

# Part 4: How to Plan a Community Compost Project

At the outset of a community composting initiative it is worthwhile to take time to engage in a process of gathering information, exploring potential partnerships, and picturing the whole project before getting started on a particular piece. There is a wide spectrum of possible composting projects and activities. After getting a sense of the possibilities and opportunities you will have to make an assessment of the most promising path forward. A number of key decisions and limitations will shape your direction and further define the project. The scope of the assessment required will be scale dependent, with larger projects requiring more in depth research and smaller projects requiring less. Whatever the scale, it will save you time and trouble later in the process if you take the time now to ask the right questions. The following is a list of areas that deserve your serious consideration on the front end of a community composting initiative:

- Do you have a composter, a composting site, and composting strategy?
- How much material is available to compost in your area? What sort of feedstocks is available?
- What types of generators are you planning to serve and how much material do you expect they will generate?
- How much material do you want to handle? How much material is required to make this financially feasible?
- Do you need a permit?
- How much of your time will this project take? What is the cost of starting the project?
- Is this project going to generate income, and if so will this be your primary income?
- What are your goals or interests in doing this?
- Who can help you?

Steps 1 through 12 will walk you through defining and refining a plan to implement your community composting vision.

## Step 1: Clarify goals

Putting together a composting program is a puzzle that can be built in many ways; different scenarios will meet different end goals. Being very clear about your goals and interests will help you achieve them, stay the path, and make modifications throughout the planning and implementation process that support your goals.

The first step in getting started is to clearly identify why you are interested in a community composting initiative and what you hope to achieve. Are you composting to engage youth or community leaders in the art and science of composting? Are you working to close the loop on your community food system?

Are you composting to produce a marketable, saleable product? Are you composting to save money on waste hauling and disposal costs? Answering these questions will help you establish the scale of your program, determine where to look for resources and partnerships, and determine what the necessary program components will include.

As you explore the possibilities, seek out potential partners and make asks. You may be approached with offers and requests that you hadn't imagined. With all the opportunities to take advantage of, don't lose sight of why you were interested in composting in the first place. Begin with a vision of what you hope to achieve so you understand what success looks like,



### SPOTLIGHT: Tinmouth Compost, Tinmouth, Vermont

The primary goals of the Tinmouth Compost project are to create a regional organic recycling facility that produces horticultural-grade compost for use on Breezy Meadows Farm and to reduce chicken feed costs by feeding food scraps to chickens. Secondary goals of the project are to create a revenue source through compost sales to farms and to help food scrap generators and municipalities comply with Act 148 (The State's Universal Recycling Law). Expected objectives include:

- Diversion of 0.5-1 ton/week in year 1
- Production of 50-200 laying hens in year 1
- 75-200 cubic yards of finished compost in years 1-2

and then be ready to alter or amend that vision to support your goals.

When you've really defined your goals and looked at different scenarios to reach those goals, you will be well equipped to design and build a successful community composting program.



## Step 2: Decide which parts of the process to undertake

Every composting arrangement includes someone who develops and coordinates the program, someone who generates the material to be composted, someone to collect it, someone to undertake the actual composting process, and someone to utilize the finished compost. You may fit one or all of these composting roles. Each component of the program is a venture unto itself, which is why many programs have different partners who fulfill the different roles. Decide if you will engage in one, two, or all of these aspects. The tasks you do not plan to assume responsibility for will require a partner to fulfill. Every aspect involves education and training, and will likely benefit from some additional technical or professional assistance, especially as the scale increases.

Most composting programs involve collecting or receiving materials in some fashion, thus, material handling considerations are important. Material collections can be “drop-off” or “pick-up.” In both cases, your customers need a place to put source-separated materials throughout the week. Will you provide containers or ask your customers to find and use their own containers?

If you opt to offer collection service, you will need to decide by what means you will pick up: by bicycle, personal vehicle, neighborhood electric vehicle, van, pick-up truck, or trash truck. Obviously, a bicycle uses the least fossil fuels and is the most sustainable. However, you need to be realistic about the weather.

Whether food scraps are dropped off or picked up, community members need education on how to source separate as well as how to store material until it is collected. This can happen through handouts, workshops, one-on-

one education, listservs, and signs. One important outcome of education is material that is free of trash and contaminants.

You will also need to consider whether you will clean any containers provided or make that the responsibility of your clients. Some programs will give everyone a matching bucket, will switch out your dirty bucket for a clean bucket, and have a location where buckets are washed. In other locales, everyone provides their own mismatched containers, the dirty container is left at the curbside, customers are encouraged to line the bottom of their buckets with newspaper or a paper bag, and it is up to each household whether they want to clean their bucket or reuse it dirty. Costs can be kept low by using repurposed kitty-litter pails or 5-gallon pickle buckets (rebranded with a program sticker or label).

Your collection services might also include offering a “zero waste service” at community events and festivals. This is a great way to become better known in your community and generate some income. It will provide you free marketing and advertising. This usually involves being responsible not only for composting, but also for trash and recycling.

### Step 3: Identify potential partners and collaborators

Outside the primary roles of generator, hauler, and composter, there may be a number of other roles to fill in order for the community composting project to come to fruition: finding food scraps and feedstocks; community outreach and establishing buy-in; financial management; technical support; site design and permitting; management of the volunteer workforce; marketing and sales. Imagine the roles and partners who can help get these things done. Table 4 (page 76) lists potential partners who may be able to meet possible project needs.

Partners can bring opportunities, funding, material resources



### SPOTLIGHT: Public-Private Partnerships

The public sector can play a vital role in supporting community-based composting, from directly funding programs or equipment out of city budgets to providing in-kind services, free land, and public grants. Local government can pay for residential compost pickup, rather than asking residents to pay extra, out of pocket to a private collection company. Governments benefit from the avoided cost of garbage collection and disposal.

In-kind assistance can include establishing compost sites across the city, maintained by city workers. Municipalities can designate public areas for compostable drop-offs, or allocate city staff time for the marketing of a compost project and creation of ad campaigns. City connections and networks can be used to help identify free sources of leaves and wood chips. City government can agree to buy back the finished compost instead of purchasing the same product from a commercial enterprise further away.

Providing access to city land is one of the best ways government can support community-based composting. Cities can make small empty and unused parcels of land available at no cost. They can offer vacant land, even if for temporary use. Cities with brownfield sites can exchange access to land for compost use in brownfields reclamation.

and equipment, land/space, good will, and buy-in. The best composting configurations are keyed in to take advantage of local or regional assets. Take inventory of the particular skills, expertise, and activities in your area and look for common points of interest. Consider the political environment and important relationships between stakeholders in your community; look for opportunities to capitalize on these.

The basis of successful partnership largely lies in good communication, and the development of clear roles that partners willingly take on. Sometimes partnerships fall short because of a lack of clarity around what the expectations of that relationship was. Writing these expectations down in the form of memorandums of understanding (MOUs) or contracts alleviates ambiguity, defines roles and responsibilities, and helps

- everyone stay on track. Partners need to have skin in the game, or
- obvious incentive to make good on the “partnership.” Willingness
- needs to be demonstrated. For example, if a school would like
- to partner in community composting, would they be willing to
- fundraise for it? Ultimately we want partners to feel connected to
- the compost project and feel connected to the compost project
- and care about its success. While it sounds obvious, a sense of
- connectivity and pride develops as partners take on an active role
- in the program; so inviting partners to take ownership needs to be
- an intentional part of the project’s development.
- Partnerships present opportunities and challenges, and the final
- note on finding partners is to be selective. Careful consideration



### SPOTLIGHT: Greenway Environmental Services, NY

By building a coalition of public, private, and community-based partners, Greenway Environmental Services has embraced all key aspects of community composting, but warns that one must not “stretch yourself too thin.” The company oversees, engages in, and has been the lead in developing all components of its local composting infrastructure. This helps ensure a sustainable source of feedstocks. Working with students, staff, dining service vendors, and faculty, the company has established the on-campus composting programs for several universities and colleges in and around Poughkeepsie (Vassar, Marist, SUNY New Paltz). It set up and manages the 6 day/week collection of organics from these generators by partnering with Royal Carting, a local carter hauler, and McEnroe Organic Farm, a nearby competitor who, like Greenway, undertakes the actual composting. Greenway developed its primary composting facility by partnering with the farm at Vassar College. Greenway is closing the loop in its greater community by returning its compost and soil products back to its institutional clients while also utilizing products for its own projects (which include bioremediation, wetland, and landscaping/nursery projects). It recently secured government funding to transfer composting operations to two new sites. These new facilities will provide programs and education with the intention of encouraging new community members to take on aspects of urban and small-scale, community composting enterprises.

must be given to whether the partner is appropriate (to meet your goals) and whether they will realistically be able to make good on their offer. You don’t necessarily want to take the first person who raises their hand. Additionally, every time you add another person into the process, this adds to your “burden” of communicating well.

### Step 4: Select materials to compost and collect

Many materials are biodegradable and can be composted. Figure 1 (page 75) lists the wide range of materials composted by the operations profiled in this report: leaves, grass clippings, brush/branches, manure, paper products, food scraps, and more.

Many community composting programs focus on capturing an organic resource generated in the community that would otherwise be handled as a waste or might be recycled outside of the community. Food scraps are the most commonly accepted material by those profiled in this report. (If you are planning to target food scraps, Step 5 outlines the process of assessing the who, what, where, and how much food scraps are in your community.) Food scraps themselves come from a wide range of sources (Food Scrap Generator Sectors, p. 79) and each will have a different strategy for outreach, capture, education, collection, and handling. The materials you target should be guided by and align with your goals, the infrastructure capacity you design for, and the program and human labor you anticipate expending.

It is essential to have an adequate supply of carbon-rich materials on hand when composting wet and putrescible food scraps. Best management practices in composting involve developing a blend of materials to create ideal conditions for microbes to function. This means optimizing the carbon to nitrogen ratio of composted materials. It also means making sure the pile is not too wet or too dry. Successfully composting food scraps and other nitrogen

rich materials such as manures, requires carbon-rich materials such as garden and yard trimmings, clean shredded paper, woody material like wood chips and bark, and well-bedded animal manures (see “Common Compost Ingredients,” page 77). From where will you source your carbon materials? How will you ensure you always have a supply onsite? If you do not have adequate carbon-rich feedstocks or dry materials to absorb some of the extra liquid from wet food, your composting process may be limited. Find out if there are available sources of leaves and yard trimmings, saw dust or wood shavings, straw and bedding from horse barns and heifer operations.

Another factor to consider when weighing what materials to process and how you will optimize the blending of feedstocks is whether you want to accept certain common materials that can be challenging to work with. These materials include meat and dairy, compostable foodservice



### SPOTLIGHT: Access to compost testing through partnerships

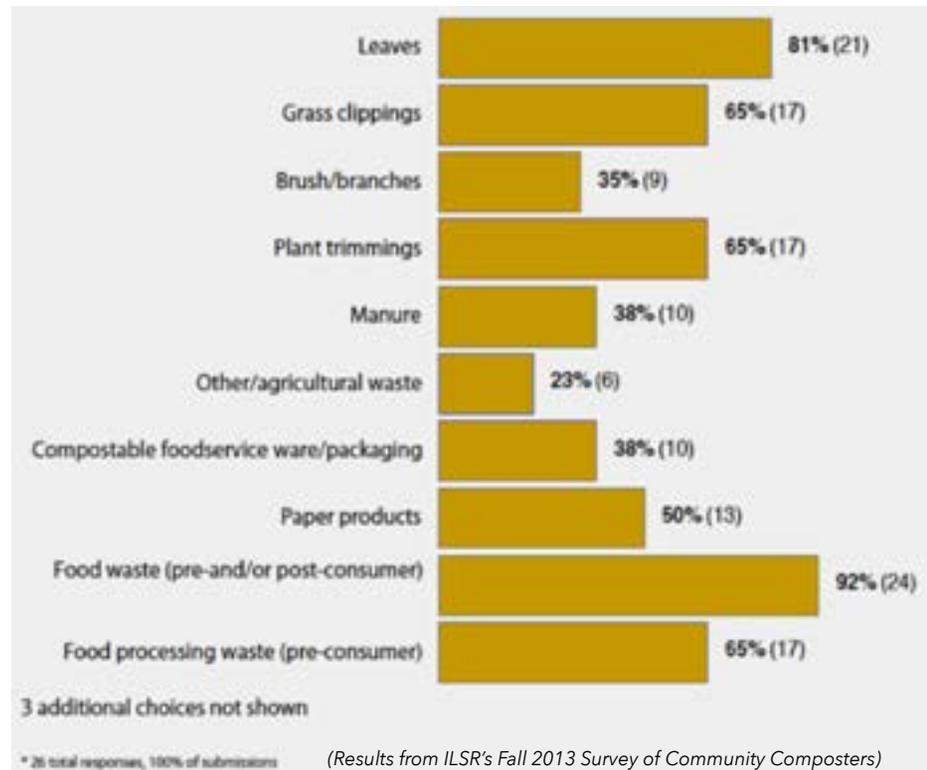
Partners may have access to compost testing, for free or at a discounted price. For example, Kompost Kids gets free testing through UW Madison Soil Science Department. Roots Compost LLC gets a discounted rate through the Northern Arizona University.



### SPOTLIGHT: Roots Composting LLC

Roots Composting, LLC partners with a local nursery, who allows them to screen and bag their compost on site, store equipment, and store compost. The nursery sells their compost and keeps half the money. Roots can also sell compost on their own and keep 100% of the income. The nursery also lets them use a bob-cat for free, as long as they pay for their own fuel. This partnership is based on reciprocity and bartering. Roots compost bags also list all of their restaurant customers and partners. This provides free advertising for the partners and increases their motivation to be involved.

**Fig. 1: Types of Materials Accepted by Profiled Programs**



**Table 4: Potential Partners to Address Possible Project Needs**

POSSIBLE PROJECT NEEDS	POTENTIAL PARTNERS
Land or a compost site	Farmers, municipalities, city government, parks, public land, property owners, “benefactors” (willing to allow free use of land)
Feedstocks	Farmers, arborists, a local waste district or public works department, breweries, landscapers, nurseries, city or state road crews, carpenters, mills
Food scraps or food scrap generators	Aside from established databases (see Researching Food Scrap Generators) partners could include the local farm-to-plate network, food stores, restaurants, coffee shops, bakeries, hospitals, conference centers, universities, food hubs, farmers markets
Volunteers, or people power	Members, community gardens, food banks, schools/universities, prisons, community organizations, boys and girls clubs, 4-H groups, master gardeners, churches, neighbors, various ethnic groups with an embedded culture of gardening
Tools, equipment, a bucket loader	Institutions that have a facilities department, municipalities, organizations that could share existing equipment, organizations that would award you funds to purchase these, landscapers and nurseries, universities, farmers, city public works departments
Hauling or collection service	The local waste district or public works agency can identify registered haulers, or may be able to fill this role. Look on the internet. The State may have a list of approved trash and recycling haulers, who may want to diversify. BioCycle has a new database.
Buy-in	Local elected officials, a non-profit or community organization, influential community members, food policy councils, sustainability task forces, zero waste initiatives, municipal “green teams,” anti-incineration groups, climate change groups, “transition town” initiatives.
Financial planning or marketing assistance	Regional development corporations, graduate students in business schools, Small Business Technology Development Centers, other small business development organizations
In-kind donations <sup>1</sup>	Non-profits, gardens, community development organizations, municipal governments, schools, universities, building supply stores, makerspaces (community centers with tools)
A venue to sell finished compost	Nurseries and gardener supply store, hardware stores, food stores, food coops, farmers markets, festivals, landscapers, nurseries, state highway agencies, “green street” initiatives, watershed stewards, low-impact development installers (for rain gardens, green roofs, bioswales, etc.)
Financial capital	Companies and groups offering award monies, grants (for agricultural projects and community development), the local investment council, banks, private donors, investors, private and community foundations, credit unions, small Business Technology Development Centers, economic development centers, workforce business councils, Kickstart campaigns, direct public offerings, grants for agricultural projects

<sup>1</sup> Use of land, free buildings, water, electricity, internet, website development, screen printing, repurposed materials (many will donate or barter for what you need).

## COMMON COMPOST INGREDIENTS

### HIGH NITROGEN MATERIALS

These materials or “feedstocks” have high nitrogen content, which corresponds with the high level of protein in the foods of humans and animals. Ask yourself, “would or did a human or animal eat it?” If the answer is yes, then it’s probably a nitrogen ingredient. These materials are commonly referred to as “greens” in home composting and are required for microbes to create the new proteins required for reproduction.

- Food Scraps
  - Fruits & Vegetables
  - Breads & Grains
  - Meat & Dairy
- Industrial and commercial food processing byproducts
- Butcher residuals
- Animal Manures
  - Cow
  - Chicken
- Grass

### HIGH CARBON MATERIALS

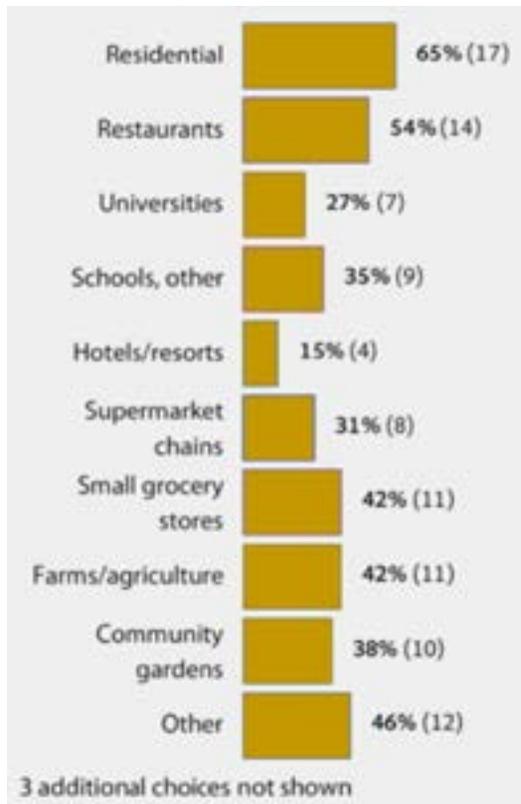
These materials or “feedstocks” have a high carbon content, which corresponds with a high level of plant tissues (e.g. lignin, cellulose, waxes, and sap). These materials are commonly referred to as “browns” in home composting and are the energy source for microbes, driving metabolism and heat, just like carbohydrates fuel humans and wood fuels a fire.

- Woody Materials
  - Wood Chips
  - Sawdust
  - Bark
  - Leaves
  - Garden Wastes
  - Hay
  - Straw
- Well-bedded Manures (varies widely)
  - Horse Bedding
  - Calf Bedding
- Paper & Card Board
- Fats & Greases



ware (such as take-out clamshells, cups, plates, and cutlery), and specialty materials that may come from a particular generator (such as ice cream, fish waste, coffee chaff). These materials all are composted very effectively at programs around the world, but require extra care. Plates and cups, for instance, may need to be torn apart to speed biodegradation. We discuss tips on this subject in “Composting Challenging Materials” (see pp. 108, 110-111).

**Fig. 2: Source of Compost Materials in Profiled Programs**



(Results from ILSR’s Fall 2013 Survey of Community Composters)

## Step 5: Research Food Scrap Generators and Other Sources of Material

There are many sources of materials to compost. The programs participating in our survey sourced mostly from food scrap generators such as restaurants, universities, schools, resorts, and supermarkets. See Figure 2, left. Farms and community gardens typically compost material generated on-site, but they are also increasingly accepting food scraps generated off-site.

Once you’ve identified your target generators, the next step is to assess how your operation can meet its goals in relationship with the volume of food scraps you are likely to capture or want to capture. Are you looking to work with households, a business, a school? Are you looking to serve the entire community

across all food scrap generation sectors? The capacity you design your program around depends on the answers to these questions. For some programs your capacity will be based on what is generated in the community, for others it will be based on the portion of material you want to capture.

For example, you may set an objective to collect food scraps and coffee grounds from 200 local residences, 3 coffee shops, 1 school, and 5 restaurants. You may set an objective to build program capacity to capture and recycle 30% of your community’s commercial/institutional sector and 50% of the residential sector. See Estimating Food Scrap Generation (pages 80-81) for different methods to estimate volumes of materials available. There are many ways you could approach this research. Estimation techniques vary in their accuracy, so always plan for some variation and contingency in your capacity.

## Step 6: Planning your compost site

Whether developing your own composting operation or looking to partner with a composter, it helps to start by looking broadly at your options. If the choice seems obvious, challenge yourself to dig deeper in the beginning stages, as unexpected realizations are par for the course and can cost the project time and resources.

- If you are looking to develop your own composting operation, what is the ideal scale of your project?
- Will you take materials generated on-site and/or off-site?
- What materials have you decided to compost?
- What is the estimated volume and weight of materials?
- Do you have adequate carbon feedstocks to compost food scraps or other materials high in nitrogen?
- Who will be in charge of managing the composting process?

(continued on page 82)



## Food Scrap Generator Sectors

The materials you target for capture could fall into one, several, or many categories of food scrap generator (FSG) sectors. In addition, yard trimmings, chips from tree services, farm wastes such as manures, offices generating shredded paper, all may be generated in your community and well utilized by your program. The breakdown of FSG sectors will vary significantly from community to community.

**Residential Sector:** The portion of a community's food scraps generated by individuals and families in their homes. In many regions a significant percentage of these are or can be recycled at homes, either through backyard or animal feeding systems. For some residents, composting at home can be challenging and this is where residential drop off and community collection services are appropriate and needed.

**Commercial/Institutional Sector:** The portion of a community's food scraps generated by businesses and institutions such as restaurants, grocery stores, delis, hospitals, schools, colleges, cafeterias, etc. These FSGs produce scraps from 100s lbs/week to  $\geq 1$  tons/week. The majority of generators in this sector will not compost on-site themselves and community collection services provide them with a viable solution to close the loop locally.

**Food Processing Sector:** The portion of a community's food scraps generated by food makers and manufacturers such as breweries, distilleries, meat processors, packaging facilities, large bakeries, candy makers, and coffee roasters. These large FSGs produce scraps generally in the multiple tons/week. One thing that makes this sector unique is the homogeneity of the material typically generated compared to other sectors that have a mix of scraps. Breweries, for instance, generate grain, hops, and yeasts. Candy makers might have one batch that's all chocolate. Composters need to approach these materials with special care, especially if these materials are nitrogen-rich and wet (thus, requiring dry carbon-rich bulking amendments and being more prone to odors and process challenges). Many generators in this sector find low cost or free recycling options for their material (such as grains going to a pig farm or whey going to an anaerobic digester) and may not be candidates for a new program unless it provides them with the opportunity for cost savings or resolves an operational issue in their facility (such as more frequent collection).



## SPOTLIGHT: Estimating Food Scrap Generation

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Many resources and data sources are available for estimating food scrap generation. We split the techniques for estimating your targets into looking at individual generators and looking at generators across the community; both techniques may be enlightening at different points in your process. Check with your local solid waste agency to find the best resources available for your community.

### ESTIMATING FOOD SCRAP GENERATION FOR INDIVIDUAL GENERATORS

There are a couple of ways to estimate generation by individual households, businesses, and institutions. Researchers have captured numerous data points across various generator types and developed factors and simple formulas to estimate food scrap generation. These formulas are what the FSG databases are based upon. More accurate is to do a physical audit of generators, which can have the additional benefit of causing the generator to see their waste with their own eyes and think about things like waste reduction. We cover both techniques briefly.

### FSG FACTORS AND FORMULAS

For dealing with individual generators such as a school or restaurant, basic metrics such as number of students or number of meals served is enough to get rough estimates of generation (Elementary, Middle and High Schools all have different rates of food scrap generation per capita).

We included some sample generation calculations from Vermont Compost/Biogas Data Viewer:

***Tons/Week Elementary Schools = number of students x 1.13 / 2000 (pounds/ton)***

Example:  $500 \times 1.13 / 2000 = 0.28$  tons/week

***Tons/Week Middle Schools = number of students x 0.73 / 2000 (pounds/ton)***

Example:  $500 \times 0.73 / 2000 = 0.18$  tons/week

***Tons/Week High Schools = number of students x 0.35 / 2000 (pounds/ton)***

Example:  $500 \times 0.35 / 2000 =$  tons/week

***Tons/Week Restaurant = number of meal served x 0.5 lbs / 2000 (pounds/ton)***

Example:  $500 \text{ meals per week} \times 0.5 \text{ lbs} / 2000 = 0.12$  tons/week

***Tons/Week Hospital = number of beds x number of meals served x 0.6 lbs of food waste per meal x 7 days in a week / 2000 (pounds/ton)***

Example:  $500 \text{ beds} \times 5.7 \text{ meals per day} \times 0.6 \text{ lbs of food waste} \times 7 \text{ days} / 2000 = 5.98$  tons/week

### CONDUCTING A FOOD SCRAP AUDIT

Conducting a food scrap audit can provide a clear picture of the potential food scrap generation available. You should decide if the data provided will offset the time and expense of conducting an audit. Audits can be a lot of work for an unnecessary degree of detail. There are different ways to do an audit, depending on what exactly you are looking to assess and how much information you want. The basic goal is to identify the components of your organization's waste and calculate their percentage of the total waste generated so that this information can be used to identify areas to reduce waste and improve waste management practices. If your organization contracts for trash, and/or recycling collection, records from the contractor on waste/recycling volumes and finances over time would be very useful to gather.

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An audit consists of collecting and opening trash bags from a normal day of operation; sorting their contents into recyclables, compostables, garbage, and miscellaneous articles that could be repurposed; then recording their respective weights. You can target the information by choosing to collect only from certain places, for example just collecting trash from the school cafeteria and sorting that, as opposed to the entire school's waste. Or you could look just at pre-consumer waste by auditing the school kitchen. There are a number of waste audit guides; the Environmental Protection Agency has a good one with clear directions, helpful set-up tips, log templates, and guidance in analysis.

There are also simpler ways to estimate projected tonnages or cubic yards. Do not assume you need to do a full audit for every generator.

## ESTIMATING FOOD SCRAP GENERATION FOR AN ENTIRE COMMUNITY

When looking at targeting your whole community, look for existing sources of data about food scrap generators. This can be challenging, but there are a growing number of sources and they are getting better. Databases online often have GIS mapping capabilities and can allow you to get a significant amount of information including generator names, estimated generation rates, assumptions used to make those estimates, and even contact information. Vermont Compost/Biogas Data Viewer is one example and a second database is under development in Vermont created by the State. One challenge is knowing your source's strengths and weaknesses. For example, are certain sectors or generator types missing or based on poor assumptions? If possible use more than one data source.

Residential food scrap generation estimates vary, but we know that average households are typically going to create between 8-10 pounds/week of food scraps. You can use that in combination with population data to estimate the residential sector. If your program restricts meat and dairy, then capture is going to be 10-15% lower.

With food processing FSGs, there is often little public data available, so this is an area that may need a good deal of detective work. It's also an area that many community composters may not need to worry about at all, unless there is an opportunity that is worth capitalizing on. The food processors can have enormous generation and therefore, they are the most likely to have already found a valuable use for the material in order to cut costs. They may have large amounts of liquid wastes, which would be easier for a digester to handle or for a farmer to feed to animals. For this reason, this sector may be worth assessing, but may not contribute many participating generators in your program.

Participation rate is another important factor in taking FSG data and using it to plan the scale of your program. For instance, in community composting programs in Vermont (pre-organics ban), participation by businesses, schools, and food manufacturers usually starts at around 7-15% in the first year and has reached as high as 35% in the most established program in the state (Central Vermont's Montpelier region). For planning your infrastructure, estimate high participation rates so that the program has room to grow and for doing business planning, estimate low participation rates so that your business model is based on conservative revenue streams.



- What kind of budget do you have for equipment?
- How much space do you have? How much space do you need? Remember, you need space for storing carbon-rich material, the active composting phase, curing compost, screening compost, and for storing finished compost.
- How close and potentially sensitive are your neighbors?
- If you plan to use the compost on-site, how much do you need? If you want to sell your compost, what volume is your local market likely to buy? Are you going to provide compost to organic growers?

Some of the first questions you'll be asking are about scale. The goals of the operation as well as the food scrap generators you've identified are two of the most critical factors in planning the operation's scale. Don't be afraid to start small and think big. Starting composting on a pilot basis, then growing into a larger operation is a smart and common approach. It allows you to make mistakes on a micro scale and get to know the flows and needs that will be unique to your operation. Ultimately, scaling the operation to an appropriate size will depend on your business plan, local food scrap generators, how much room you have to grow, labor, and equipment availability.

Finding the right location for a new compost site can take a great deal of effort, particularly in urban environments, where farmland is less common. Visibility may or may not be advantageous to your project, depending on your goals. People are generally more welcoming of small "demonstration" composting systems that might accompany urban agriculture or community gardens, whereas with larger scale systems there can be an unwelcoming attitude. It is more productive in the long run to consider factors like these in choosing a proper composting site in order to avoid dealing with problems later on, such as opposition from neighbors. Community composting operations have found land under bridges, on

farms, in abandoned lots, on rooftops and on old landfills. What did these locations all have in common? They were all underutilized spaces and were able to glean the support of neighbors and/or municipal partners. Look for similar situations for your program.

In some cases, you will start with a location predetermined. This is probably the case if you are a community garden, urban farm, farm, school, or university. If you are a non-profit or community organization, you may not have any land to start with and will have to look for it. For that reason, many projects start small, along side a building or in someone's yard and later grow into a full-fledged project.

Many community compost programs depend on free land. Therefore, composters need to work with what they can get. Often times, a local community organization or community development corporation can partner with you to develop a "land use agreement" with their organization or with the city government.

When choosing a site, you may need to consider availability of water and electricity. Or once you have the site, you may want to position the compost operation close to a source of electricity and water (not streams or bodies of water but outlets for watering the piles when needed). You want incoming loads to have easy access to the receiving area but at the same time you need to ensure that the site is pleasant for visitors who enter the property.

It is often said that people smell with their eyes. This is an important aspect of community relations for composters to appreciate as it can reduce friction with the community and communicate the rigor (therefore building trust) of the operation.

Other siting considerations should include the surrounding

## Bulk Density Will Help You Estimate Weights and Volumes of Materials

Organic materials have different bulk densities (BD). What is bulk density you may ask? BD is the weight of a certain volume of a material. In the US composting world, BD is usually measured in pounds/cubic yard. For example, the average BD of wet food scraps is 1000 pounds/cubic yard. This is very useful for planning purposes and for compost recipe development.

Here are a few useful measurement references utilized by compost practitioners:

- 1 cubic yard = 27 cubic feet
- Average BD of food scraps = ~1000 lbs/cubic yd
- 2 cubic yards food scraps = ~1 ton = ~2000 lbs
- 1 gallon of food scraps = ~4.58 pounds
- 1 x 48-gallon tote = ~220 pounds
- 9 x 48-gallon totes = ~1 ton
- TPW = tons/week
- TPY = tons/year
- CY = cubic yards

Depending on the scale and focus of your work, you may think about the raw materials of composting slightly differently. For instance, you may need to track the number of totes of food scraps you collect or receive in a given week. Knowing the weight or volume of an average full tote, will enable you to calculate, track, and report on the weight or volume of materials you are handling.

environment: natural and built. Having local and state permit requirements in hand will help you begin to do a base level assessment of how compliant a potential site may be. Ultimately, the operation and its potential discharges, including those that are unintended, can threaten surface and groundwater if not sited properly. Site selection and layout is an important task, and seeking outside technical assistance may be prudent for optimum operations flow, environmental protection and neighbor relations.

## COMPOSTING SYSTEMS

There are many compost system choices. Some are better for small spaces while others are better if you have a lot of land. Some systems are more of a natural fit for a school or community garden, whereas another system might work better at a university or on a farm.

You also need to decide if you want to use fossil fuels, biofuels, or do all the work by hand. If you plan to use large collection vehicles or equipment such as windrow turners or bucket loaders, you will need access to capital or available machinery, and space to store it.

If space is constrained, you may opt for an in-vessel or bin system. If space is not a challenge, open windrow systems or static aerated piles may work well. The latter systems work best on land that is sloped 2 to 5%, in order to facilitate drainage. If you plan to handle food scraps, you may be required to have an impermeable pad and to manage any stormwater runoff. Managing stormwater is an important consideration and should be given adequate attention as it will impact your space available for actual composting operations, and may become a significant line item in your construction or operations budget.



For resources on planning a zero waste event, see the Resources, page 120.



### SPOTLIGHT: Zero Waste!

Zero waste is both a philosophy and a goal to eliminate a cycle of gratuitous consumption and waste. Zero waste is a systematic approach towards conserving and recovering resources by designing and manufacturing products such that their components can be dismantled, repaired, or recycled, and one industry's discarded materials can become another's feedstock.

Many events or businesses are interested in "going green" specifically through waste reduction. Community composters are well situated to address this need through offering an event planning service or "resource recovery stations" (waste-sorting stations).

Your budget may ultimately dictate whether you can buy off-the-shelf technology or build your own custom-designed system from repurposed materials. Some systems can be constructed on site, from free materials such as lumber, wooden pallets, repurposed dumpsters, or plastic drums.

### Step 7: Learn state and local zoning, permitting, and regulatory requirements

Compliance with state and local regulations is important. Many of the goals of these regulations – preventing pollution, producing safe compost, mitigating nuisances and public health concerns – are critical to the success of the project and the community composting movement as a whole. Contact your local and state solid waste, agriculture, natural resource, and environmental protection agencies to find out what the laws are. They may be able to direct you to resources to support you in your project's goals and will let you know where you fit into the regulatory framework.

It is also important to get to know the regulators. They may tell you that you are exempt. However, they might want to visit your site on a regular basis. As long as they see that you are keeping your site clean, are controlling stormwater and other runoff, are managing your compost so as to kill pathogens (required number of turnings, meeting certain temperatures for a certain number of days, etc.), you are more likely to prevent any regulatory or neighbor issues.

Some states may have passed regulations with a tiered system of permits, depending on your size and the type of feedstocks you bring in. In those cases, you need to find out whether you need:

- a certain type of surface or pad to operate
- to file a stormwater plan
- to show proof of training
- to document your management of the process in terms of temperatures and number of turnings to satisfy PFRP (process to further reduce pathogens).

If you are working with a partner composter, make sure that they are in compliance and ask them if they would be willing to sign an MOU to that effect.

Even if you only do collections, there are still permits for hauling. Every pick-up truck or garbage truck will likely need a permit; bikes and bike trailers may need permits too. Check with your local solid waste agency.

## Step 8: Develop a financial plan

A lot of community composters will have no need for a financial plan. Typically projects that are handling more than a ¼ ton of food scraps per week start to require enough labor and material resources that a basic cost benefit analysis is strongly advisable (this also happens to be the scale at which composter permitting is required in Vermont). Whether starting up, ramping up, or strategizing how to finance on-going maintenance at these levels, you definitely want to have a clear sense of your finances to be sure that you don't work yourself into a hole. Committing the time to this process and this process to paper will provide a number of benefits not just in making your strategy exceptionally clear to yourself, but also to attract potential funders or partners. (Many community loan funds or banks will require a business plan if you are seeking financing.) You can use the financial plan as a point of comparison to the actual resource costs and values you are deriving from your efforts once in operation if you are the

documenting type. Recording your projects inputs and outputs not only helps you, but also helps others in the composting community if you are willing to share that information.

### CONSIDERATIONS AT THE MICRO SCALE

Micro-scale projects commonly seek to capitalize on shared interests, serendipitous arrangements, and sometimes in-kind donations of labor, time, materials and equipment. Nonetheless it is advantageous to the overall success of the project to assess its feasibility through a financial lens, even if money is not the ultimate factor in the project's implementation or long-term operation.

The following questions may be helpful in planning your resource requirements:

**Resource Requirements:** What resources do I have/need? Equipment, materials?

**Organizational Structure:** Who else is going to be involved in decision-making about this project? What will that look like practically speaking?

**Management:** How much time will it take to manage this project once it is up and running? Do I have that kind of time? Does the involvement required make sense in relation to my broader goals? Who else will be involved in the operation of this project, and how? Volunteers? Paid staff?

**Reward:** What will the rewards be? Do those rewards justify the time and expenses involved? Today and next year?

### Key factors to address before choosing a composting scenario:

- Project goals
- Scale or capacity needed
- Budget
- Regulatory compliance:
  - Solid waste and permitting regulations
  - Local zoning
  - Stormwater
  - Use on organic farms
- Compost system selection
- Neighbors and community support
- Conservation controls (e.g. pollution mitigation)

## BUSINESS PLANNING FOR SMALL TO LARGE COMPOSTERS

Draft a business plan for financial success if you are anything larger than a very small composting operation. This plan can be used as an operating guide and/or as the basis of a financing proposal for start-up and scaling-up. Basic elements of a business plan and some key considerations include:

**Vision:** What does your community composting project look like? What are your goals? Is this going to be your main income? Or does this provide diversified income, value-added, or cost savings for your main operation?

### **Management/Organizational Structure:**

Is this for-profit or not-for-profit? This determines what kind of ownership and decision making ability you will have. It determines what kind of organizational structure you will need to develop. It also dictates what kind of funding may be available to you. Who else will be involved in the operation of this project, and how? Volunteers? Staff?

**Marketing Plan:** Think about what kind of product you want to make, and match the types of feedstocks with this end-goal in mind. If selling compost, is there a market and what is the volume of that market? What kind of product am I going to make? What seasons are people buying compost in my area? How are they buying it? Do I want to

sell wholesale or retail? How will I advertise?

**Resource Requirements:** What resources do I have/need? Itemized budget for equipment, labor, and materials? How much does making compost cost me?

**Cash Flow Projection:** Do I have adequate resources to carry this through one year of production? How long is it going to sit on the pad before I can sell it? Do I have enough capital to buy feedstocks until I begin generating revenue? If my business were to grow, could I support the increased costs of labor and feedstocks in my activity?

**Projected Profit & Loss:** At what point do I break even?

**Funding Requirements:** How much funding do you need to raise?

A further note: timing is important! In the Northeast United States there are only two seasons to sell compost: spring and fall. The product needs to be ready to move at those times. For that reason, particularly with the compost business, it would be beneficial to map out this timeline of carrying costs, lest you don't have finished compost ready to sell in the spring. Start at the date you want to sell by, and work backwards.

Business planning may seem daunting to figure out; many find they benefit hugely from professional expertise in business planning. There are a number of places to look for help; these services may be offered at a low cost or even for free. Organizations like Small Business of Vermont will provide this service. Colleges and universities that have a business school often have a service offered by graduate students in business enterprise planning. Regional development corporations can help with planning as well as search for funds that may be available to you.



### SPOTLIGHT: Bike Hauling

In Massachusetts, you need a permit to use a bicycle for hauling. Municipalities may have their own rules. At present in New York City, it is illegal to use a bike for hauling without a license.



## Step 9: Organize your finances

This is where you take your overarching project goals and sketch out their financial reality.

Start planning the financial aspect of your composting project early on, even if you don't expect your project to involve a monetary exchange. Financial consideration in the start-up phase may involve a full business plan and identifying funding sources; it will likely impact how you develop your "product" and involve creating a marketing strategy. The level of financial detail you'll need to plan, will depend on your scale, the sorts of partners you bring on, and your funding. You will need to draft a budget. The following tables outline many of the typical costs associated with operating food scrap collection and composting operations.

## Step 10: Identify potential funding sources

Community composting projects meet their needs for start-up funds, materials and equipment, labor, and salaries in a number of ways. ILSR's fall 2013 survey found that the majority of community-based composters depend on grants and volunteer labor. Non-profits or community groups in particular use a variety of sources to start-up and maintain their programs. For example, at the outset of a compost program, existing staff of a nonprofit or public works department might be called into service to run the pilot project, or a grant might be obtained to cover the salary of a community organizer, materials, and equipment. Farms and other facilities might use trucks and

*(continued on page 92)*

**Table 5: Potential Funding Sources**

NONPROFITS	FOR-PROFIT ENTERPRISE
Grants	Grants are sometimes available for businesses, though usually directed at specific industries. You need to find out which funders support for-profit.
Municipalities, or the Solid Waste District. It may be possible to receive support for planning and organizing a compost project.	Municipalities, or the Solid Waste District. It may be possible to receive support for planning and organizing a compost project.
Private Investors, Donors	Low-cost Financing: Many nonprofits have a lending arm that offers low-interest financing. For example, Vermont Community Loan Fund or the Vermont Economic Development Authority.
Fundraising Events	A local Investment Council
Fundraising through crowdsourcing or Kickstarter campaigns.	Traditional banks and Credit Unions: will loan to you if you meet certain criteria.
Research or collaborations with a university	Research or collaborations with a university
Private money, credit cards	Fundraising through crowdsourcing, or Kickstarter campaigns.
Business sponsorships	Fundraising Events
In-kind donations of equipment, labor, and time	Awards and contests

**Table 6: Costs Estimations of Food Scrap Collection Materials**

MATERIAL	ESTIMATED	NOTES
5 gallon bucket & lid	\$5-9/ea.	*A note on all containers: it is a good idea to have 20% more totes on hand than clients, to manage damage, theft, collection expansion and unforeseen events.
32 gallon tote	\$57/ea.	This is a great size for smaller businesses and self-haulers to manage.
48 gallon tote	\$65/ea	
Stickers for labeling	\$0.50-\$1.25/ea.	Costs are greatly reduced by bulk orders. Using stickers can help you repurpose used containers.
Printing costs for laminated color poster	11"x17" \$4/ea.	
Large metal signage	\$25-50/ea.	
Printing costs for 1 page tri-fold color brochure	\$1/ea.	Printing costs are greatly reduced by ordering in bulk.
Printed t-shirt	\$10/ea.	
Garden cart	\$100	This is a good tool for moving 5-gallon collection buckets.
Tipping bar	\$250*	The price here is a rough estimate. A tipping bar is something that can easily be made by a local metal fabricator.
Compost Site Tipping Fees	\$25-\$55.00 /ton	Compost sites charge a fee to receive and process food scraps and sometimes yard waste. Tipping Fees vary significantly throughout the country.
Pressure washer, hot water pressure washer	\$250-1,250	The hot water pressure washer is the best if you can afford it.

**Table 7: Costs Estimates of Compost System Materials & Equipment**

MATERIAL	ESTIMATED PRICE RANGE	NOTES
Residential 3-Bin Systems	\$0-500	Free pallets make great composting bins. For demonstration bins, often aesthetics justify higher materials costs.
Residential Single Bins and Tumblers	\$0-\$500	Municipalities often sell discounted black plastic composters. The cheapest options are often wire cages. The largest capacity drum compost tumblers for residential applications are upwards of \$400.00.
Prefabricated In-Vessel Composters	\$15,000-\$100,000	A wide variety of options exist (see Resources for link to CalRecycle technologies vendors website). Do research and talk to other operators of the system before you purchase.
Back Yard Compost Thermometers	\$30.00	Typically 18". Respond slowly and will not last as long as commercial grade counterparts. Good for school applications where multiple are needed for students.
Commercial Quality Compost Probes w/ Handles	\$75-200	Typically 3', although longer custom ones can be specially ordered. Handles will add years to its life! Quick read thermometers are a good investment when time is limited. Purchasing in bulk can cut the cost in half.
New/Used Loaders	\$10,000-100,000	Huge price range depending on the size of the loader and whether it's new or used. If the equipment can serve multiple uses e.g. as a loader for turning piles as well as a tractor for field cultivation, costs will be spread across more of the operation.
Loader Operation	\$25-\$50/hour	It costs money in fuel, maintenance, and depreciation to operate a loader. For example, an 80 HP loader is accounted for at \$35.00 per hour to run.
Small Self-Made Compost Screener	\$0-200	Lots of simple designs and ideas on Google. Screening compost is not always necessary.
Commercial Compost Screener	\$15,000-\$100,000	Basic and used screeners can be found for under \$50,000. Conveyors make screening more efficient. Make sure your loader and screener are compatible.
Compost Feedstocks (Raw Materials)	\$0-15/cubic yard	Raw materials are free whenever possible and most composters get paid to accept & process food scraps. Certain materials may involve a hauling cost. High carbon materials such as bark and sawdust are the most expensive.
Feedstock & Compost Analysis	\$30-\$350	Basic analysis can be conducted by some universities for lower costs. US Compost Council Seal of Testing Assurance Lab tests start at around \$40.00. Find Testing Protocols on the Highfields for Composting Center website (Feedstock Sampling Protocol).
Hand Tools (shovels, rakes, forks)	\$15-\$50	
Wheelbarrows	\$50-\$150	For carrying heavy loads, double-wheeled wheelbarrows are more stable.

## SPOTLIGHT: Sample Budget

Tom Gilbert operates a farm in northern Vermont, which includes a small layer operation. Tom collects 3/4 ton of food scraps per week from the small rural towns of Stannard and Greensboro, to feed 50 laying hens. The hens are raised nearly exclusively on food scraps and pasture.

DESCRIPTION	UNITS	UNITS	\$/UNIT	TOTAL	FARM COST	PARTNER COST	NOTES
<b>Equipment &amp; Supplies</b>							
Totes	32-Gal Tote	14	\$55.00	\$770.00		\$770.00	
Instructional Signs	Signs	8	\$5.00	\$40.00		\$40.00	
Starter Kits	Kits	75	\$9.00	\$675.00		\$675.00	buckets, brochure, stickers, mag, yes/no sign
Res. Drop-Off Signs	Signs	4	\$50.00	\$200.00		\$200.00	
Long Handle Scrub Brush	Brush	1	\$10.00	\$10.00	\$10.00	\$0.00	
Truck	Truck	0	\$0.00	\$0.00	\$0.00	\$0.00	Not valued here, replacement included in mileage costs under Operations
Trailer	Trailer	1	\$1,250.00	\$1,250.00	\$1,250.00	\$0.00	Half of purchase allocated
Feeding Bin Materials	Bins	4	\$0.00	\$0.00	\$0.00	\$0.00	free materials
Feeding Bin Construction	Hrs	5	\$20.00	\$100.00	\$100.00	\$0.00	
<b>Outreach &amp; Promotion</b>							
Outreach Labor	Hrs	20	\$30.00	\$600.00	\$300.00	\$300.00	
Residential Post Card	Postcards	500	\$0.75	\$375.00	\$0.00	\$375.00	
Residential Post Card	Postage	500	\$0.33	\$165.00	\$0.00	\$165.00	
Posters	Posters	10	\$0.75	\$7.50	\$7.50	\$0.00	
Newspaper Ad	Ads	4	\$100.00	\$400.00	\$0.00	\$400.00	
<b>Education</b>							
Trainings	Hrs	30	\$50.00	\$1,500.00		\$1,500.00	
Sandwich Board	Sandwich Board	2	\$0.00	\$0.00	\$0.00	\$0.00	Scrap lumber used
<b>TOTAL START UP COSTS</b>				<b>\$6,092.50</b>	<b>\$1,667.50</b>	<b>\$4,425.00</b>	

	DESCRIPTION	UNITS	# OF UNITS	\$/UNIT	TOTAL	NOTES
<b>INCOME</b>	Collection Fees	Totes	520	\$5.00	\$2,600.00	10 32-gal totes/wk
	Eggs	Doz	1000	\$4.50	\$4,500.00	50 birds @260 eggs/hen/year
	Soup Birds	Pounds	50	\$3.00	\$150.00	cull 10 birds/yr; 5 lbs ea.
	Compost	Yards	5	\$50.00	\$250.00	mitigated input cost

**Income Subtotal \$7,500.00**

<b>EXPENSE</b>	Start-Up Cost	Fixed	1	\$238.21	\$238.21	Start-up costs amortized over 7 years
	Collection - Truck	Miles	1300	\$0.55	\$715.00	2 12-mile RT trips/wk
	Collection - labor	Hrs	78	\$20.00	\$1,560.00	2 45-min trips/wk
	Trainings & on-going edu	Hrs	6	\$20.00	\$120.00	3 trainings/yr & misc communications
	Tote Washing	Hrs	39	\$20.00	\$780.00	3/4 hr/wk
	Res Drop-Off Mgmt	Hrs	12	\$20.00	\$240.00	new participant emails, group updates, misc
	Wood Chip	Yrds	3	\$0.00	\$0.00	free
	Sawdust Collection	Hrs	6	\$20.00	\$120.00	time to collect sawdust from wood shop
	Sawdust Collection	Miles	120	\$0.55	\$66.00	mileage to collect sawdust from wood shop
	Wood Shavings	Bales	25	\$5.50	\$137.50	3.25 CF compressed, softwood; supplement free sawdust & woodchip
	Soap	Bottle	1	\$14.00	\$14.00	
	Compost-Making	Labor	8	\$20.00	\$160.00	
	Compost-Making	Tractor	6	\$35.00	\$210.00	USDA rate for 52 HP Kubota w/ loader
	Hay	Bales	25	\$2.50	\$62.50	mulch hay for compost
	Egg Cartons	Cartons	1000	\$0.00	\$0.00	collect used cartons during pick up and sales
	Chicken Slaughter	Hrs	5	\$20.00	\$100.00	10 birds
	Freezer Bags	bags	10	\$0.25	\$2.50	2 gal freezer bags
	Discounted Totes	Totes	312	\$5.00	\$1,560.00	Discounted pricing for schools and depot (6 totes/ wk)
	Billing	Hrs	6	\$20.00	\$120.00	monthly billing

**Expense Subtotal \$6,205.71**

**Total Net Income \$1,294.29**



## SPOTLIGHT: FUNDING

- » CERO LLC (Boston) raised \$17,000 through an Indiegogo Campaign. They are also trying to raise money through a direct public offering with Cutting Edge Capital.
- » Farmer Pirates raised over \$15,000 through a Kickstarter campaign.
- » Pedal People (a worker cooperative) only needed \$100 to get started, in order to register their “dba” with the state. They now fund their capital through Patronage Dividends or Retained Earnings, which is part of their financial structure.
- » Fertile Ground (also a worker cooperative), opened up its first bank account with \$225, by collecting \$75 from each of its worker-owners.
- » Kompost Kids won \$10,000 through the Tom’s of Maine “50 States of Good” Competition.
- » Roots Composting LLC won first place at a “start-up weekend” business plan competition. This entitled them to one year of “incubation services” through NACET (Northern AZ Center for Entrepreneurship and Technology). They were also awarded \$5,000 to use for start-up costs.

equipment they already had on hand. Volunteers might provide labor or sweat equity for various site tasks, workshops, and public education. Special funds through the State might help pay for the compost testing, required for labeling and sale.

For as many projects that derive income from grants, there are as many that don’t; and they may not derive any income at all. On the whole, this national community has learned to be very frugal and innovative. The largest amount of funding for many operations may come in the form of “in kind services.” If you are affiliated with a non-profit, school, university, community garden, etc., you may find you are able to avail yourself of free land, electricity, water, indoor storage, phone, internet, use of vehicles and other equipment (shovels, wheelbarrows, skid-steer loaders, and front-end loaders). If you can arrange this through

partnerships, you may find your need for funding to be very low. Community composting projects can generate income, although not all do. Profits predominantly come from collection fees and selling finished compost; though other revenue sources include selling soil amendments, worms, compost tea, compost bins, workshops or trainings, presentations, plant sales, crops, firewood (if you get more wood than you can chip and use), and accepting donations. Most composting projects are looking for start-up or working capital, and as they become successful, money is needed in order to scale up their operations. “Table 5: Potential Funding Sources” (page 87) lists a few avenues to explore.

## Step 11: Assess project feasibility

The product of Steps 1 through 10 once completed will be greater clarity around the feasibility of implementing your vision. Maybe the vision has changed slightly or shifted in light of realities made clear during your discovery process. Hopefully by asking the right questions, meeting with the right partners, and clarifying your goals and intentions with your community, an organic process unfolded that has led you to the natural next steps. Does that picture meet the needs and goals of your project?

At this juncture you have a choice: Go forward or abandon ship. You can adjust the goals and try to fit the pieces together in a different way if things still aren’t clear or it may be a good time to talk to other community composters or possibly a consultant. Doing a project on a pilot basis is never a bad way to start and is a way to answer unanswered questions, and make small mistakes in order to avoid large ones later on. Assuming you and your partners are ready to move forward, it is now time to draw a quick map of the process going forward based on all that you have discovered.

## Step 12: Define your project

Community composting projects with more than one party, where various partners are depending on each other for successful implementation would do well to draft agreements to communicate and document goals, expected outcomes, roles, funding that's changing hands, and timelines of who will do what when. Define the project by establishing formalized partnerships, in the form of memorandums of understanding (MOUs), scopes of work (SOWs), or contracts, as well as budgets and business plans if warranted. At this point it's helpful to have a concept for the composting method and scale that suits your goals and

financial plans (refer to Part 2: Composting Systems), as well as a general sense of a food scrap generator outreach and collection strategy.

A well-defined project has a clear budget, a clear scope for design of all elements of the composting infrastructure and food scrap capture program, as well as plans for development, and deployment of the project. At this stage, budgets and plans are still preliminary and can change as the scope becomes better defined. It is better to budget conservatively at this point.





Tom Gilbert operates a farm in northern Vermont which includes a small layer operation. Tom collects 3/4 ton of food scraps per week from the small rural towns of Stannard and Greensboro, to feed 50 laying hens. The hens are raised nearly exclusively on food scraps and pasture.