



White Paper

Brewing Up a Quality Solution

A growing craft brewer finds a better way to collect and make sense of data



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Introduction

MadTree Brewing was built on a love for beer, a desire to create connections with its community, and spreadsheets. Lots and lots of spreadsheets.

Spreadsheets for each batch, which meant that if an employee wanted to look at variations over time, they had to sort through them individually. Data was collected manually, which introduced opportunities for human error in either the collection or the compilation process. And if the company needed information from the past, it took time and manpower to dig through and make sense of the data and draw accurate conclusions from it.

Quality Manager Trent Leslie built a workaround that organized the spreadsheets, but making sense of the data was still a time- and labor-intensive process. A better solution was needed, and MadTree found it through Inductive Automation's Ignition automation platform. Instead of spreadsheets for anything and everything, users enter data and it's stored in a relational database.

"You don't have to compile it all together," says Leslie. "It's stored already compiled. And so that is way easier on the reporting end of things."

That's just one of the benefits MadTree has found, and for a small brewery and taphouse, being able to devote less time and fewer employees to data management and reporting is a big deal. But MadTree hasn't stopped there, and combining its employees' skills and knowledge with the Ignition platform has it thinking big-picture.



Combining manual and automated processes

As a craft brewer, MadTree offers a pretty wide range of beers. It's not just "run these three products seven days a week." That requires manual operations in some aspects, says Leslie.

"It's a combination of manual and automated, and it kind of depends on what step in the process we're in," says Leslie. "There's always some manual component for it."

MadTree's brewhouse is mostly automated, with the exception of tasks such as hops being added. Once beer is moved to the cellar for fermenting and conditioning, employees manually alter temperatures throughout the fermentation process.

When the beer is ready to be packaged, automation comes back into play. The company has a Krones canning line that is tied into the Ignition system, and the packaging process is mostly automated.

As Leslie says, the process will most likely never be fully automated. But he does have plans for automating additional aspects of it, such as implementing a messaging system for when temperatures in the holding tanks are changed.

"I don't think we ever have any interest in automating temperature changes, but it would be nice to be able to automate messages that can go out," says Leslie. "It's at this point or it's been this long, time to check it out and perhaps change it. Because every now and then something falls through the cracks and a temperature doesn't get changed and so on and so forth."



Harnessing data for quality

With the ability to collect and manage data, MadTree has been able to improve on its quality and process control. The company uses process control charts to look at historical data to see if everything is in line with its standards and figure out what happened if something does go wrong.

“We had a couple of batches recently, one of our IPAs,” says Leslie. “Back to back, the second one was way lighter than the first one. We thought the second one was way off, but then we looked at the historical data on the control chart and the second one was actually right on the mean of the last four years’ data. So the other batch was darker than normal and we didn't even realize that until we actually looked at the historical data.”

That's the kind of challenge that MadTree has been able to mitigate thanks to its Ignition-based data collection and reporting system. Without having the data at his fingertips, Leslie and his team would have had to comb through spreadsheets to try to figure out which batch was off. Instead, they were able to quickly understand that what they thought was wrong—the lighter batch—was actually right, which helped them quickly identify and solve the issue.

“You're doing quality control to make sure things can go to the next step, but then it's also a way to sort of look back and determine what is normal for a particular brand in general,” says Leslie. “And then being able to display it in a way that's approachable and not a nightmare, and it's automatically updated and always, always real-time.”



The power of data

As Leslie's IPA example demonstrates, having good data and the ability to use it effectively makes a big difference in MadTree's operations. While a brewer can look at two batches of an IPA and say "this one looks wrong," that isn't enough to go on to make a change in a process. When data is reviewed and it turns out that the results of the eye test were incorrect, it only reinforces the value of having a system in place to collect and manage data to provide reference points and a starting point for identifying and correcting production issues.

Even in a situation like MadTree's, where some parts of the process will always be manual, recording and managing production data is a critical piece of operating effectively and efficiently. While a company its size could probably get by on spreadsheets and manual data tracking, digging through data manually when something is out of line is a time-consuming process. And if data collection and management is a manual process, then human error is always a concern as well.

By automating the data collection and management processes with Ignition, MadTree has been able to improve its operations and quality control processes. That allows the company to better understand what it's done in the past, what it's doing now and what it should be doing in the future.

"Now we have the historical data to compare any changes to," says Leslie. "So it only gets more valuable as time goes on."

