

# How Data Reveals the Culprits Impacting Food Production Quality

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Today, food and beverage companies have an increasingly complex set of challenges in front of them: more stringent regulatory requirements, economic uncertainty, surging demand, changing consumer preferences and a spotlight on food safety.

There are many factors at play in the food and beverage industry that can make or break a company – even one wrong move has the potential to set a company off course for years. Quality mishaps can mean more than a literal poor taste in customers mouth. If they impact consumer safety, it spells disaster for a company’s public image. Also, an inability to quickly ramp up production to account for increasing demand in a certain food category could hurt the bottom line for companies that are being slowly edged out by competitors producing faster.

Much of the difficulty in ensuring quality food production and ramping up operations to produce more volume comes down the difficulty in extracting insights from mountains of plant process data. There are so many hidden “culprits” that impact production quality – they may even elude the most brilliant data scientists in the world.

This is where technology can take the reins, analyzing plant data to uncover new insights that will reveal the factors negatively impacting final product quality. Asset performance management tools can identify what is leading to variability in different plant processes, which helps improve product quality as well as operational efficiency (a critical component in keeping pace with demand).

## Boosting Quality

Unlike the production of some products where small variances are of minimal importance, food and beverage production must be precise. A lapse in quality in

a batch immediately can categorize it as waste material, and it must be discarded. Not only does this slow down production, it also impacts the bottom line – unusable end-product is money down the drain. Unfortunately, it is often difficult to determine quality until the end-product is analyzed. Even if plants can test quality mid-production, pinpointing the reason for degradation of product quality is an even bigger hurdle.

Advancements in technology can help predict quality in real time. It can capture process data and hundreds of production variables, modeling the best conditions for each respective process. Armed with insight into how to ensure the production of good quality product, companies can have more control over plant processes. The technology also provides real-time alerts when it detects certain process behaviors or variables that might lead to a ruined batch, helping companies entirely avoid product waste and giving them the opportunity to save product at different stages of production.



A scenario in which the application of technology would be advantageous would be if a food processing plant, for example, was stumped on why certain batches of the same product, made with the same process, ended up with different textures. Through automated analysis of hundreds of process variables, technology might uncover that the process that produces batches with the undesired, rougher



texture, might see a temperature spike mid-production that alters the quality. Upon further analysis, the data could reveal that temperature spikes in the process directly correlate to a certain time of day, when the equipment has been running for a certain period of hours. It might indicate a larger issue with the process equipment itself, overheating when active for too long.

A dual benefit of asset performance management technology is that it also helps optimize production processes. Through modeling and simulation tools, companies can have a clear view into how to save time, energy and resources by simply adjusting the design of a process. Predicting equipment breakdowns is another value-add of technology, in that it reduces unintended plant downtime or asset malfunction by analyzing behavioral data patterns of assets. If struggling to meet surges in demand, it is in a food and beverage company’s best interest to apply technology to their operations to achieve a level of efficiency that previously escaped them.

There truly is no telling the breadth of what plant data can reveal; however, it does highlight the value of all the data companies sit on every day that goes unused. It is a valuable reserve but only if captured and leveraged.