

Garbage to Gardens

Composting in the Truckee-Tahoe Region



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Abstract

Did you know that Californians throw away more than 5 million tons of food scraps each year? That’s 16% of everything going into the landfill. If we all composted that food waste instead of throwing it into the trash we’d ease the burden on our landfills, and we’d produce compost, a wonderful source of nutrition for soil restoration everywhere. While we’ve all heard about how modern living is taking a toll on the environment, many of us feel helpless to do anything meaningful about it. Solutions seem complex (fusion energy), expensive (hybrid cars) or out of reach (innovative home design). Composting is a simple, at-home effort that we can all do to lower our personal impact on the environment. With today’s many practical options, from open piles to enclosed bins to indoor vermicomposting, everyone can compost at home, even in our high altitude Truckee-Tahoe region. In the bigger vision, once community residents appreciate the benefits of composting, there will be greater support for and interest in a larger municipal effort to compost business food waste.

Contents

Introduction..... 3

Background..... 3

Hypotheses, Visions and Goals..... 3

Project Methodology..... 5

Decision Body Partnering..... 6

Project Purpose and Utility..... 6

Methodology..... 6

Limitations..... 8

Recommendations..... 8

Summary..... 9

Appendices: References and Case Study..... 10

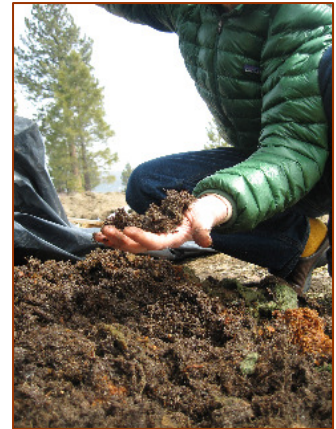
Introduction

With this document, we present a first-step solution to the challenge of informing the general public about *how* to compost at home and *why*. We present both how we derived our project focus and our larger vision of where this first step might lead. With this paper, we establish both a clear illustration of this hopeful beginning *and* a basic roadmap outline of a possible path forward for municipal, educational and/or nonprofit audiences.

Background

Compost is organic material that results from the natural decomposition of plant waste. You can use this earthy, dark, crumbly substance as a soil amendment or a medium to grow plants. Compost benefits soil and plants in many ways: it increases the amount of organic matter in the soil and improves its ability to hold moisture. It also helps control soil erosion, which is especially important in the Truckee-Tahoe Region. Equally important, compost provides an abundance of nutrients to plant life that grows from the soil, producing healthy, strong plant matter. Organic materials, including yard trimmings, food wastes, paper and wood, make up over two-thirds of all materials by weight that are generated in the municipal solid waste stream. The United States Environmental Protection Agency (EPA) has demonstrated support for many organic material projects in recent years through grant funding.

Composting is the way to recycle yard and kitchen waste, and is a critical step in reducing the volume of garbage needlessly sent to landfills for disposal. It's easy to learn how to compost. Once composted, this waste material can go back into the community's natural environment for gardening and landscaping.



Our region already has a local disposal company that has enough land to host a commercial composting facility. A municipal effort that utilizes the food waste from local restaurants would produce enough compost to fortify community gardening and landscaping efforts. Because such an effort requires support from community members, we need community education about composting. Residents need to know it is easy, safe and effective to compost in our high altitude mountain environment. Therefore, through this project we aimed to educate the public while working with the Town of Truckee and Placer County to stimulate interest in a larger municipal program.

Hypotheses, Vision and Goals

Our hypotheses began with a large vision of an integrated municipal composting program that turned local business food waste into compost that would be used in community garden and landscaping efforts, and potentially be available to local gardeners as well. Coupled with this was a community education effort that included outreach to residents and a program to educate area children in school about what composting is and how it helps their families, their community and the planet.

As we delved further into this effort, two separate but related pathways emerged, each with their own challenges and goals:

- the municipal composting effort, and
- the public education effort.

We worked further on these as separate elements of our project.

Municipal Program: While we were all very enthused about the potential benefit of this concept, as we examined the practicalities more closely, and considered earlier pilot projects, we recognized significant obstacles, including:

- the limited time of the Leadership Program
- the geographic area we needed to reach was significant
- the need for funding in this time of economic hardship.
- the feasibility of home vs. industrial/business waste collection.

Goal: We determined our most feasible and useful goal, given our limitations, was to examine like efforts in similar mountain environments and create a case study to present as background material in a future proposal and to give to local municipal entities for consideration in their recycling efforts.

Community Outreach and Education: As we considered different approaches to community outreach and education, we recognized obstacles included:

- assumptions on the part of the public that our high mountain altitude and weather prohibit home composting
- determining other public assumptions and concerns, to address them
- concerns about attracting wildlife
- volume of composting necessary for success in backyard composting
- diverse background and interests of community members
- language barriers for educational materials

In addition, we considered which community target audience we wanted to reach. We agreed that a local program or campaign that targeted elementary and/or middle school students would be very effective. When children are harnessed in a community project, they will bring their parents and other family members along, facilitating multi-generational education. In addition, when students learn about the wisdom of composting at a young age, it easily becomes part of their approach to life, a normal way of being. This is critical for the lasting beneficial impact of recycling as lifestyle improvement that brings humans into balance with their environment. However, given the time constraints of this project, we determined that creating such a program, while an exciting vision, was beyond what we could achieve.

Goal: To create an informational brochure about at-home composting to serve as an introduction to the concept, explaining basic principles and “how to” procedures, with pointers to an expanded explanation with additional references on the Town of Truckee website.

Project Methodology

Municipal Program: We conducted a modest case study of other communities, trying to learn from others' experiences and find a like-environment. We examined programs in California's Bay Area and several mountainous communities in other states. The food waste pilot program conducted in Jackson, Wyoming was a viable comparison due to like altitude and environmental concerns (please refer to our case study in the appendices for further information).

We recognized that the current structure of our local waste management system would make it difficult to implement a home food-waste collection system, largely due to the vast number of second home owners and vacation rentals throughout the area. However, an industrial food waste program would seem feasible, providing collection of food waste from restaurants, resorts, grocery stores, schools and other local businesses. The Town of Truckee has already successfully completed a feasibility study of such a composting program, with a brief pilot program that collected and weighed restaurant food waste. Community support will help move this progressive effort forward as the town examines various options.

The disadvantage of our approach was a lack of personal satisfaction because we could not create a greater positive impact on the community immediately, but this was more than outweighed by the advantages of establishing a reachable goal that will help build a foundation for a lasting successful effort.

Education: We determined that while a municipal effort is a laudable goal, there must be public support for it to work. To generate public support, there must be education. The public education effort will set the stage, generating interest and enthusiasm and stimulating forward motion on this topic. We narrowed our target vision for community outreach and education to the creation of a brochure for distribution to the Truckee-Tahoe region. We reached out to the Town of Truckee to pursue partnering with them in this. This brought an additional benefit of greater resources as well as the use of the Town of Truckee website to provide greater amounts of detailed information that are useful in a brochure.



Our approach is based on the popular adage, “if you give a man a fish, he eats for a day; teach him to fish and he eats for a lifetime.” We in particular focused our brochure efforts on methods appropriate for our region. For example, open pile composting, very popular in many areas, presents additional issues for our community due to our active wildlife population. We instead recommend using fully enclosed compost bins, which are less of an attractive nuisance for animals.

We wanted to foster a sense of personal interest with a “can do” approach, to encourage people to compost on a small scale at home. A major challenge was finding a conduit for information dissemination. The Town of Truckee thrilled us when they were willing to partner to produce this home composting brochure for distribution in our community.

There are few, if any, noticeable disadvantages of this approach for education and community outreach, with the possible philosophical issue of using paper. However, the long term benefits of community outreach and education will make this paper use a worthy investment.

Decision Body Partnering

The Town of Truckee has partnered with us to produce a home composting brochure for distribution in the Truckee-Tahoe region and a page on their website . Our experience working with Nichole Dorr and her graphic artist has been invaluable in deriving a focused, engaging piece for public education. Ms. Dorr has also expressed an interest in seeing this first effort continued moving forward if there is support available.

Other community entities were supportive of our efforts as well. The Bear League helped inform our process with regards to wildlife issues. The Slow Food and individuals in the community who are creating community garden projects, such as Project Mana, also expressed support and encouragement for our effort.

Project Purpose and Utility

Our project’s primary purpose is to educate our fellow community members about home composting and encourage them to change their way of handling at-home food and yard waste, to lessen the amount of materials sent to the landfill. Our secondary purpose is to document the Jackson, Wyoming case study, to provide our community with information to encourage the establishment of a municipal food waste composting program.



The educational brochure:

- provides basic information and how-to steps for home composting in our region
- sets an example for public education materials
- provides a foundation for a school education program on food waste management
- provides information about composting options to suit the various needs of residents
- provides references for further information

Our municipal composting case study:

- Introduces the concept for public consideration
- Provides an example of a successful effort in a community with similar environmental constraints

Methodology

The key methods we used to complete this project include:

Community Outreach and Education:

- Research about
 - wildlife interface (including consultation with the Bear League)
 - microclimates and diverse communities here, and determining single best approach to reach the maximum number of residents: this is where the decision to create a brochure was made.
 - pros and cons of different containers and methods
- Defining brochure content in the journalistic context of Who, What, Why, When, Where and How
- Defining website content based on brochure content with expanded references and details
- Conducting informal community surveys on public interest in and knowledge about composting at the Earth Day festival in Squaw Valley: we found that there was surprisingly strong interest in *vermicomposting* (composting with worms)

Earth Day Surveys

Compost group member Ana Liz Servin monitored a booth at the 2009 Squaw Valley Earth Day festival to spread the awareness that composting can be done in the Tahoe—Truckee area, demonstrate which methods would work best and seek feedback about residents' current knowledge about and level of interest in composting at home.

The booth's message –“You can compost in the Tahoe/Truckee area...find out how here.” – was strong and straightforward, and really caught passersby's attention.

The booth featured a display board noting various facts about different types of composting. Ana Liz also demonstrated vermicomposting using her own worm-bin system. Through brief surveys and informal conversation, Ana Liz was able to gather visitor information.



Survey Results:

- 95% of the people were interested in composting at home
- 5% would consider composting if given more information
- 80% had only heard about composting or knew little about it
- 20% had composted in the past or were currently composting

Many people had tried composting previously in another community, but found it challenging in the Tahoe-Truckee area, especially when it comes to keeping animals from getting to it. The prevailing methods these people had tried in North Tahoe were outdoor piles or prefabricated composting bins that were not animal-proof.

Once Ana Liz explained that there were ways to compost successfully in this area, people wanted to get started right away!

The majority of Earth Day booth visitors preferred an internet link composting information, rather than a print brochure. Most people were interested in an indoor composting solution – vermicomposting – rather than outdoor methods.

- Conducting informal community surveys on public interest in and knowledge about composting in the Hispanic community in Kings Beach via the Family Resource Center there: we found the prevailing lifestyle was not conducive to composting. We determined not to spend the money on a Spanish translation brochure at this time.
- Communication and collaboration with the Town of Truckee

Municipal Food Waste:

- Determined our local environmental parameters
- Searched for relevant projects in similar areas
- Inquired about project, spoke with project leaders in other communities
- Determined the Jackson, Wyoming project was the best comparable for our region, focused on that project's methods and successes
- Compiled Jackson, Wyoming project information and created case study

Limitations:

With a project of this potential magnitude, there are many limitations for a leadership program focus group. Among these were:

- Time: the need to prioritize may have eliminated consideration of worthy examples
- Funding
- Information dissemination: reaching the consumer both physically and educationally
- Getting more, deeper feedback: Earth Day was our main conduit for information; had there been Farmers' Markets going on, or going to other community forums, we could have surveyed a larger audience.
- Access to the public via appropriate forum to solicit information

Recommendations:

We had several recommendations for taking this endeavor to the next level, including:

- Print and distribute brochure;
- Establish a dedicated composting area on the Town of Truckee website and encourage other community websites to link to that page, or create similar pages on their own websites;
- Establish an elementary school program that has both an educational component and a service component: involve children with their families by having the children lead the household effort and give them recognition for success;
- Pilot food waste program: this may be more feasible as an industrial/commercial program in this area due to the mechanism of food waste collection;
- Establish and/or expand school/community gardens and ensure they are recipients of compost;
- Outreach at Farmers' Markets and nurseries;
- Spanish translation of the informational brochure;
- Newspaper article outreach: *Moonshine Ink*, *Sierra Sun*;

- Reach out to and involve like-minded community groups (e.g., Slow Food) actively in this effort to reach their stakeholders.

Summary:

The Truckee Tahoe region is at a perfect crossroads for embarking on a serious composting campaign for both residents and businesses. The region will soon have the first tool—an educational brochure—to initiate this campaign. The benefit to the environment is indisputable: lessening the volume of materials deposited in landfills, improving soil in both gardens and landscaping, improving soil erosion in our region and bringing residents closer to the earth through a simple, at-home effort that reminds us all of our basic interconnectedness with all earthly life. A Truckee-Tahoe region where residents routinely compost yard and kitchen waste, and local businesses’ food waste is composted, is our suggested vision.

Upon close examination, we determined our best effort toward realizing this vision is through basic public education to heighten awareness of how simple and how important it is to compost, and a case study of another high altitude mountain community’s successful pilot project. We are pleased to present the results of our efforts: the production of our public brochure by the Town of Truckee, which will be distributed this spring and summer, the addition of a composting information web page on the Town of Truckee’s website, and a case study of the commendable efforts of Jackson, Wyoming.

We sincerely hope to help leverage these efforts into an ongoing program to encourage and assist our community in pursuit of composting our local food waste: nature’s own recycling method. After all, there is no such thing as “away” when you throw something “away.”



Appendix 1: References

Town of Truckee
Solid Waste & Recycling Division
530.582.2909
www.KeepTruckeeGreen.org

The Bear League
530.525.7297
www.savebears.org

Slow Food Lake Tahoe
www.slowfoodlaketahoe.org

California Integrated Waste Management Board
916.341.6000
www.ciwmb.ca.gov

Full Circle Compost
775.267.5305
www.fullcirclecompost.com

High Country Conservation Center (Frisco, CO)
970.668.5703
www.highcountryconservation.org

How to Compost. Org
www.howtocompost.org

Community Composting in Hood River County
www.community_gorge.net/compost/defaultshow.html

Resource Conservation: Composting
www.bouldercounty.org/recycling/compost/comphone.htm

Compost and Green Waste Recycling Program (San Francisco)
www.sfrecycling.com/residential/composting.php?t=r

GreenCycle Program (Santa Cruz)
www.ci.santa-cruz.ca.us/pw/homecomposting.html

City of Toronto: Solid Waste Management – Composting
www.toronto.ca/compost/index.htm

Sitka Tribe of Alaska, Resource Protection Department
www.sitkatribes.org/environment/compost_project.html



Powell, Jerry: “No pain, no gain: one community’s composting success”
Resource Recycling, January 1992

Wilson, Alex: “Growing Food Locally: Integrating Agriculture Into the Built Environment”
Environmental Building News: Volume 18, Number 2; February, 2009

Vermicomposting Resources:

Reln Plastics
P.O. Box 5182
Minto BC
N.S.W. 2566
Australia
Phone +61 2 9605 9999
www.can-o-worms.com

New York City Compost Project: Build your own worm bin
<http://www.nyccompost.org/resources/worms.html>

Peaceful Valley Farm and Garden Supply: worm suppliers
(530) 272-4769
www.groworganic.com

Keep Bears Alive & Wild! Brochure, Town of Truckee, CA



Appendix 2: Case Study: Jackson, WY

Introduction

Jackson is a community at the base of the Grand Teton mountain range in western Wyoming near the Idaho border. It sits at the southern end of a valley referred to as Jackson Hole. Jackson Hole was originally inhabited by Native American tribes but later became a popular outpost for fur trappers.



Today, the town consists of 8,647 residents and is located in greater Teton County which is home to 18,251 residents.ⁱ During the peak tourist seasons, the population may swell by as many as 52,000.ⁱⁱ The town is situated just south of world famous ski area, Jackson Hole Mountain Resort, and enjoys a healthy snowpack for most of the winter. The average annual snowfall in the valley is 150”ⁱⁱⁱ, however the town of Jackson can also see up to 215 days of sun per year.^{iv} Like many resort communities, Jackson has high home and land values. As of July 1, 2007 the median sale price for a home in Jackson was \$1.175 million.^v The area also supports a large part-time and tourist population. The local ski resorts help to sustain many hotels and lodges as well as over 250 licensed eating establishments. As you can imagine, all those hungry skiers can produce a significant amount of food waste for this relatively small mountain community.

History of Waste Management

Until the late 1990’s, Jackson went the route of many mountain communities and utilized a canyon “just out of town” for their landfill. This facility was closed in 1998, however, and the county built a transfer station to haul approximately 30,000 tons/year of solid waste to a landfill in Sublette County, about 90 miles south of Jackson.^{vi} In the late 1980’s, concerned residents pressed the Town and the County to establish Jackson Community Recycling. It started with just a small shed and an all volunteer staff, but quickly outgrew its facilities. In 1995 the Materials Recycling Facility opened in Adams Canyon, situated down the road from the transfer station. Jackson Community Recycling operates a private curbside collection for recyclable materials as well as household hazardous waste and electronic waste collection services. Through the establishment of these programs alone, the county’s landfill diversion rate reached 25%.^{vii} By the early 2000’s the community was becoming concerned with the local air and water quality. An excessive amount of horse manure was beginning to leach into the water table and yard and lumber waste was being burned at the transfer station. Public concern brought an end to the burning of wood waste, and the material was ground and shipped to Sublette County for disposal. Before long, the Teton Conservation District began to realize that the wood chips might be better used as a compost product. Following a public solicitation in 2004, the County chose Terra Firma Organics to operate its yard waste composting program, utilizing the closed landfill as the composting site. Terra Firma processed 4,818 tons in fiscal year 2006 and 8,613 tons in fiscal year 2007 and drove the diversion rate up to 32%.^{viii} The state of Wyoming recently mandated that all counties participate in the development of an integrated solid waste plan. This was a significant step by the State that has created the opportunity to examine the real costs of recycling, composting, and land filling. Due to the success of the yard waste composting program as well as the State’s interest in developing integrated waste management, more public interest was generated in composting food waste locally.

The Pilot Program

The town initiated a 12 month pilot food waste program in December of 2007 and began collection services in February of 2008. Terra Firma Organics was given the responsibility of collecting and processing the food waste from seven area businesses including The Four Seasons Resort, a grocery store, a private school, and four participating local restaurants. The program received a \$33,000 grant from the non-profit organization “1% for the Tetons” in addition to a \$20,000 grant from the Teton Conservation District and \$17,500 worth of in-kind work from Terra Firma Organics.^{ix} The \$71,000 dollar budget would cover labor costs for the program as well as the purchase of food waste containers, installation of a lift gate on the pickup truck, consulting services for the design of the collection program, implementing procedures for the integration of food waste into the composting site, and tracking the program’s cost. From February 2008 through January 2009, Terra Firma employees collected all food and non-recyclable paper waste from the participating clients and hauled it to the composting site several times per day. In all, the program diverted 92.5 tons from the landfill.^x At each pickup the employees would inspect the containers and consult with their clients which enabled them to reduce the amount of contaminants at the composting site. Contaminants, however, did pose one of the largest difficulties for the Pilot Program, and Terra Firma Organics owner, Dane Buk, foresees even greater difficulties if the program were to be expanded to a wider customer base. He suggests that a sophisticated sorting system such as the one used by Cedar Rapids, MI may be a necessary addition to their operation if the program was enlarged.^{xi} Space requirements could also pose a significant obstacle. Dane Buk estimates that about 1 acre per 1,000 tons of compost would be required with each food service client producing roughly ½ ton per week of food waste. In addition, specialized collection trucks would have to be purchased in order to make large scale collection feasible. While wildlife was a concern before the program started, Buk claims that as long as the pile is large enough and the correct wood chip is used, critters do not seem to be interested in it. He says that keeping the pile covered when it is not being worked also helps with deterrence.

Conclusion

In conclusion, the community of Jackson, Wyoming was able to successfully implement a pilot food waste composting program that diverted nearly 100 tons of solid waste out of the waste stream in less than twelve months. They proved that composting food waste in a mountain community that receives a significant snowpack is a feasible goal. While the composting program did produce a marketable product, Dane Buk warns against depending on the product to cover costs for the program. “You have to make it cheaper than trash”, he says, in order to make it feasible. There are many obstacles to be overcome in order to implement a county wide program; however this project has shown that with interest and dedication from the community, food waste composting can become a reality.

ⁱ <http://www.townofjackson.com/content/index.cfm?fuseaction=showContent&contentID=32&navID=32>

ⁱⁱ http://www.jacksonholechamber.com/jackson_hole/

ⁱⁱⁱ http://www.jacksonholewy.net/nature_wildlife/jh_climate.php

^{iv} <http://www.greatschools.net/city/Jackson/WY>

^v <http://www.townofjackson.com/content/index.cfm?fuseaction=showContent&contentID=95&navID=96>

^{vi} http://www.jgpress.com/archives/_free/001580.html

^{vii} “ “

^{viii} “ “

^{ix} “ “

^x <http://www.planetjh.com/environment/Article.aspx>

^{xi} 4/22/2009 telephone interview w/ Dane Buk