



Executive Summary

ST Specialty Foods

Brooklyn Park, MN

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Company Background

ST Specialty Foods was formed as an entrepreneurial startup company in 1992. The company has an exclusive niche in the value-added dinner and side-dish segment of center store retail. The 100 employee Brooklyn Park manufacturing facility mainly produces packaged pasta products such as macaroni & cheese. The company also produces boxed potatoes, prepared dinners, meal cups, noodles and sauce, skillet dinner mixes, and instant rice and rice mixes.

Project Background

ST Specialty Foods is a growing low-cost pasta producer that must be sustainable and low-waste in order to maintain its competitive position in the industry. The executive team has identified lean manufacturing improvements as a priority for this site in particular. Project successes will enable the company to grow while reducing waste and improving energy efficiency.

Incentives to Change

S.T. Specialty Foods anticipated a 10-15% increase in sales, which would require extended operation hours and thus a substantial increase in energy costs. There were also concerns that cross-contamination of separated food wastes would risk rejection by the hauler and lead to increased disposal costs. Management was striving to implement a lean manufacturing program focused on setup time reduction, process control, and the "5S" principles: *sort, straighten, shine, standardize, and sustain*.



Solutions

Energy Efficiency

Upgrade Exterior Lighting

The plant replaced ten 250 watt outdoor lighting wall packs with ten 50 watt LED fixtures and replaced two 400 watt flood fixtures with two 80 watt LED flood fixtures. Xcel Energy provided a rebate of \$750 and estimated an annual electricity savings of 11,000 kWh or \$1,300. The LED fixtures have provided equivalent light output at about one-fourth the energy cost. The new fixtures are expected to last five times longer and provide more consistent lighting levels over time.

Inspect for Air Leaks

The intern worked with an outside contractor to audit the compressed air system. Sixteen leaks of varying size were revealed and repaired. Xcel Energy rebated the cost of the audit, and repairing the leaks will save the company 42,500 kWh or \$3,800 annually.

Install Zero-Loss Drain and Mist Eliminators in Compressed Air System

Installation of a zero loss drain improves energy efficiency by allowing condensate to be drained from the air system without allowing compressed air to escape and be wasted. Two mist eliminators were installed to improve the



efficiency of the compressed air system by removing particulates, food grade oils, and condensate. Xcel provided a rebate of \$2,400 for the mist eliminators and \$200 for the zero-loss drain, which will save the plant an estimated 18,000 kWh or \$1,600 in electricity annually in addition to reduced maintenance costs.

Lean Operations

Standardize Operating Procedures

Several areas in the plant were evaluated for methods to improve and standardize operating procedures. The intern worked with employees to create written standards that provide important knowledge for both production and maintenance staff in order to speed equipment setup and keep production parameters within specifications.

Coded Set-up Markings

In order to allow all employees to set up machines quickly and accurately, machine setup locations were color coded and setup sheets were created. This improved the accuracy of the equipment setup, minimized product and packaging losses, and reduced the time needed to start a new production run.

Organize Waste Bins

Waste bins were color-coded with blue for glue, yellow for food scraps (hog feed), red for trash, and gray for recyclable cardboard. This reduces the potential for contamination among bins. Proper segregation of materials allows for donation of materials suitable as animal feed for beneficial reuse and lower waste management costs.

Install Shadow Boards and Line Maps

The intern ordered, installed, and organized shadow boards for tools and striped the floor to map the locations of color-coded containers in each production area. These improvements allow for easier access to tools and equipment and improve employee efficiency. Checklists were also created for line operators to keep equipment clean and operational, which will reduce downtime for maintenance issues.

By implementing these lean operational solutions, ST Specialty foods is well on its way to minimizing downtime between product changeover and improving overall plant efficiency. It is estimated that these changes can save 14 minutes of time on each production line each day, which will save the company \$50,000 per year. Six months after the intern project, ST Specialty foods is successfully continuing their lean efforts and seeing continued increases in production efficiency.

Recommendation	Reduction	Annual Savings	Status
Upgrade exterior lighting	11,000 kWh	\$1,300	Implemented
Inspect for air leaks	42,500 kWh ~33 CFM	\$3,800	Implemented
Install zero-leak drain system	18,000 kWh	\$1,600	Implemented
Implement lean operations initiatives	14 minutes/line/day	\$50,000	In Progress