

## Green Fund Project

### Final Report

Project Title: Skid-Steer and Can Cleaner for Existing Composting Facility

Project ID #: 116SP120

Award Date: April 26, 2016

Completion Award:

Total Funds Used: \$29,588.62

1. Please provide a write up of your project/project experience. (This may be used on the SIU sustainability website.)

The funds from this green fund purchased a specialized skid steer and large container cleaner. Both items have proved to be highly supportive and critical for efficient operation of an existing facility that is making a major positive impact on SIU's sustainability – the forced air compost facility located on the university farms. Since receiving EPA approval on August 15, 2015, the facility began full operation. More exciting, since January 2016, all preconsumer and postconsumer food waste from SIU University Housing operated dining halls goes to the facility and is 'turned into' high quality compost. Prior to our compost facility, all food waste went to the landfill.

First, a here is a brief description of the process. The food waste is collected at the cafeterias and placed into approximate 60/90 gallon containers (with a limit of 60 pounds per container) and placed outside on the loading docks. Early the next morning, PSO workers transport the containers to the facility. On average, there are 30 containers every weekday with the exception of 70 on Mondays as there is no pick up on the weekends. At the facility, student workers manually dump the food waste out of the containers (and now they can dump it directly into the scoop of the new skid steer, greatly reducing labor). Some food waste adheres to the side of the containers, especially foods as cheesy casseroles, gravies, mashed potatoes etc. It's bad in the winter because food freezes and bad in the heat because it begins rotting quickly. The dumped waste must then be moved (now lifting it on the scoop of the skid steer) into a mixer where it is mixed with other ingredients to create the proper carbon/nitrogen ratio for the materials to decompose. Other materials include shredded dried leaves from campus or hay from the equine center that have manure in it). Once mixed, the materials must go into one of the bins 10' x 12' x 8' bins. Every day, new material is layered on top of the past days. At the end of the decomposing process, 60 – 90 days, the nutrient rich compost must be transferred out of the bin. All

phases of this are laborious tasks. This green fund allowed us to purchase those two critical items; a container cleaner and a specific skid-steer. (Prior to this, containers were washed manually after they were returned to housing and a university farm tractor and the bobcat from the Beef and Swine Center were used. This was causing conflicts as it delayed daily work at the farm and put more wear and tear on the equipment plus the equipment was not sufficient).

The container cleaner has been very useful, to date. (Briefly it includes a high powered power washer and a means to hold the container over the sprayer head and a bucket to capture the debris). However, we are refining the operation. Persons involved in the project in University Housing, Physical Plant Service and College of Agricultural Sciences continue to tweak the process. (Currently we believe that we need a different sprayer head on the hose to better clean the containers). So the job is greatly improved but we are striving to make it the best! We also are trying to improve the capture of the debris that comes out of the containers. (Currently we are going to try a new means of screening the debris and allowing liquids to pass through a screen). Keep in mind that we continue to allow no run off outside of the compost facility and all liquids go into a leachate tank. The lechate is used to keep the decomposing material moist plus add beneficial bacteria.

The skid steer (or bobcat which is the brand name) has a longer reach of the 'arm' as compared to the standard ones. The arm reaches to the top of the mixer and to the back of the bin, even when it's full. The skid steer is compact and versatile for the confines of the facility. The 'tracks' versus tires avoids breaking the aeration system. We also purchased two blades, a light duty large capacity for compost materials, and a construction grade one for tough applications as removing snow to allow delivery transportation.

2. Please provide a summary of your results (environmental, social, and/or economic) including quantifiable data as appropriate (ex. # of individuals reached, lbs. diverted from landfill, energy saved, etc.).

The skid steer has saved the students from lifting and double handling approximately 11,400 pounds (weekly) of the food waste through the process of going from container to bin. The skid steer does not damage the pvc lines that are the forced air system with the wide track system. The extended arm allows the new material to be added without having to climb onto the pile in the bin and manually move the material. Also, what was a laborious job of moving the compost material out of the bin is now reasonable and efficient with the use of the skidsteer. It has also relieved the stress of using the farm equipment by having dedicated equipment to do the job that we were having to borrow two or three different pieces to accomplish. The

container washer has lessened the task of cleaning the containers. This is critical for health and safety. The statistics of the compost facility savings has been provided in other reports, therefore, it's not repeated in this one.

We have utilized some of the compost in the landscaped areas adjacent to the agriculture building with blooming results. Grounds is using two 'loads' and we are adding it to different plots at the Sustainable Farm, Horticulture Research Center and other farm locations. The two loads have reduced the need to purchase topsoil from outside vendors and the need for fertilizer.

3. Summarize how your project promoted the Green Fee/Sustainability on campus including, but not limited to, flyers created, screenshots of website, signage, etc. Please include website links, if applicable.

Video: <https://www.youtube.com/watch?v=m2xaeENUsu0> (this was shared online and through social media and digital signage)

Press release: <http://news.siu.edu/2016/09/092816cjm16148.php> (this was not our release, but I included it in case it wasn't provided elsewhere)

Various posters put up in residential areas and commons areas and during events (i.e. watermelon fest)

Tours for visiting alumni, new students and other visitors are frequent.

Workshops are held at the compost facility when SIU hosts highschool groups as FFA.

Photo coverage of open house at compost facility (photo attached)

Web content: <https://www.housing.siu.edu/resources/sustainability> (this is long overdue for an update – I'll be happy to make changes if anyone wishes to provide new info)

4. Is there anything you would do differently if you were to do a similar project in the future? If so, please describe.

That is a challenging question as everyone involved in this process is learning from experience. Also, the work load is added to what we are all doing, so it has been difficult giving it the dedicated time as I would like to see. For example, it would be great if we could spend more time studying and evaluating the recipe of the compost. But we are managing and, once we are more efficient in the entire process, we will be the model university of how to best use the forced air compost system.

5. Please attach a minimum of 5 digital images –these will be images used to promote interest in sustainability projects on campus. These can be photos of the progress of the project or the completed project.
6. Optional: Do you have any suggestions for the SIU Sustainability Council to improve the Green Fund Award Process?

No, the process is very fair and provides great opportunities for projects that would otherwise never be able to occur on our campus. Thank you!