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# Enhancing the Food Waste Program at Clemson University

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## Abstract

Clemson University's composting program currently uses an in-vessel composter to breakdown food waste to useable mulch that serves to supplement materials needed at the Botanical Gardens. Our Creative Inquiry is investigating ways in which the program can become more visible and expand to include other methods of food waste composting that will provide a demonstration of composting techniques useful for education and to yield valuable economic analyses as a basis for making future programmatic decisions. We have three projects in progress. The first project will result in a vermicomposting demonstration system that will be used to assess the feasibility and profitability of a future large-scale effort. The second project will gather data on a food hydrator on loan from Integrated Waste Solutions specifically to assess its cost/benefit and to evaluate the end result of using biodegradable products in the Clemson House dining facility. The final project will result in the production of two videos to advertise the composting program and to provide a view of what happens to food as it decomposes.

### Vermicomposting Pilot Program

*Erika Funke, Briana Cairco, Hannah Spencer, and Spencer McCown*

Vermicomposting is the process of composting using worms to breakdown organic matter. For this project, a type of worm known as a Red Wiggler will be used in a pilot program at the Cherry Crossing Facility to divert some of the campus food waste from the in-vessel process currently used. After the pilot project is completed and if data are positive, a large-scale vermicomposting program will be developed. In the future vermicastings or worm castings can be harvested to be used as an organic fertilizer on campus. These castings have been shown to contain reduced levels of contaminants and a higher saturation of nutrients than do organic materials before vermicomposting.

Last semester, a plan was designed for the pilot worm bed. This involved gathering information about vermicomposting and red wigglers, determining the benefits of vermicomposting for Clemson's campus, choosing necessary materials, creating a budget, and establishing the goals of the project. During this semester, a greenhouse was purchased and set up and a vermibed is being constructed to house the worms. An economic analysis of adding vermicomposting to the current composting program is being conducted.



Red Wigglers

Source: [wonderwoman.com](http://wonderwoman.com)



Greenhouse to House the  
Wormbeds

### Marketing and Awareness of Composting on Campus

*Samantha Perea*

As a continuing need for any program, Clemson Composting requires a dynamic marketing and education strategy. To meet this need, we are creating a set of videos explaining our program, how it works, and who is involved. The goal is to have a simple, concise way to tell students about composting at Clemson. The goal of this CI project is to produce two public-service videos. One video is from the perspective of those who run the daily operations of the composting program, and the second video follows food as it begins its journey from someone's plate all the way to the final compost product. Each video is being shot with a GoPro HERO 3+, and all editing will be conducted by students.

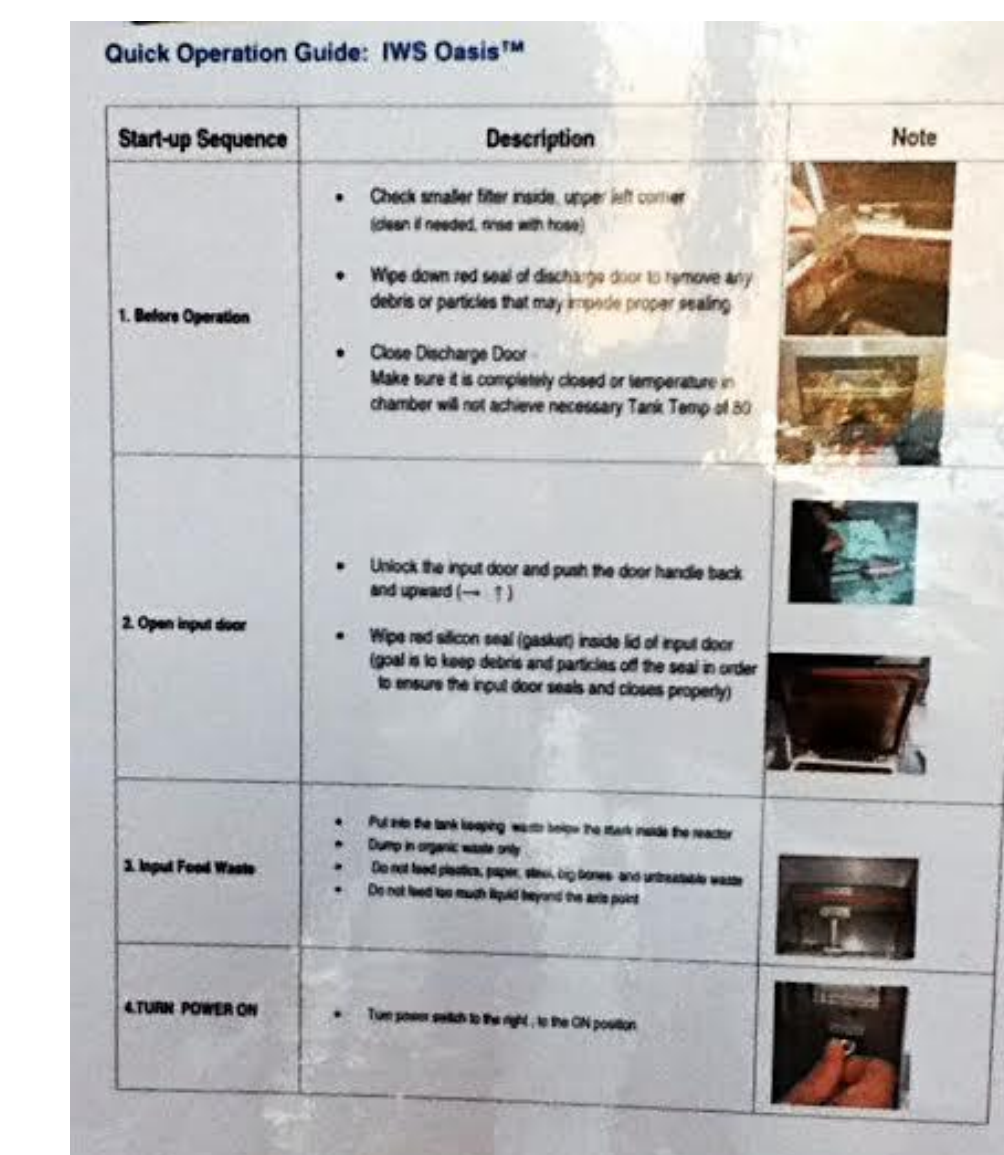
## Clemson House Dehydrator Project

*Keegan Bodiford*

The Clemson House recently acquired the loan of a new food dehydrator made by Integrated Waste Solutions. A dehydrator is a device that processes food waste to remove water, leaving raw organic matter. The resulting organic matter is then taken to the Cherry Crossing Composting Facility where it is mixed with other compost. The goal of the project is to observe and analyze the effectiveness of the dehydrator. This will include comparing the input weight of material to the output weight. A ratio will be determined for the average material shrinkage and total amount of water removed by the dehydrator. From there, an estimate the annual amount of water conservation will be calculated. With the installation of the dehydrator, and conversion to compostable cutlery, cups and plates, Clemson House will become nearly waste-free. The only products that will go to a landfill are plastic wrappings food packaging.



Front View of Dehydrator



Dehydrator Instructions



Side View of Dehydrator

### Comparing Compostable Cups for Use in Dehydrator

*Camille McCarthy*

This project focuses on comparing different compostable cups for use in the food dehydrator currently at Clemson House. The objective is to test the compatibility of different types of compostable cups to determine the best-suited for use in the dehydrator. To test this, cups are placed in the dehydrator and the resulting organic material is then tested to ensure the compostable products do not compromise the quality of the compost, either by not breaking down or by leaching such things as plasticizers or wax into the compost. Dehydrator-processed samples are analyzed in the Clemson University Soils Lab to determine the composition of the organic matter. Cups made of poly(lactic acid), paper lined with poly(lactic acid), and waxed paper are used in this investigation.



WorldCentric PLA  
Cup



EcoProducts PLA  
Cup



Coca Cola Paper  
and Wax Cup



Solo Bare Paper  
and PLA Cup



Solo Wax and  
Paper Cone Cup

### Acknowledgments

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