

In the highly competitive poultry processing industry, profit margins are tight and continued success depends on maximizing efficiency and minimizing mistakes at every step in the process. In this industry, “trimming the fat” and “cutting to the bone” aren’t slogans, it’s just taking care of business.

Perdue Farms, founded in 1917, is the number one brand of premium fresh chickens in the eastern United States and a food and agricultural company recognized globally for quality, service and reliability. Perdue Farms is headquartered in Salisbury, Md., and has two chicken processing plants in Delaware, one in Georgetown and the other in Milford. The two plants, plus a distribution center in Georgetown, employ about 2,500 people.

Managers at the Perdue plants in Georgetown and Milford, as well as managers at a plant in Accomac, Va., identified several areas for improvement when they contacted the Delaware Manufacturing Extension Partnership

for Six Sigma training. The issues Perdue managers wanted to address included:

- Low productivity in the wing cutup department.
- Reducing errors in inventory tracking.
- Reducing downtime in the weight/price label department.
- Improving efficiency in the cut-up department.
- Reducing waste in the breast trimming department.

Accelerating Change

In the fast-paced world of poultry processing, managers are accustomed to sizing up problems quickly, and making “gut decisions,” says Rafael Perez, the deboning manager at Perdue’s Georgetown plant. “A lot of times we make decisions based on what we feel.”

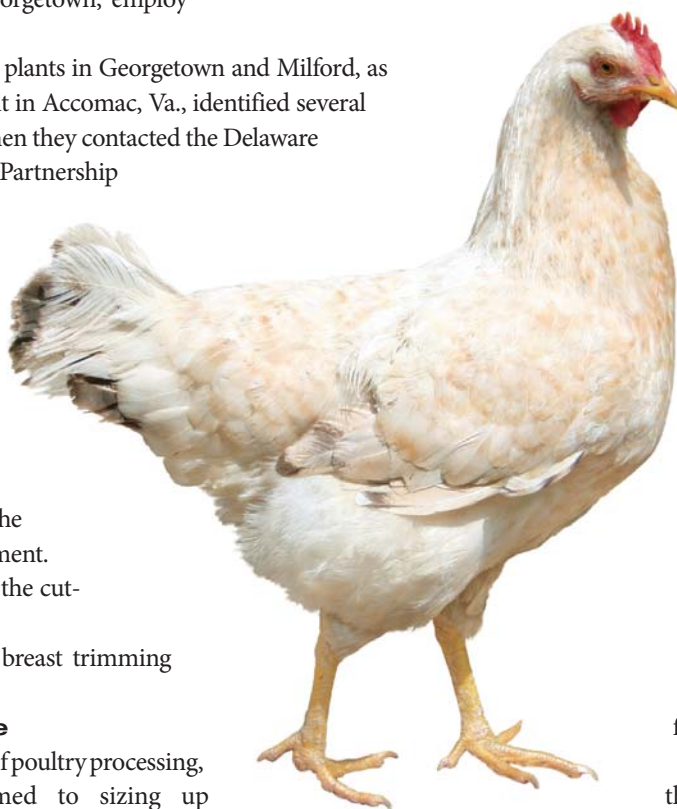
Bringing in Six Sigma trainers from DEMEP brought a cultural change to the plant, Perez says.

“Six Sigma forces you to focus on data,” Perez says. “This process forces you to understand the root of the problem. You keep drilling in, drilling in, until you find the root cause.”

In Perez’s department, the source of the problem was where he thought it was all along, but, before Six Sigma training, he didn’t

PERDUE FINDS SUCCESS WITH SIX SIGMA

BY LARRY NAGENGAST



have the data to prove it. The solution, however, required a little more analysis.

At the plant, the wings move into Perez’s department after they have been removed from the chicken breast. The wings, covered with ice, move down a conveyor belt to a machine called a “wing splitter.” A handler picks the wings out of the ice and mounts them on the splitter, which then cuts them into three parts – the drumette, the flat and the wing tip.

The drumettes and the flats are usually packaged on trays or in 10-pound bags and sold as “party wings.” The wing tips are usually packaged for sale in Perdue’s Chinese market.

Before Six Sigma, Perez’s team was processing about 165 pounds of wings per worker hour. He believed productivity would improve if workers didn’t have to pick their way through the ice before putting the wings on the “wing splitter.”

Several changes were attempted. First, instead of packing the wings in vats and covered the wings with 25-pound bags of ice while waiting for processing. This made it easier for workers to handle the wings, and process more of them faster; however, it resulted in the wings being processed at temperatures of just over 39 degrees, too close for comfort when

Perdue quality standards mandate a maximum temperature of 40 degrees for processing.

That led to the better solution: rather than dropping the wings in ice after they were removed from the breasts, they were moved directly to vats and the conveyor belts for processing – without the ice or the wait. The wings proved easier to handle, so productivity increased.

In the Weight-Price Label department, manager Mario Agapito had two key concerns – miscalculations of inventory and excessive downtime in the labeling process.

In its simplest terms, the inventory issue comes down to this: top management wants to know how many chickens (or pounds of chicken) are in the plant – and how much of that total is processed, and how much is waiting to be processed.

The problem, Agapito says, is that the numbers on the weekly adjustment reports weren't adding up, even though none of the inventory had left the plant. How big a problem was this? In the summer of 2006, adjustments to inventory were averaging \$66,000 a week. By November, the figure had tripled, to \$198,000 a week. "We were the worst in the company," Agapito says.

To resolve the problem, Agapito began a careful review of the inventory reports. He found that the tallies were being taken at different points in the process. As a result, if chicken was pulled off the production line for any reason, it would not be counted in the inventory. That would generate a loss report equal to the value of the unaccounted-for chicken. Then, when the once-missing chicken was processed, it would turn up as a surplus — and again be reported as an error.

"It all came down to training — of both our managers and the hourly workers. They weren't doing the reports right, and we were wasting a lot of time trying to figure out where the missing product was," Agapito says.

Agapito has now trained his team to tally the inventory at every point in the production process at the end of each shift. That way, all the product, regardless of where it is in the process, gets counted once — nothing is missed, nothing gets counted twice. They're also doing the inventory daily instead of weekly, so it's easier to track down any problems.

Another ongoing problem at Perdue's Georgetown plant was excessive downtime on the line that weighs and labels the packaged chicken. Bins of chicken are moved from throughout the plant to the weight-price label line. On the line, a worker places each package on a conveyor belt, which carries it over a scale and under a machine that places an inked label on each package. There can be many reasons for downtime on the line, including no product to process, packages falling off the conveyor belt, a changeover in the type of product being processed, or a mechanical failure.

"We'd collect some data, then we'd go back two or three times to figure out whether we were getting the correct data to analyze the problem," Agapito says. Finally, he says, the team figured out that a malfunction in the labeling machine was causing 27 percent of the downtime in the weighing/labeling operation.

Then came the tricky part — figuring out what part of the labeling machine was causing the printing to fade. That, too, took multiple reviews before determining that the issue was with a pivot in the print head that tended to break down every eight weeks or so.

The solution: sanding and smoothing the print head on a regular schedule — every seven weeks.

In the Cut Up Department, managers also sought to eliminate inefficiencies in the production line. The team in charge of this project studied the sources of downtime and determined that the main bottleneck in the production flow was occurring at the opposite end of the operation from where the team originally thought it was.

Another team worked on improvements in boneless breast trimming reduction. This team tried to identify the areas of the breast that were being trimmed off the most and causing the biggest percentage of downgrade (pieces and trim). Before the study, this team believed that the large amount of downgrades was occurring because of blood and bruises generated during the slaughtering process and the resulting trims that had to be made.

The study showed that the main cause of the blood and bruises was a bone left on the breast during the deboning process. When the trimmers had to remove that bone, they wound up trimming an excessive amount of the breast. The team determined that additional training of both deboners and trimmers on proper techniques would be the first step to reduce the

'We're saving a quarter of a million dollars a year. We're using fewer hours to process the same amount of product, and we've moved workers to other parts of the plant where they're more needed.'

— Rafael Perez, deboning manager, Georgetown processing plant

trimming percentage.

Results All Around

In the wing cut-up department, productivity increased from 165 pounds per worker hour to 189 pounds per worker hour. The changes in processing reduced downtime and, with fewer workers now needed to process the same volume of wings, workers could be moved to other areas of the plant where additional support was needed.

Errors in the weekly inventory adjustment reports have dropped dramatically — from \$198,000 a week in December 2006 to \$3,000 a week in February and all the way down to \$150 a week in March. "We've basically eliminated the problem," Agapito says.

On the Weight-Price Label line, the most significant cause of downtime has been eliminated.

In the Cut Up Department, resources were reallocated to improve the product flow.

In the boneless breast trimming area, additional training has reduced the percentage of waste and improved the overall appearance of the product.

And Six Sigma has become a way of life.

"The training makes you a lot more critical, and teaches you not to make assumptions," Perez says. "You start being more analytical — you look at the data, you look at the facts, before you make any decisions." ■