

4 Tips to Optimize Your Food & Beverage Production

Responding to urgent market needs in the food and beverage industry has never been more important. More and more manufacturers are embracing digital transformation to improve efficiency and quality. To successfully navigate market shifts, food and beverage producers must quickly leverage new technologies to increase output and enhance efficiency. Here are four tips to help you optimize production:

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Monitor machine health using analytics

Manually inspecting machines and running them until they break down is a recipe for unforeseen downtime and costly repairs. By leveraging machine data, process information, and analytics food and beverage manufacturers gain access to information not seen through traditional means.

Rather than performing manual checkups that lack visibility into continually changing conditions, operators can use analytic tools to monitor machine health in real-time alerting to potential breakdowns before they happen.

The most innovative machine health monitoring systems are customizable and scalable depending on each manufacturer's needs. This allows critical machine data and specific parameters to be monitored in real-time. For example, [Emerson's Plantweb Optics Analytics](#) utilizes innovative key performance indicator (KPI) expert functions to monitor and manage plant-wide performance, anticipating issues and providing corrective actions before problems impact operations.

Additionally, edge computing capabilities allow for local analytics processing and visualization of a machine, line, or entire process with options to share insights to the cloud. See how this has been implemented for [monitoring palletizer health](#). This enables easy access to information so that operators can track data using either the local display or remotely with a tablet or a smartphone.

Such advanced systems allow operators to exercise preventive maintenance and prioritization. This not only increases uptime but also the overall equipment effectiveness of the entire food and beverage plant, leading to higher productivity.

Watch demo on [edge virtualization](#)

Optimize your existing equipment

Discovering opportunities to optimize current processes can result in major production gains. With simple instrumentation improvements, manufacturers can optimize the performance of existing equipment to lower costs and increase production.



Using measurement technologies to monitor recipe and batch quality can cut costs, ensure quality and increase production. By implementing real-time concentration temperature, conductivity, pH and density measurements, manufacturers can eliminate expensive product recalls and wasted production and sampling time.

For example, many brewers still rely on outdated manual density tests and low-accuracy temperature systems for monitoring fermentation. These manual tests are time-consuming, easily misinterpreted and offer limited insight into the current status of the batch. By adding sensors and transmitters to existing equipment, operators can gain real-time measurement of density and enable improved temperature control of fermenters, simple additions that can result in as high as 20 percent increase in production per cycle.

A historical Belgium brewer optimized their existing plant using Emerson's Coriolis meters to ensure peak performance for the [world's first beer pipeline](#).

Watch video on optimizing [dairy operations](#)

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Leverage smart sensing in Clean-in-Place technology

Modernizing Clean-in-Place (CIP) processes can significantly reduce cleaning time and consumption of expensive resources, resulting in less waste and more product.

Manual CIP processes are time intensive and waste large amounts of resources like water, energy and chemicals. By using modern sensing technologies in CIP like transmitters, flow and density meters, food and beverage producers can verify the correct time, flow rate and temperature profiles. These instruments can also detect interfaces between liquids to reduce changeover time and ensure that correct fluids are used at the proper concentration.

Aside from using modern sensing technologies for each CIP systems, automation optimization is another effective strategy. Automation makes quality information accessible and allows key performance indicators to be set. Over time, capturing the right metrics can enable a “golden batch” metric to be set allowing you to measure subsequent cleaning cycles against a known standard—this optimizes cleaning efficiency and changeover time leading to improved productivity. It can also reduce troubleshooting and maintenance time—precious hours that can be used for production instead. See how an 800-year old Italian cheese producer increased their efficiencies by [automating cheese handling with pneumatics](#).

By leveraging new CIP technologies that ensure cleaning efficacy, manufacturers can minimize waste, reduce costs and improve production efficiency.

Watch video on **CIP optimization**

Accelerate new product startups with digital twin

As a digital representation of a physical plant and its processes, the digital twin is an innovative tool for reducing time to market, improving operations and increasing efficiency. One of its most profitable uses is in generating insights for new lines or line modifications.

By first testing and making process improvements using the digital twin, engineers can leverage an high fidelity model of the process dynamics that can be thoroughly tested before construction begins. New operating procedures can then be verified before implementation, reducing labor and startup times. This greatly minimizes risks by preventing disruption of actual plant operations and high expenditure on physical resources. Moreover, by reducing online testing and qualification, food and beverage producers get to move their new products to the market faster.

Digital twin makes operator training a breeze. Through simulation, training can begin before, during or after the new process development. The digital twin enables operators to gain competency on all levels including process operations, startups, shutdowns and even on hazardous or infrequent events without ever risking production.

Learn more about **Digital Twin**

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Emerson Automation Solutions

1100 W. Louis Henna Blvd.
Building One
Round Rock, TX 78681
www.Emerson.com