

SUSTAINABLE AGRICULTURE &
FOOD SYSTEMS FUNDERS



Closing the Loop: Compost for Fun, Farms, and Finance!

Moderator:

Ruth Goldman, *consulting program officer, Merck Family Fund, MA*

Speakers:

Louise Bruce, *project manager, BIG!Compost NY*

Tom Gilbert, *executive director, Highfields Composting, VT*

Scott Subler, *president, Environmental Credit Corp., trustee, Composting Council Research and Education Foundation, PA*

The role of composting in regenerative food systems

- Food & yard waste make up 26% of waste; 34% of manmade methane happens from landfill deposits
- NRDC report— we spend \$750 million on disposal of organic waste, uneaten food
- How can philanthropy become more engaged in composting?
 - o Focus on urgency, why it's important, where we're at (focus on east coast), challenges, role of philanthropy

Scott Subler

- Regenerative food systems—how do we ensure the capacity of the system to replenish itself over time?
- Erosion=taking something that's an asset and losing it from the system to the point it becomes a liability in another system
 - o All of our communities are faced with the loss of assets (wealth, sovereignty)
 - o We have created a linear food system, and discharge emissions. We don't tie outputs back as inputs so pollution results
 - o Lake Champlain is dying—phosphorus-rich tributaries; issue of healthy soil practices. We're burying assets—prediction of mining landfills for petroleum products
- Vermont as an example
 - o Throw away 130-160,000 tons/year of food. Capturing this would be enough to compost organically 50-100% of the vegetable requirements to feed the state.
 - o We will never run out of nitrogen—fix it from the environment—but we mine phosphorus (40-50 years left)

- We are surrounded by models of how ecosystems function effectively without external inputs—reunite outputs back as inputs
 - o Broken system relies on chemical inputs and results in pollution; a regenerative system won't
- There are lots of models of human systems with this level of integration
 - o Shanghai 100 years ago—human manure brought to farms, produce brought down; canal systems developed for this purpose
 - o Valuable uses—feed chickens safely with food scraps, etc.
 - o Have to have human manure, fruit, scraps for replenishment—and we have the assets to do that work
- *Clarifying question*
 - o Highfields doesn't use human manure at the facility, although many use/process human manure at home

Louise Bruce

- Community scale composting network; work with 800 community volunteers/year
- Northstar Fund works as a funder; BIG!NYC was founded in 2009 as a completely volunteer-driven organization. Northstar Fund took a risk in funding, and has increased funding over time. Funding caught the attention of the Department of Sanitation—and they're now a gov't program
- Manage a network of 15 dropoff sites—farmers markets, CSAs, schools, libraries, etc.
 - o Commuter composting started this year—seeks to make composting easier. People bring composting materials to the subways—popup sites at entries
 - o Public events—96% diversion at a 2000 volunteer event recently
 - o Opened 7 or 8 winter dropoff sites this past year
 - o Spike in compost collection in November 2012—some of it is the holidays, some after Sandy, lots more volunteers then
- Volunteers want to ensure composting—but also local composting
- Utilize a system that forces air up into the pile—use less turning
 - o Prior to this they were doing the system entirely by hand
 - o What does mechanization mean for the community engagement piece? Thinking about other ways to bring in volunteers
- Material goes back to urban farms, individual gardeners, etc.
- Ian from plenary this morning—compost lost during Sandy

Scott Subler

- Cedar Grove—Maple Valley (Seattle)
- Large scale composting site—160,000 tons per year (compared to about 100 tons at BIG!NYC)
- Lots of landscaping, green material—and food scraps from residential collection program
- Costs about \$20 mil to establish
- Seattle has another facility north of town in Everett that processes 164k tons per year—run on a gore system; also another \$20 mil investment
 - o Both have been processing for 7+ years
- Los Angeles—Inland Empire Regional Composting Authority—\$85 mil capital cost; entirely indoor facility

- NRDC report estimates—about 40% of food system wasted, so 60% consumed—but it goes through humans (humanure would reduce biosolid waste)
 - o Lots of medium/large facilities do biosolids; most do landscape/green scrapes, until recently only few did food scraps
- Wilmington Organics Recycling Center was the first regionally to process food scraps
 - o Green material equilibrates process (pH, nitrogen, etc.)
- *Question: are these businesses? How are they operated/overseen?*
 - o LA Inland composting is city-run; the others are often run and operated by commercial businesses
 - o Common for cities to manage green waste disposal, not so much biowaste
 - o Private companies often have contracts/guarantees with municipal government – but these can't happen without close partnerships with communities (this can be a challenge)
 - Need city/regional partnerships/support
- Supermarkets, major cities, lots of commercial sources purchase/partner
 - o Walmart set standard for zero waste—set internal standard that it might be more cost-effective to treat not as waste disposal but waste management
- Receiving
 - o Requires filters/exhaust to deal with smell; mix with bulking agents; goes out to composting 'windrows'—air goes up and out but moisture can't get out (captures much of the emissions)—can take 60-90 days for material to turn into compost
- Complex, biological process—requires monitoring, management, intuitive attention paid to biological processes
 - o Low technology methods to deal with pests—a dog takes care of seagulls at one site
- A quality standard must be met
 - o Certification program—but how to interpret is up to the buyer
- Compost use=kind of fill-in-the-blank
 - o Agriculture is critical given the volume being used—but at a larger scale it's harder to make connections with agriculture
- Challenges
 - o Permitting—challenge regardless of facility size
 - o Finance
 - o Development costs
 - o Markets

Tom Gilbert

- Cornell study produced last year—nationally we're exhausting soil at 14 times its replacement rate
 - o Compost won't be *THE* solution but it might be *A* solution
- Highfields Center for Composting
 - o Non-profit started by dairy farmers in northern VT
 - o Food scraps are a big piece of their work
 - o 2 primary programs
 - Close the Loop—build statewide infrastructure to compost all of VT's food scraps by 2017

- Building an applied research facility
 - Own and operate facility, also provide services throughout the region
- VT has a small land base, lots of agriculture
- Provide services from kitchen to compost site
- Collection sites at institutions and businesses
 - Exciting social change opportunity to prevent contamination through training
 - Can't be accepted to the composting program without going through a 45 minute training program—mandatory for all staff and students/staff to prevent contamination and ensure that participants understand the system in which they operate
 - Requires a paradigm shift—education is important to that
- Scale differs—everything from carts/wagons to schools to a type of dump truck adapted to haul food scraps (from \$50 to \$250k)
- Composting is a scalable system overall
- Agricultural region—so it makes sense to integrate facilities into existing agricultural sites that have equipment already
 - Integration=community support
 - Partners use and supply compost
- Need to provide technical support—can't just tell someone how to compost and set them loose
 - Permits, training, \$ often required to set up even on-farm composting systems in a progressive state like VT
- 4.5 acre compost research and education facility
- Different biological production methods produce different systems—doing field trials and getting significant differences (due to humic acids and nitrogen delivery)
- Compost emits heat (had a chef produce a meal in a heap)
- Education—100s of students visit each year
- Need a shift from a government initiative to a popular initiative—paradigm shift

Questions and Discussion

- How does BIG!NYC fit into NY's new composting initiative?
 - Part of NYC compost project—a 20-year initiative to bring composting to the city (investing in training, volunteer-led initiatives, etc.)—Department of Sanitation sees public support and started a program to ensure more composting initiatives are available and local composting occurs
 - This is separate
 - Don't know if it'll overlap in area—hearing that it'll be coming to all five boroughs but not sure; city is looking more at single family neighborhoods than at dense urban areas
- How to deal with toxics/antibiotics in materials?
 - Multi-faceted
 - Systemic herbicides—some sprayed on vegetables end up in the vegetable, fed to animals, ends up in the manure—and manure ends up on the farm or in a composting site where it wasn't intended
 - Herbicides stay throughout the composting process—it's a huge challenge

- EPA can't screen/test for these; only one lab at DOW knows how (but maybe is willing to help develop methodologies to measure)
 - Huge issue—not an overstatement to say it's a threat to all of us
 - Nature Conservancy is a huge consumer of these products—they don't affect mammalian health so they can spray them on invasive species and not affect frogs. On the food aspect side these are devastating; but in the interest of species management they're great
- In VT no single agency is supporting Highfields/composting
 - 24k chemicals are in special review—Lisa Jackson at EPA had no answer to how to manage/track
- Persistent herbicides are star products in many contexts—but the users often don't talk to those involved in composting (which is a much smaller industry—so even getting EPA to have a conversation is tough in and of itself)
 - Notion of where food system's byproducts go needs to be a conversation of itself
- Ocean is an open system—but sewers are too
 - With proper processes issues might not be there
 - Human pathogens are monitored—but chemicals are much more vague
- How to evaluate work? (the increase in amount of compost isn't the same as the amount of food scraps diverted)
 - BIG!NYC has to submit a report monthly to the city
 - How many people talking to, how much diverting, what they're talking to people about, etc.
 - 650k tons of food waste coming from NYC homes every year; their role is in creating an identity for composting and recycling. They track participation—people are interested in seeing how composting works and is changing
 - Highfields relies on the state for a larger metadata set. Increases in food scraps going to compost means more food scraps are being composted (indicated by VT data)
 - In the early 1990's to 2000's recycling percent went down in VT—but it was because people were wasting more and *not* because they were recycling less
- What is the opportunity for compost to serve as an economic development tool/agent?
 - Figuring it out now-NY department of sanitation has created a lot of jobs recently
 - Summer youth employment/training—teach composting skills and job training skills
 - How to work with workforce development programs to create commercial driving/hauling program
 - It's a growing initiative but still small
 - Larger Wilmington facility employs 15 people—but there's also additional training and hauling
 - It'll take a lot of people to shift from just waste disposal to management-so likely a decent way to create jobs
 - Big model isn't necessarily the best model—but often easier to contract with cities
 - VT—around 100 jobs added to implement distributed production
 - Recent study: composting and recycling combined adds 4 or 5 jobs to the economy compared to landfill use

- Suggestion that NYC could implement window-boxes — grow herbs and food on your windowsill
 - None of these models address home-composting well—and that’s important
 - Home composting would be most effective (cost/etc.)-but more difficult?
 - Can do great things with small-scale vermiculture
 - Highfields would love to have ¼ of VT population composting at home—that’s part of their infrastructure plan
 - Distributed model—transportation costs are most expensive
 - The more decentralized you are the more likely you are to go back to functional use
 - A lot has to do with education
- Nutrient transport has to do with food miles also—vegetables from central valley feed Vermont during the winter
- How do we get large-scale facilities to sequester carbon/return soil to the land/to farmers? In large-scale systems compost is bagged and put on lawns—how much gets turned into food?
 - Majority does get returned to the land—but we’re not dumping it in the ocean; it doesn’t necessarily get put on land that’s producing food but most does make it back to the land
 - Hard to produce a price-competitive product—many farmers who use compost produce it themselves; other farmers might not be interested in using it—problem of mismatching
 - Needs more local use, work with farmers, demonstration work—not just telling farmers there’s compost here, come get some
- Policy issues—VT policy movement recently? What kinds of policies at the state level would move this forward?
 - In VT: 2 chunks of major policy in last 4-5 years
 - Permitting of compost sites (5 permits is still a gain). VT just passed Universal Recycling Bill—in theory by 2020 waste will be reduced. Organics piece with legislation that bans organic materials to the landfill
 - Challenge of hauling & challenge of markets
 - Legislation creates a captive market—important for something that currently has low value
 - VT emphasizes language that whoever produces material has to deal with it and get it out of the landfill—created a market for haulers (now let’s give them training)
 - Problem: chose not to get funding for this because it’d be hard to get it through—now need to get funding
 - In VT no huge tax base—need to bring together public & private \$ to address
 - VT is way ahead in many things though
 - Several New England states have moved towards diversion models
 - Who’s going to pay for this?
 - How quickly can the infrastructure develop?
 - Mandates will drive the development of new infrastructure—but this assumption isn’t always accurate

- Industry would rather pay a hauler—but state mandates say you can't take it anywhere, market environment isn't ideal, infrastructure isn't really there, individual supermarkets don't always decide contracts on a local level – creates a lag between requiring action and the ability to respond
 - Who gets hurt the most when changing the price of food? Enters into an environmental justice concern
 - CA looking at an incentive program
 - Currently the biggest composting state—but wants to double capacity by 2020 (driven by cap and trade offsets structure)
 - 75% diversion mandate already
 - Combine initial incentives with later mandate system—and have the \$ to back it up from climate fund
 - Need to address how mandates affect local communities—more in support of local community diversion because those come along with a plan, private-public partnerships. State-level bans put the responsibility on local communities because they generate waste
 - What is the driving factor?
 - In Canada state owns the waste management—they produce a highly contaminated product that has low value and have to grind it three times to hide the plastic
 - Need to clarify the intent of what you're trying to do—otherwise you've lost the totality of the picture
 - Need to build social agreements around the value of these systems, maintain cohesive values to develop effective programs
 - VT has imposed a hierarchy of best use
 - Composting is to get edible food to families that can eat it, then to animals, make energy out of it, ensure that energy goes back to the soil
 - Food rescue can reduce total volume
 - EPA food waste hierarchy for residuals management==feeding people more important than making compost
- Didn't discuss the role of philanthropic \$—but out of time