

From Waste to Resource: Developing Composting Capacity to Support Sustainability at Central Washington University

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Introduction

The United States produces roughly 133 billion pounds of food waste per day and Central Washington University (CWU) contributes at least 110 pounds to this running total daily. While CWU has made meaningful strides toward improving sustainability on campus—through expanded recycling programs, increased environmental awareness, and long-term planning for waste reduction—composting remains a challenge due to infrastructure limitations.

CWU's climate action plan:

Central's climate action plan calls for at least 25% of campus generated waste to be diverted from the landfill by 2030. As shown in figure 1, lowering the amount of food waste that is landfilled can significantly decrease the amount of methane emitted into the atmosphere. By successfully limiting organic materials sent to the landfill, CWU will make meaningful progress towards accomplishing its waste diversion goal.

CWU's journey to reduce its organic carbon footprint:

The ultimate goal at Central is to install a commercial grade composter capable of processing organic waste from the entire campus. While funding delays occurred in 2025, the Sustainability Office just had a huge win at the NextCycle competition where they were awarded \$10,000 to assist with this goal. The commercial grade composter will allow roughly 500 pounds of organic waste to be composted every day.

Where is most the food waste coming from:

In order to grasp just how much food waste is produced at Central, we look to an audit performed by a former CWU student, Dylan Zintz in 2024. He gathered data from just one of the catering services available on campus. Throughout the prep and production process alone (before the food even makes it to the consumer) roughly 110 pounds of food waste per day is produced. In a given year, about 220 tons of organic waste, both pre and post consumer, is produced at the SURC and sent to the local landfill.

Why is waste diversion important:

- Reducing carbon footprint
- Reducing impact on climate and environment
- Generate compost that supports the expansion of food production on campus (improves sustainability practices at the farm)
- Helps address food insecurity on campus and in the community
- Save money

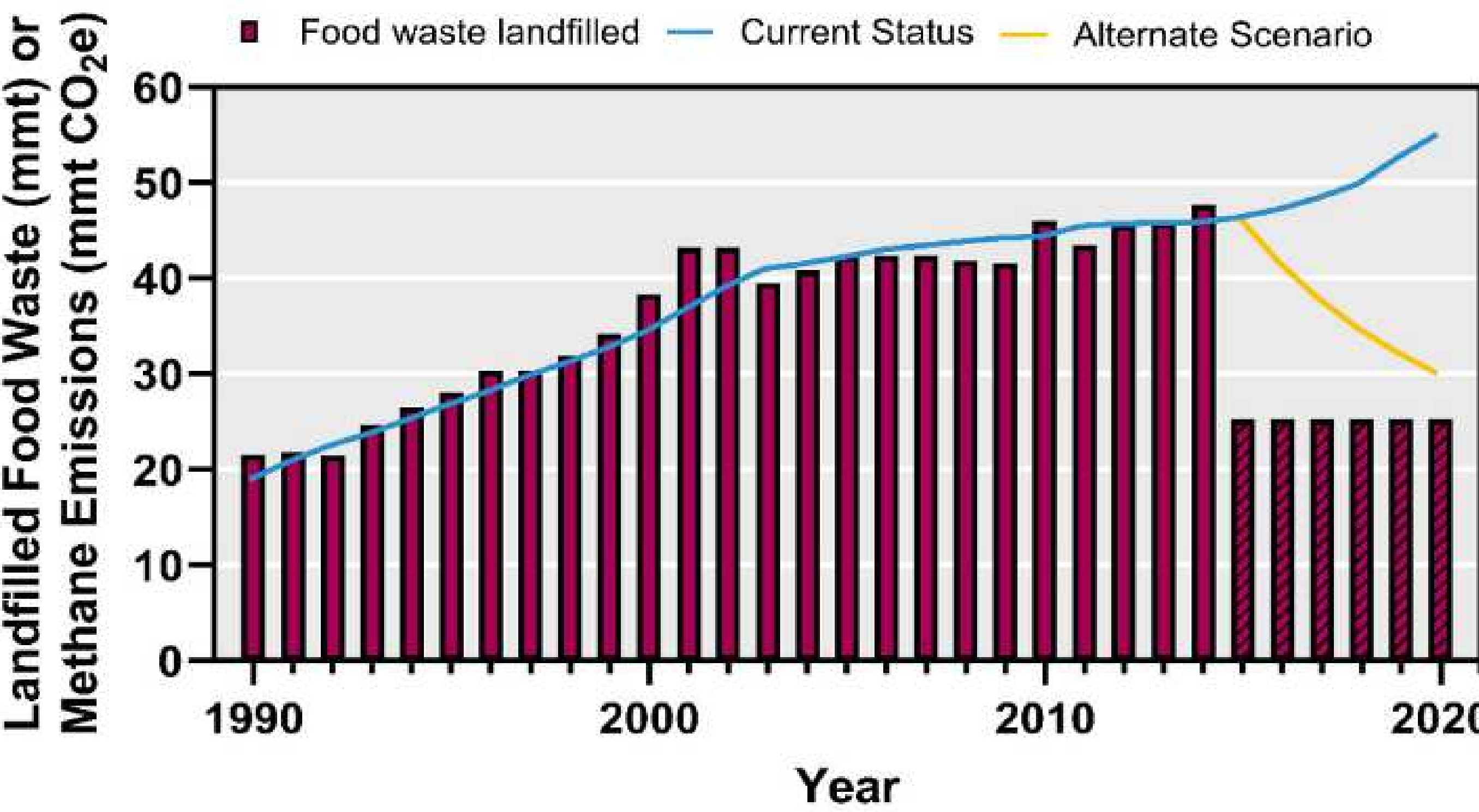


Figure 1: Amount of landfilled food waste and the methane generated from it in the U.S. yearly

Why is methane worse than CO₂:

Rotting food in landfills produces methane due to the packed environment that lacks oxygen. This is a major problem considering methane is 28 times as potent as CO₂ at trapping heat in the atmosphere. According to studies conducted by the EPA, by removing organic waste from landfills we could lower fugitive methane emissions from landfills by roughly 58%. Considering landfills are the third largest producer of methane across the U.S., reducing these emissions is important for limiting environmental and health impacts across the globe and helping Central meet its climate action goals.



Figure 2: Current composters at the Wildcat Farm

The Composting Process:

Composting is a fairly simple process that consists of mixing "brown" materials like dry leaves and "green" materials like food scraps or plant trimmings. A common ratio for composting is 2 parts carbon rich "brown" materials to 1 part nitrogen rich "green" materials. In order to manage compost and the varying levels of decomposition, multiple bins are essential. This also allows for easier turning and control of moisture which allows the process to happen efficiently.



Figure 3: Coffee grounds from coffee shops



Figure 4: Organic waste composting

Coffee Ground Collection:

In order to process more organic material and send less waste to the landfills, the Wildcat Farm partners with campus coffee shops. Coffee shops save their coffee grounds in collection buckets (Figure 3) which are picked up weekly by farm staff using the farm van. With the current composters, the farm processes roughly 4 buckets of coffee grounds a week. Last spring season, the farm produced about 4 wheelbarrows of usable compost and with the additional composters they estimate production to increase by approximately 25-30%.

Summary/Recommendation:

Through the building of 2 additional compost bins, the farm is able to process more organics from the on campus coffee shops. This process is made more efficient and easier to manage with the additional working space. By improving our waste management strategies on campus, Central is making strides to become a more sustainable campus and reduce our impact on the climate and environment. In the future, Central has goals to implement an industrial sized composter with the hope to reduce our organic waste contributions by 25% by 2030.

- Following the sustainability office's proposal at the NextCycle event, the department will receive \$10,000 to implement the larger sized composter. In preparation for this next step, Central's campus has been making strides by providing students with information on what the differences are between compostable materials, recyclable materials, and actual waste materials.
- Following the implementation of the industrial composter, on-campus coffee shops can look into acquiring compostable materials like cups, sleeves, and straws.
- Increase awareness of proper sorting behavior using signage in dorms and other high traffic spaces. Current SURC sign designs are shown below.



Figure 5: Educational signage is now posted in the SURC, with expansion planned to broaden impact

This Project Supports UN Sustainable Development Goals:



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References:

- <https://www.epa.gov/gmi/importance-methane>
- https://www.epa.gov/system/files/documents/2023-10/food-waste-landfill-methane-10-8-23-final_508-compliant.pdf
- <https://www.cwu.edu/about/sustainability/academics/dylanzintz.pdf>
- <https://www.cwu.edu/about/sustainability/sustainability-on-campus/waste-diversion/index.php#accordion-4554b6f4-0fd9-424d-aa04-ae482adbe4e7-0>