

Optimization of Dewatering/Drying Process in Manufacturing of Dog Treats

Full Circle Feed is a start-up company in Syracuse, NY that produces dog treats from uneaten restaurant buffet food. The treats repurpose food that would otherwise be thrown into landfills, and transforms it into nutritious, environmentally sustainable snacks for pets. By recycling this food, Full Circle Feed reduces emissions of greenhouse gases and creates jobs within the local community.

Challenge

Food waste disposal is a national issue; it is the most commonly discarded material in the US, accounting for 14.1% of municipal waste. When food waste is buried in a landfill, it decomposes and produces methane, which is a potent greenhouse gas.



The objective of this project was to provide Full Circle Feed with options to make the treat dewatering/drying process more sustainable, through decreased energy use. Currently the process takes 7-8 hours, and as a result the treats must be frozen overnight to ensure freshness. Additionally, wastewater management options were to be reviewed, as the company's wastewater contained high levels of organics and solids.

Solution

Full Circle Feed requested assistance from NYSP2I to better understand current energy consumption and options for reducing consumption in the drying process.

- Baseline drying analysis – treats were prepared in a forced-air convection oven (pictured on right) to measure the amount of energy required to dry each pound of material
- Wastewater analysis – jar settling tests were performed to observe solid settling characteristics



Results

- Experiments performed by NYSP2I indicate that the procurement of a forced-air convection oven would reduce drying time by 64%, resulting in a corresponding reduction in energy usage.
- Use of a settling tank to treat wastewater would reduce organic output by over 50%. Further treatment and separation technology would need to be analyzed for applicability.

CHALLENGE

- Full Circle Feed wanted to optimize their current process of their dog treats

SOLUTION

- NYSP2I drying assessment including baseline drying & wastewater analyses

RESULTS

- Use of a forced-air convection oven would reduce drying time by 64%
- Use of a settling tank to treat wastewater would reduce organic output by over 50%

NYSP2I PARTNERS



New York Manufacturing Extension Partnership

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