



Impossible Foods is Doing the Impossible

Impossible Foods set out to make the global food production system more sustainable by creating products which are healthier for people and the planet, and they've achieved their goal. The Impossible Burger uses 75% less water, generates 87% less greenhouse gases, and requires 95% less land (and 100% fewer cows) as a conventional burger.

CASE STUDY



ISSUE: *System flexibility*

APPLICABLE TO: *All food and beverage processing*

Impossible foods set out to build a new factory which met their needs while balancing their commitment to the environment.

Achieving the Impossible

The global mega-trend toward healthier eating has led more and more consumers to seek out new plant-based food, less meat and less dairy. Nowhere is this more evident than in the plant protein market, where research confirms plant-based protein product's steady growth for 16 straight years. This trend, coupled with concerns over the far-reaching environmental impact of meat production has many consumers considering, and some even changing their attitudes toward eating plant-based meat.

Eating is Believing

The veggie burger, developed in 1982, was quickly adopted by vegetarians but after its initial splash the appeal was limited to a very small hard-core market segment. Then, as now, consumers based their purchasing decisions on price, convenience, and taste and the veggie burger never tasted like a burger. Fast-forward to the present, and Impossible Foods has delivered a plant-based burger which looks, tastes, chews, and smells like beef. Named the Impossible Burger, it fulfills the company's core mission of making delicious meat using plant-based products.

But don't take their word for it! The Impossible Burger is now sold in more than 2,000 restaurants, from burger franchises to up-scale dining venues throughout the United States and Japan. The burger won a 2017 Tasty Award and the prestigious National Restaurant Association's 2018 FABI Award.

If You Build It, They Will Come

Impossible Foods set out to make the global food production system more sustainable by creating products which are healthier for people and the planet. The Impossible Burger, uses 75% less water, generates 87% less greenhouse gases, and requires 95% less land (and 100% fewer cows) as a conventional burger. It has the same protein and iron as beef, without antibiotics, hormones or artificial flavors.

With demand for the product far outpacing their production capacity, Impossible set out to build a new factory which met their needs while balancing their commitment to the environment. The new facility, located in Oakland, California, is more than 68,000 square feet and allowed Impossible to dramatically scale up production to more than one million pounds of Impossible Burger meat a month. Achieving scale and planning for even more growth, Impossible needed to streamline and automate their production.

Their production process included numerous manual operations to move the product from one stage to another. They also had too much down-time when they manually cleaned the equipment and performed other contamination prevention steps. And despite the success of the product they were constantly changing and improving on their initial recipe to make the burger even better.

Impossible Foods' evolving product line required evolving process solutions. Recognizing a need for systems which balance flexibility and cost-effectiveness, Impossible asked Barnum Mechanical to design and install a solution that allows for high availability, ease of operation, automated controls, is easy to clean, and conserves water and energy.

Doug Cornwell, Barnum's Controls Engineering Manager said "We designed a system which automated the transfer of the plant protein from the batching room to the paddle blenders where the product is mixed with the other ingredients. We knew Impossible needed a system which was flexible and sustainable. It needed to be easy to clean with minimal downtime and it needed to be agile to accommodate process changes."

The new system automatically transfers the ingredients throughout the entire process, reducing raw material waste and improving production yields. Adhering to stringent food safety regulations, the system ensures sanitary product transfer while optimizing resource management. The new system supports continuous and semi-continuous blending and increases batching efficiency and production by allowing process adjustments without reconfiguration. The new Clean-in-Place (CIP) system facilitates automated cleaning cycles with minimal downtime.

***Barnum's Cornwell said
"Impossible Foods wanted a system that would take them well into the future. We are proud to help them achieve their goals. We love the burger and look forward to tasting their next product."***

ABOUT THE AUTHOR

Doug Cornwell has been the controls engineering manager at Barnum Mechanical Inc. since 2006. He has been in the controls field specializing in food, beverage, and aseptic processes for 20 years. Doug enjoys designing and overseeing the implementation of the controls and electrical systems that bring Barnum Mechanical Inc.'s process designs to life.

CONTACT Doug Cornwell / doug@barnummech.com / (916) 663-5322



ABOUT BARNUM MECHANICAL INC.

Barnum Mechanical Inc. (BMI) is a forward-thinking design-build firm specializing in the food, beverage and specialty process industries. BMI is known for superior design, project management and installation services. BMI has operated throughout the United States since 1980.



3260 Penryn Road • Loomis, CA 95650

(800) 922-7686

barnummech.com • info@barnummech.com

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