



SUMMARY

Tyson Foods

Industry

Pharmaceuticals, Food, and Life Science

Business Value

- Business Intelligence
- Operational Insight
- Performance Optimization
- Process Controls
- Risk Management

OSIsoft Partner

Rockwell®

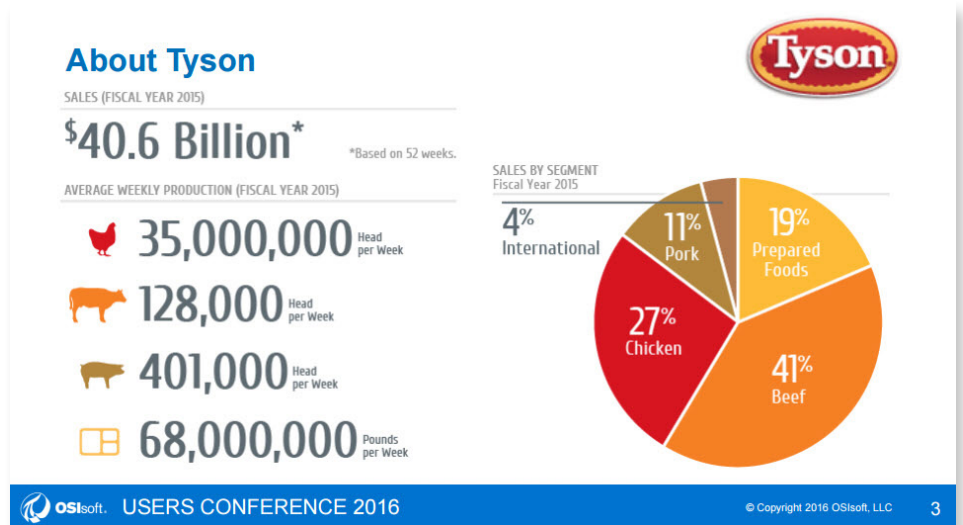
- Factory Talk® Historian, Site Edition

Internet of Meats: How Tyson Foods Improved Plant Operations with OSIsoft

Tyson Foods processes meats and prepared foods. From breakfast sandwiches to delicious corn dogs, Tyson processes 68,000,000 pounds of meat per week. “Up until four years ago, we had zero visibility into plant operations data, so decisions were being made without data to back it up,” said Jonathan Reichart, Senior Engineer, during the 2016 OSIsoft Users Conference. With the need for operational visibility, Tyson turned to the Factory Talk Historian which is powered by the OSIsoft PI System™ to make informed, data-driven decisions.

Using Data to Reduce Sausage Chub Giveaway

Tyson’s Jimmy Dean sausage plant processes over 150 million pounds of sausage annually in the form of rolls, links, and patties. Machines package each one pound roll based on time and the goal is to be as close as possible to one pound without being under weight. However, fat percentage and meat temperature can affect flow rate, which means a variance in overages. Any overage is considered to be “giveaway” product and packages that are too heavy or too light must be cut open and reintroduced into the line.



Meat production in one year across product lines: This breakdown by product type and sales shows Tyson’s massive production quantity and need for real-time data and insights.

In an effort to improve control limits on packaging and reduce giveaway and waste, Tyson tagged 11 lines of their timed clipping machines that package over 105 million pounds of roll sausage every year. Prior to using the historian, Tyson would send a quality assurance person out every 15 minutes to check the product line, but once the process was automated they could see weight by line, uptime percentage, and the number of saleable chubs produced. The data quickly showed that the target weight was set too close to one pound, resulting in more packages being underweight and that it was actually more efficient to raise the target weight because it would reduce rework and waste.

Protecting the Brand by Preventing Recalls

Tyson's cooking facility received a deviation from USDA for the sausage cooking line and the line was down for two full weeks to ensure that the process controls were in place for safe cooking. With process testing costing upwards of \$50,000 dollars and the average cost of a food recall totaling over 30 million, they needed to get the line back up and running quickly, but only if the right process controls were in place.

Using the historian, they analyzed the four temperature zones of the ovens, and noticed temperature drops in zone one. Data showed fault in the modulated steam valve that controlled humidity and the issue correlated with a recipe change where ovens were turned up 50 degrees. That temperature increase meant the steam valve wasn't able to keep up. Tyson changed recipes and the process came back into control, sparing them the possibility of a massive recall and getting the line back up and running safely.

Additional Benefits

Overall, Tyson has seen a number of benefits with the Rockwell Factory Talk Historian powered by the OSIsoft PI System, including an overall yield improvement of 0.1 percent in the first six months in the Jimmy Dean sausage facility – those savings paid for project. Tyson was able to reduce waste and giveaway within that same facility by increasing amount of meat in package and automating their quality assurance reports which saved them eight man hours per day, freeing up employees to perform more impactful tasks. The corn dog facility was able to cut waste in half, saving them about a million pounds of production. What's more, real-time process alerts and the ability to set recipe verifications means that Tyson can avoid food recalls and protect the brand they've worked so hard to build.

“In the Jimmy Dean sausage facility, the overall yield improvement after six months was 0.1 percent, which doesn't sound like a lot, but it adds up quickly over 100 million pounds of sausage. That yield actually paid for the project itself.”

– Johnathan Reichert
Senior Engineer - Innovation