



Feasibility of an In-Vessel Composting System for Auburn University's Pre-Consumer Food Waste Project Engineers: Austin Brown, Rosia Rowe, Aubrey Sharp

Composting is a biooxidative process that leads to a highly stabilized organic product with the potential to contribute to soil conditioning and fertility. Stakeholders at Auburn University are becoming more aware of the impact that their waste has on their immediate environment, and the benefits of integrating a composting program into the university. Alpha & Omega Engineering will conduct a feasibility study assessing the university's ability to establish a fully operational composting program that will operate alongside Auburn University Dining Services (Tiger Dining). If feasible, this design would enable Tiger Dining to optimize pre-consumer food waste by converting it into serviceable organic materials. This scope of this program would include transportation, storage (of raw and composted materials), on-site composting, and the reallocation of composted materials. Considering pre-consumer wastes from the Village Dining Hall are approximately 1000 lbs/day, the accessibility onto the former Auburn Waste Water Treatment Plant (AWWTP) site to food waste loading trucks is an important design consideration. Tiger Dining spends approximately \$50,000 on haul-away costs for Village food waste, and could save up to 40% on annual haul-away costs with an established composting program. The organic material generated would be upcycled within the university, supplying Facilities Management, campus construction projects, and varied academic departments with economical compost. There are several constraints to consider in order to gain approval for a sizable composting program. Keeping the composting site at least 60 feet away from utility, sewer, and wastewater facilities prevents the declination of Auburn's water quality. To avoid further contamination of Parkerson Mill Creek, the site must remain at least 50 feet away from established test well sites and the creek itself. Creating a storage structure limiting pollution and hindering wildlife from accessing raw materials is a crucial environmental constraint. The composter must be sized large enough to manage food waste, not including additional chicken litter. The project design must be one that creates a quality composting mix that is distributed to university stakeholders in a timely manner post-production.

