potential funders, and otherwise foster a widened stewardship of the environment through all forms of recycling, community participation and education are a necessary component of community composting.

Note: While David Buckel wrote the above with urban community composting in mind, community engagement is also a vital component of suburban and rural community-based composting.