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 to 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 manufacturing can have a significant impact on the final product, potentially leading to decreased customer satisfaction, increased waste, and even recalls. This is where technology can play a crucial role in ensuring product quality.

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.