UBC Social Ecological Economic Development Studies (SEEDS) Student Report

Composting at UBC: An Agriculture Practice that Benefits the Whole Community

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Abstract

The major problem identified by our group was that even though UBC had an existing composting system, 70% of its waste stream is still made up of compostable materials. The goal of our group was to elaborate on the current composting schemes to improve the sustainability of the UBC food system. The opinion of the group is composting at UBC should be community-based to be successful. The development of an improved composting scheme on campus takes two sources of organic waste into consideration: waste materials from cooking scraps produced in residences, and the organic waste collected at cafeterias, restaurants, and other food outlets. In order for composting to encourage people to act in a socially and environmentally responsible manner to increase the sustainability of UBC's food system, it must be convenient. Recommendations are provided to ensure it is practical.

Introduction

Currently in the UBC food system the majority of the food scraps are thrown in the garbage and taken to the dump. Composting is a more effective and economic way of disposing of food waste because it increases the sustainability of food systems through nutrient recycling and waste reduction. After researching, working with the UBC sustainability office, and attending composting workshops on campus, we found that a foundation of composting already exists at UBC. The major problem identified by our group was that even though this composting system existed, 70% of UBC's waste stream is made up of compostable materials (1). The goal of our group was to elaborate on the current composting schemes, with the aim of expanding campus-wide at a reasonable cost and pace, and without causing too many inconveniences that would otherwise deter students and UBC food services' staff from participating. This participation will be encouraged by creating incentives for the individual, such as organizing inter-residential competitions for the students and awareness workshops on the benefits of compost for enhancing the fertility and beauty of one's own private garden. By implementing some of the principles of sustainability discussed in Agricultural Sciences 450 (2), this paper presents composting schemes intended improve to sustainability of the UBC food system. [redacted]

Value Assumptions of the Group

Our group's opinion is that composting at UBC should be community-based. We feel strongly that in order for composting to be successful it needs to be something the UBC community as a whole is willing to support and participate in. On the other hand we realise that

the UBC community is somewhat fragmented making it challenging to initiate a campus-wide community-based composting program. Instead, we chose to focus on increasing composting participation in areas of campus where it already exists and introducing composting to other areas of campus experiencing food waste. [redacted]

At this point in our discussions, different positions arose on the best approach for introducing composting in areas without it. Some members felt encouraging the sub-community as a whole, through education about the role composting plays in increasing UBC's sustainability, is the best approach. Other members felt encouraging the individuals within the sub-community, through incentives and rewards, is the best approach. The members in the latter group indicated that once enough individuals within the sub-community started composting a paradigm shift would occur and the individuals would continue to compost to be a part of the community. Our recommendations reflect both of these approaches.

Finally, our group agreed that the most important aspect of food security is the ability to be self-sufficient. [redacted] Composting takes away the need for outside sources of fertilizers by using the compost on community gardens and the UBC farm to increase the nutrient density of the soil. This reduced reliance on importing fertilizers into the UBC community is one way of increasing the self-sufficiency of the food system. At the same time, incorporating compost into the food system allows it to be more sustainable. [redacted]

Sustainability of Composting at UBC

A fundamental requirement of sustainability is ensuring that a system remains closed, whereby the outputs are continually cycled back into the system, minimizing the reliance on exogenous inputs. Unfortunately, UBC's current food system fails to meet this requirement. Inputs flow in predominantly as processed foods and the resulting post-consumer waste is shipped off to landfills or incinerators. The rate of decomposition is slow in oxygen-poor conditions and wet organic materials do not combust efficiently, rendering both these methods of waste management economically and environmentally unsound [redacted]

Composting can be an effective and economic alternative to waste disposal. Raw material waste form meal preparation and the cooking scraps from student residences can be collected, composted and finally applied to campus gardens and used at UBC farm. Since compost improves soil structure and its water-retention capabilities, topsoil stability and the overall fertility of the soil are enhanced without having to use harmful agrochemicals. The distribution of compost and the composting facilities at UBC farm would further the farm's mission as an educational asset, where students would gain hands-on experience with the process and be directly involved in the research and development of efficient composting programs.

In order to encourage those of us concerned to act in a socially and environmentally responsible manner, the composting schemes must be practical. In time these schemes will influence a paradigm shift throughout the entire university community as the individual and the community as a whole realise that waste minimization is essential to our present and future wellbeing and that composting is advancement towards living more in accordance with the environment which ultimately determines our standard of living. Consequently, an advance towards a more sustainable food system is projected, where certain inputs are recycled within the system through voluntary community involvement in organic waste management. It is hoped that

once an effective program is established at UBC, the initiative will ripple out into the Point Grey community and beyond.

History of the composting

Currently, three AMS food outlets (Pendulum, PieR^2 and Bernoulli's Bagels) have been using backyard compost bins that compost 18.9 L of kitchen waste per day. These bins are conveniently hidden in the bushes between the Student Union Building and the UBC Aquatic Centre where they are easily accessed. St. John's and Green College both use vermi-composting to compost all of their kitchen wastes. Green College uses its compost on its community gardens. Previously UBC also had an agreement with Browning-Ferris Industries (BFI) to pick up and compost organic waste from the residences. Unfortunately, BFI chose not to continue with the agreement. By the year 2004, the sustainability office at UBC plans to develop a large-scale in-vessel compost unit capable of composting cooked foods, meats and other items that are not suitable for bin composting. The approximate cost of $750,000.00 is significant [redacted] and necessitates the assurance that UBC food services and the university community realize the benefits of composting and make full use of the facility [redacted]

Composting Scheme for UBC

The expansion of the composting scheme on campus must take two sources of organic waste into consideration: waste materials from kitchen scraps produced in residences, and the organic waste collected at cafeterias, restaurants, and other food outlets. A separate composting program is required to deal with each of these.

Residential Organic Waste Management Program

Presently, there is only one area of UBC Housing that has a large-scale organised composting program. At Acadia Residences, there are 10 compost units located next to a

community garden. This location allows the residents to compost food scraps as well as garden scraps. The composted nutrients can then be returned to the garden soil. This is the ideal situation because it brings the community together and also provides a source of food for this lower income area of UBC. [redacted]

The residential areas of UBC that have been identified as potential composting sites are Gage Towers, Thunderbird, Ritsumeikan and Fairview Crescent. We chose these areas because they are densely populated with students who cook many of their own meals. All of these residential areas are part of UBC Housing, and already participate in the recycling program. Our goal is to have the occupants of at least these major residences add nutrient recycling into their recycling system. [redacted]

Currently, if residents in these locations choose to compost, they must take it upon themselves to buy and maintain their own Worm Bin either through UBC Waste Management. To encourage the use of Worm Bins in residence, Waste Management should designate areas to deposit the finished compost. If these areas were close to the current recycling bins, the effort needed would be kept to a minimum. As well, students need to be aware that such programs exist and what the implications are.

Another option is to give each residential unit a kitchen scrap bucket. They would be used to temporarily collect uncooked kitchen scraps before depositing them in a central bin, preferably near the residential complex's recycling area. When the compost bins become full, or on a regular schedule, the bins can be transported to UBC farm where they can finish composting and eventually be used on the Market Garden. (In order for the Market Garden to be considered "Certified Organic", the compost may have to sit for up to three years before it can be applied to the garden). For the transportation to occur, a joint project with farm management to ensure the composting material is picked up and used appropriately would have to be created.

In anticipation of some proposed problems, such as odours and pests, education is needed to ensure that everyone is only composting the appropriate foods. Residents currently receive laminated posters to correctly identify which packaging materials may be recycled. This concept could be used to inform recyclers similarly about composting. Also, the central compost bins should be closed with mechanisms to prevent access to rodents and birds. Bins should be kept fairly clean to avoid a major odour problem. [redacted]

As an incentive to encourage student participation, an inter-residential competition could be organized. Floor-reps could monitor how frequently the students use the composting facilities. The residence with the greatest participation could win prizes for the common rooms or various other rewards.

All residential areas on campus would benefit from composting; our group chose only a few that are already linked to other UBC services (i.e. Waste Management) and contain the most students. Other areas of on-campus housing include Hampton Place, the endowment lands, fraternity houses and the apartments near the UBC Village. We recommend advertising composting opportunities and offering free workshops to residents of these areas.

Food Outlets' Organic Waste Management Program

Another major source of food waste comes from the various food outlets located throughout UBC campus; these include residence cafeterias, fast-food outlets and other restaurants. The food outlets that have been identified as potential composting sites are Totem Park, Place Vanier and Pacific Spirit Cafeterias, 99 Chairs, the Barn, and the AMS food outlets in the Student Union Building. These food outlets generate two types of food wastes. One of them is raw material waste from peeling potatoes or carrot tops. The other type of food waste is the food left on the plates from customers or waste from overproduction or post-consumer waste.

Raw material wastes can simply be collected by the UBC farm and used to feed livestock such as pigs and chickens or composted and used on the Market Garden. In contrast, post-consumer wastes can neither be used as feed for livestock nor composted using the current composting facilities at UBC because there is concern that pathogens in the wastes could be transferred to the livestock or to the soil. High temperature heat treatment is required when composting food wastes other than raw fruit and vegetables to kill the pathogens. Due to the added complexity and cost of set up for heat treating post-consumer waste, this composting process needs to be contracted out to a composting facility, such as BFI.

In order to have a company such as BFI take interest in collecting the compost food wastes within the campus, there must be an increase of participation from the food outlets. One way to increase the participation of food outlets is try to make the waste collection as convenient as possible by increasing the number of collecting bins around campus and providing coloured bins to separate the compostable waste from the garbage. Education for consumers and workers is also important to increase awareness on the implications of utilizing the proposed composting systems. Posters could be posted around areas within the food outlets to inform consumers about the materials that can be collected for compost. [redacted]

Conclusion

One way to increase the sustainability of UBC's food system is to incorporate a functional and convenient composting program at a reasonable cost. This may seem overly ambitious, yet a foundation for such a scheme has already been established in various places around campus. All that is required is that composting programs be developed and introduced campus-wide, and this can be accomplished by persuading students and employees of the UBC food services to participate through advertising and creating incentives. In time, it is hoped that the UBC

community's active participation will aid in the development of an effective composting scheme that will serve as a protocol for other similar communities to adopt. With this outcome in mind, our recommendations include:

- Advertising composting and free worm bin workshops to residents of Hampton Place, the endowment lands, fraternity houses and the apartments near the UBC Village.
- Encouraging Waste Management to designate areas to deposit finished compost close to the current recycling bins for convenience.
- Creating a joint project with farm management to transport full bins to South Campus farm where they can finish composting and ensure the picked up composting material is used appropriately.
- Educating the UBC population to ensure that everyone is aware that composting programs exist and that there are positive implications with using these programs, such as increased sustainability of the UBC food system through nutrient recycling. This education can be done by expanding on the current laminated posters about recyclable materials to include composting.
- Re-initiating the previous post-consumer composting system which involves contracting a composting to company such as BFI.
- Making compost waste collection as convenient as possible by increasing the number of collecting bins around campus, and providing food outlet with coloured bins to separate their waste from compostable material.

References Cited

1. UBC Waste Management: Compost Project. Available at http://recycle.ubc.ca/compost.html Accessed 2002-03-30.

2. Condra J, Rojas A. Land, Food and Community III: Agriculture Sciences 450. Vancouver: UBC Bookstore, 2002.