



## How Sweet It Is Candy maker Just Born, Inc. no marshmallow when it comes to production efficiencies



**Just Born, Inc., headquarters  
Bethlehem, Pennsylvania**

McElvain, the candy company's vice president of supply chain management, explains a lot about how this mid-sized company has been able to maintain its

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“We are very committed to our people and our community. We even see our vendors, the people who supply us, as part of our team. We’re all associates working together to solve problems.”

This description of Just Born, Inc.’s culture, as characterized by Kevin

position in a highly competitive industry dominated by giants like Nestle, Hershey and Mars.

Just Born is a family-owned confectioner best known for its products: Marshmallow Peeps®, Mike & Ike®, Teenee Beanee®, Hot Tamales® and Zours®. But there’s nothing mom-and-pop about it. Just Born’s Bethlehem, Pennsylvania, plant pumps out some four million Peeps® products annually, including its original Easter chicks and bunnies, Halloween cats and ghosts, and Christmas snowmen, plus over six million cases of other molded products produced across its 12 packing lines.

Keeping pace with the industry big boys requires more than just huge production numbers. It takes a concerted effort by every associate to focus on containing and reducing costs through continuous improvement with an emphasis on product quality, and more effective use of its labor force.

“My mandate is to improve operations,” explains Mr. McElvain, who joined the company in 2004. With that in mind,

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he points to three important factors that helped him devise a plan of action.

“First of all, I knew we had the right people. But I recognized that we were missing some experience and knowledge and vision that comes from exposure to other industries and other companies within our industry. Finally, I knew I didn’t really have the staffing to step up to that whole new level that would drastically improve performance.

“I realized I needed an outside resource that could help me deliver a vision of best practices and to provide a lot of the extra horsepower we’d need to accelerate what we are capable of doing.

“While I strongly believe that the majority of ideas for improvement already exist within an organization, that people have been talking and thinking about them, they sometimes aren’t able to put different ideas together to form a bigger idea, or they aren’t able to present and sell their ideas because they’re so wrapped up



**Kevin McElvain, Just Born’s Vice President of Supply Chain Management**

in their day-to-day work.

“The greatest value a consulting firm brings is that they assemble all those ideas, put them together logically, present them, and then help execute them in a way that benefits the company.”

### **The Selection Process: Choosing the Right Partner**

After talking with five different firms, Mr. McElvain engaged USC Consulting Group (USCCG), an operations management firm highly regarded for its

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supply chain expertise. He underscored the fact that USCCG displayed a strong belief in their own ability to help Just Born reach its goals based on an analysis they conducted over the course of three weeks, and their willingness to help implement their recommendations. But the icing on the cake came in their promise that “if at any point we were dissatisfied, we could cancel the engagement and pay only up to the date we cancelled. That’s a total commitment and belief in your ability. That meant a lot

to me,” Mr. McElvain said.

The scope of the project included manufacturing, maintenance, sanitation and a portion of the distribution and logistics network.

One of the initial projects for USCCG within both the marshmallow and molded product categories was addressing the equipment uptime, throughput capabilities and “giveaway,” or package overfill.

The molded products are packaged in a number of sizes ranging from a half-ounce holiday Halloween pack to as large as a ten-pound bag. With their high-speed equipment, those packages fill at the rate of 400 to 500 units per minute.

The consulting team developed an analysis of actual fill rates compared to standard fill rates compared to label weights. This analysis revealed that, historically, Just Born had been overfilling the packages. To minimize giveaway, USCCG totally revamped the manufacturer’s statistical process control (SPC), which, as explained by Just Born’s Quality Assurance Manager Analee Rubio, “is a charting technique used to measure the variation of a process and to ensure the average remains fairly consistent.”

USCCG redefined SPC controls and rules, based on input from the quality department and production teams, which helped attain better accuracy in the fill rates. USCCG then trained some 120 associates over three shifts in SPC so that machine adjustments and modifications could be made throughout a shift.

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“Implementation required every marshmallow depositing operator, packing person, line operator and maintenance associate to be educated in SPC,” says Ms. Rubio. “We trained, we implemented the processes and have already saved hundreds of thousands of dollars.”

Another aspect of USCCG’s assignment was minimizing production interruptions and mechanical downtimes. All of Just Born’s equipment is highly automated and with one packing line running at 400 units a minute, for example, and another at 180 units a minute, there are a lot of fast moving parts going at one time. Supervisors knew that improving machine efficiencies would help them achieve the strategic objective of reducing supply chain costs, because the more efficiently a machine runs, the less costly the product is to make.

USCCG established meaningful data collection and analysis capabilities for the production lines supported by a technology application USCCG custom configured for Just Born. Renamed “Jay Boss” (for Just Born Operating System), it accumulates and interprets such raw data as downtime, line and labor efficiency, production, and scrap figures, which it then translates into actionable, real-time reports. Trends and patterns for packaging run issues, machine breakdowns and over-weight conditions, among others, are made available so that timely responses can be made in the most cost-effective way.

According to Jim Mulholland, Bethlehem plant manager, “Jay Boss has helped manufacturing focus on the most critical problems we face in order to improve our performance...and we have seen significant contributions already. It’s hard to imagine life without Jay Boss.”

### Sustainable Improvement

“I would say the greatest long term value we reaped from our work with USCCG,” says Mr. McElvain, “is from the

*“The main skill that was permanently transferred to our people is using factual data. ... we’re much more analytical as a team.”*

underlying measuring systems, what we call Jay Boss, and the SPC systems we put in place to control our processes. It’s the implementation of long-term sustainable tools that will allow those people whose hearts are in the business to really contribute and see the value of their contributions show up in charts and at meetings and in the bottom line.

“The main skill that was permanently transferred to our people,” says Mr. McElvain, “is using factual data. Before this project, we were a lot of people with a lot of different opinions. Now it’s much more black and white and we’re much more analytical as a team. That’s a big accomplishment.”

When asked how USCCG worked with the Just Born associates, Mr. McElvain answered this way: “It’s very hard to push people and get people to change and do it in such a way that you don’t cause huge waves. USCCG pushed hard enough to create tension, but not so hard that people became frustrated and not so soft that we couldn’t accomplish as much as possible in the given time frame. The entire staff is very appreciative of what they learned, how they grew and the tools they now have.”

The proof is in the numbers.

In molded products alone, overfill was reduced by 50 percent and productivity was up between eight and 12 percent. On the marshmallow side, productivity improved nearly ten percent and marshmallow overfill was reduced by 40 percent.

All of these improvements translate to significant financial gain for Just Born.

“We were looking for a return on investment at around \$3 million on an annualized basis,” said Mr. McElvain. “We got that and then some. And when I say annualized savings, it’s not that we got the savings one time and we’re going to fall back. We recovered our initial investment in the first year. More than that, we created a culture where we can continue to grow that number. I don’t think there’s any potential end to the upside.”



# Planters' Six Sigma Results More than Just Peanuts

By Frank Esposto, Senior Resource Development Manager



*Frank J. Esposto, Ph.D., is a Master Black Belt and heads USCCG's Quality/ Six Sigma Practice. He has trained many Black Belts and Green Belts across numerous*

*industries, where he has implemented Six Sigma initiatives in combination with Lean.*

Six Sigma can be applied effectively to any industry to obtain solid financial results. USC Consulting Group's results for its clients are not only about understanding all the tools within the Six Sigma toolbox, their benefits and how they complement our Lean activities, but it is also about knowing which tools are needed where, when, and how. Simply put, applying Six Sigma is about analyzing, and surgically dissecting systems with the aid of tools, and then taking action to improve processes. This short article discusses how USCCG has taken advantage of some of the Six Sigma techniques, tools and methods to improve yield for Planters Peanuts, a division of Kraft Foods.

Most of you have had Planters Peanuts at some point in your lives. But, have you noticed that a jar of dry roasted peanuts contains whole peanuts and split peanuts

or halves? Have you ever counted how many peanuts are split and how many are whole and determined the ratio? How about the red skins? Have you noticed any in the jar? Have you counted the number of red skins and computed a percentage?

Probably not, but at Planters these ratios are critical to quality (CTQ) requirements and for good reason: They prevent the loss of millions of dollars to the bottom line.

When peanuts split, a heart is lost. What is a heart, you ask? It is a tiny piece of the peanut that looks something like a sunflower seed that is lost at the "head" of the peanut. The more splits created, the more hearts lost. Since jars of dry roasted Planters Peanuts are sold by label weight, the more whole peanuts in a jar, the greater the yield. Thus, the objective is to reduce the variation of splits and push the average percentage of splits lower.

Peanuts can split anywhere in the process, from receiving the raw material to shipping the final product. So we began our analysis of the operation with a handy first tool called a process map, which provides a graphical representation of how the process is actually performed, from start to finish. It tells what is happening, where it is happening, who is doing it, and how inputs and outputs are

handled. Once the outputs of each process step were statistically analyzed, process steps attributing to high splits were identified and prioritized using Pareto analysis.

The blanching process is the main culprit in generating splits. The purpose of blanching is to remove red skins by mechanical massaging using various drums. Statistical process control (SPC), which is used to determine process stability and predictability, showed a great deal of variation and instability. Process capability (a statistical tool) was used to see how well the process step is capable of generating peanuts within the specification limits of splits. Any changes made to the process will be statistically compared to this baseline or current process performance.

The drums can be set at different heights to produce different results. More mechanical massaging occurs with lower heights, resulting in more red skins removed, however, the tradeoff is more splits; they are inversely proportional to one another.

The blanching process has three temperature zones to help loosen the skins during the massage process. The peanuts also move down the conveyor at specific speeds. In fact, these are the three main factors (drum height, zone



temperature, belt speed) impacting splits and red skins at the blanching process.

These “vital few” factors were identified from a longer list of factors. Through the aid of linear and multiple regression analysis (a statistical tool used to quantify the strength of a linear relationship between a continuous input and a continuous output), we were able to reduce the long list to these three.

A design of experiments (DOE) was then conducted to attempt to optimize the blanching process and reduce splits.

A DOE helps find optimal settings for these three factors. The resulting mathematical relationships look like this:

$$\% \text{ Splits} = 27.906 + 5.4\text{DH} + 2.402(\text{T2} * \text{T3} * \text{BS}) + 2.04(\text{T1} * \text{T3} * \text{BS}) + 1.95(\text{T3} * \text{BS})$$

$$\% \text{ Reds} = 20.08 + (-12.6)(\text{DH}) + (-2.77)(\text{BS}) + (-2.43)(\text{T2}) + (-2.43)(0.49)(-2.77)(\text{T2} * \text{T3} * \text{BS})$$

where,

T1, T2, T3 = zone temperatures

DH = drum heights

BS = belt speed

Using this equation with the aid of an algorithm developed at USCCG, we were able to identify the optimum drum height, temperature, and belt speed settings to reduce the variation and shift the percentage split average from 53% to 27%. We also were able to maintain the percentage of red skins within the specification.

The result was increased yield, adding several hundred thousand dollars to the bottom line.

# Progress Report

## Robert Goode New Human Resources Director



Robert Goode has been named director of human resources. He was most recently director of human resources for AmeriPath/Center for Advanced Diagnostics in Orlando, Florida. Earlier he was divisional human resources

manager and labor relations director at Columbia Propane in Richmond, Virginia and senior human resources manager at Safety-Kleen Corporation in Elgin, Illinois.

Mr. Goode earned a bachelor's of business administration degree from Monmouth College and a master's degree in management of technology from the University of Miami, Florida. He holds certification in personnel administration and labor relations from the University of Maryland and strategic collective bargaining from the University of Michigan.

He is a national member of the Society for Human Resource Management and has been certified by

that organization in executive finance and accounting. He is also a certified instructor for the National Safety Council. Mr. Goode has served as human resources advisor and public relations consultant for the South Brevard (Florida) Habitat for Humanity.

“Bob Goode will be a strong addition to our administrative staff,” said George W. Coffey, president. “His 20 years as a human resources professional in such industries as government, utilities, health care, and environmental services have honed his skills in those areas that we feel are keys to our continued success: employee development, performance management, training, and strategic planning.”





*First we make it work. Then we make it last.®*

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