



## Supermom's saves \$235,000 yearly by reducing waste

Focusing on the most important processes in the facility, Supermom's identified its major waste sources and found options to reduce the waste

Faced with rising water treatment charges, Supermom's Bakery in St. Paul Park, actively involved employees to help identify and implement ways to lower the chemical oxygen demand (COD) of its wastewater. Starting in 1990, Supermom's steadily implemented waste reduction measures, spreading the changes out over time to make the project more manageable. Most of the savings resulted from utilizing new technology to prevent wasted ingredients and reduce labor costs.

### Water Reduction

By focusing on the most important processes in the facility Supermom's identified its major waste sources and found options to reduce the waste.

### Conveyor and Deep Fryer System

Donut glaze and icing are applied on the conveyor belt system. Prior to the project, glaze residue would fall off of the conveyor system into the drain and end up in the wastewater. To prevent this, Supermom's installed a cover over the floor drain that ran the length of the donut deep fryer and conveyor system. In addition, rotating brushes were installed under the conveyor system to sweep sugar glaze off the conveyor belt and into hanging catch pans. Sheets of vinyl were hung under the conveyors to catch fallen icing. The belts then passed through a wash bin where additional sugar residue was wiped off the belt and into the wash bin by automatic brushes.

Instead of discharging vegetable shortening and oil waste from the deep fryer into the drain, a refurbished dairy storage tank was used to collect used shortening at the end of the day. During the day, shortening was filtered to maintain quality and recirculated.

### Tray Washer

Previously, sprinkles, batter, and donut particles would go into the tray washer and ultimately, down the drain. To reduce the amount of solids

washing down the drain, Supermom's added a large metal lip so employees could empty the trays before loading them into the washer. Additionally, water was recirculated inside the washer. A separate freshwater cycle performed the final rinse. At the end of the day when the water was discharged, fabric filters caught any remaining solid particles.

### Icing Vats

Supermom's used 65 to 100 buckets to mix icing every day. During cleaning, four to five ounces of residual icing from each bucket would wash down the drain. Moving to bulk preparation and storage for icing eliminated the need to wash the buckets. Icing was stored in three large stainless steel mixing vats: one each for chocolate, caramel, and vanilla flavors. Together the vats cost \$45,000. Two large vats held 1,200 pounds each of icing, and a smaller one held 750 pounds.

Eliminating this waste saved Supermom's \$2,000 a year. Eliminating the three hours a night spent washing buckets saved Supermom's around \$40,000 annually and reduced its overall water consumption.

With the addition of the large vats, icing was only mixed once in the morning, as opposed to multiple daily mixings on an as-needed basis. The temperature controlled vats yielded consistently higher quality icing than did individual bucket mixing. The vats had a payback of about one year.

### Increased Energy Efficiency

Three new rack ovens, which operated at 95% efficiency, were installed to work in tandem with older, less efficient traveling-tray ovens. The ovens cost \$30,000 each with a \$1,500 environmental improvement rebate on each from the utility company. The ovens paid for themselves in six months. The new ovens used 20% less energy than the old ones, were much less labor intensive to operate, baked in eight minutes instead of 12, and

had a baking temperature of 350° F instead of 400° F. Compared to the old ovens, the new ovens cost \$14,000 less each month to operate, saving Supermom's \$168,000 a year.

## Solid Waste Reduction

### Food By-products

All of the sugar, shortening, icing and glaze waste, and reject donuts that were collected were sent to a livestock feed company for reuse as animal feed. The MnTAP fact sheet Feeding Food By-products to Livestock [#25] lists livestock producers that have the proper permits to feed food by-products to livestock.

## Results

Supermom's efforts to reduce waste saved the company \$235,000 per year. In addition, Supermom's concern for environmentally sound practices enhanced its image as a responsible corporate citizen. By keeping operating costs down and investing in efficient equipment, Supermom's secured a competitive future for itself.



### For More Information

MnTAP has a variety of technical assistance services available to help Minnesota businesses implement industry-tailored solutions that maximize resource efficiency, prevent pollution, increase energy efficiency, and reduce costs. Our information resources are available online at <[mntap.umn.edu](http://mntap.umn.edu)>. Please call MnTAP at 612.624.1300 or 800.247.0015 for personal assistance or more information about MnTAP's services.