

The Final Edition

Grayway

A New Model of Success

End-to-End Innovation Transforms Turkey Operation

A JOURNAL FOR BUSINESS AND INDUSTRY

Welcome.

The food & beverage industry is ripe with opportunity. Although it holds razor-thin margins for error, it's packed with promising chances to make operations leaner, capacity higher, products safer, and customers happier. And that's where Gray comes in.

Prestage Farms recognized an opportunity to innovate its processes and overhaul existing operations. Through a recent partnership with Gray, Prestage built a new, highly automated facility that addressed challenges, increasing production capacity and efficiency.

This greenfield plant is not only best in class for production, but also for the employees. Prestage invested extensively in processes and resources to ensure they were good for both the bottom line and for those responsible for day-to-day production.

As the food & beverage industry continues to evolve, so will facilities. Companies like Prestage will increasingly look to optimize production through automation and innovation to meet growing demands for customers and the industry as a whole. It's up to us to make sure the best solutions are available to meet the needs of this evolving market.

Finally, we are turning a new page for the **Grayway**. As we continue to expand our reach, Gray is transitioning our message to a digital offering. We're excited about the opportunity to continue to serve our faithful readers with industry content in new and exciting ways.

Stephen Gray
President & CEO
GRAY, INC.



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A New Frontier.

As Gray continues to pioneer our message across an expanding digital horizon, we pass a memorable milestone in our story.



Air It Out.

How a revolutionary processing model vaulted Prestage Foods of South Carolina to the top of the industry.

Innovation in action is an inspiring thing. On a large scale, technological progress can feel abstract, but when applied, the value of innovation is self-evident. Our most impactful tech advances feel natural because they make improvements that are obvious to the untrained eye, even when—especially when—the problem may not have been as obvious. That's the power of innovation: in one seamless action, it clarifies the challenge and provides an equally clear solution.

This apex of innovation is on full display at the Prestage Foods of South Carolina operation in Camden. What the turkey processor has achieved at scale is nothing short of remarkable. Prestage took a model that was working and wiped the slate clean to make room for a creative new approach that allows for a production capacity of 48,000 birds per day with greater efficiency than similarly sized facilities.

Operation Overhaul.

True to its philosophy of continuous improvement, Prestage Foods stressed process innovation as a top priority in the earliest stages of its partnership with Gray.

"When you're green, you grow, and when you're ripe, you rot." This saying was originally coined by McDonald's CEO Ray Kroc but overheard and borrowed by then Gray CEO Howard Gray. This axiom, that has now become common vernacular around Gray, illustrates the company's willingness to take on challenges and has kept innovation at the forefront of our business model as we've grown and evolved over the decades. Such an attitude made Gray a perfect fit as Prestage Foods' design-build partner. Together, the companies eschewed "business as usual" in favor of a focused vision that would set a new national standard for poultry processing.

Following visits to Europe and detailed evaluations of the effectiveness of air-chill processing, Prestage quickly identified this model as the most crucial component of its innovation strategy, and one that would be supported by cutting-edge initiatives for process automation, system integration, and hygienic design. The Gray team considered

FAST FACTS

Designed and built by Gray as a 295,000 s.f. greenfield full harvest facility.

Completed in 18 months.

Features the Western Hemisphere's only scaled air-chill turkey processing model.

Includes 13 miles of shackle chain—tops in the global poultry industry.

Processes up to 48,000 turkeys per day—100 per minute.

Follows the industry's highest standards for humane bird treatment.

improvements to operational efficiency, food safety, and ease of maintenance throughout the design process, and the end solution checked all the boxes for a world-class facility.

Air-Chill Process Features:

- Six separate chilling tunnels with 8,000 turkeys apiece to maintain maximum traceability and food safety
- Four levels of chilling and misting cabinets to maintain product quality
- Automated conveyance and packaging systems for various product cuts
- Fresh product transport (32–40 °F) and blast-freezing (-20 °F) capabilities

Industry-Leading Automation.

Automating processes wherever possible was a driving force for Prestage Foods during the design phase and beyond. Concerning labor markets trends, coupled with the traditional struggles of staffing a poultry processing facility, made this initiative a top priority. Foremost was carefully vetting process equipment vendors for offerings that supported seamless Industry 5.0 integrations. Prestage and Gray partnered with Marel, a market leader in turkey processing and air-chill facilities, for a turnkey facility automation solution.

Business Impacts:

- Automates stages of product conveyance and packaging with Industry 5.0 integrations
- Ranks among world's most efficient operations in terms of harvested turkey breast per man hour
- Solves staffing challenges while saving more than $15 million annually on labor
- Transforms physically demanding evisceration stage into a "no-lift" process for employees and eliminates manual cropping

The Camden facility's automated systems increase sanitation and product shelf life, while drastically reducing labor counts on the production floor. With advanced technology supporting leaner, more efficient operations for the world-class facility, Prestage will save more than $15 million per year. Such impressive returns quickly justified the capital investment in Marel's technology, and Prestage believes these benefits will only be amplified as labor market trends continue to indicate industry-wide staffing shortages.

Leaner operations haven't kept Prestage Foods from maximizing production capacity and efficiency. Thanks to the incorporation of advanced automation, the plant's production of harvested turkey breast per man hour worked ranks among the most efficient poultry operations in the world. As a result, Prestage Foods of South Carolina can produce the same volume of harvested turkey breast as similarly sized facilities, but with roughly 350 fewer employees.

Safer, Healthier, Tastier Products.

Maintaining the highest standards for food safety was paramount to the sanitary design of the facility's processes. The plant includes three dedicated personnel streams to keep live intake, primary processing, and secondary processing fully segregated to avoid cross-contamination between departments. The isolated design offers major advantages for facility sanitation, as this allows cleaning and sanitation processes to commence in one area without disrupting operations in another, minimizing downtime.

The plant's European-style air-chill turkey processing model is a significant change from traditional water-chill processing. To maintain product separation and continuous processing, birds are individually suspended on shackle chains that move via conveyors throughout the refrigerated space. Switching to an air-chilling model improves food safety and vastly reduces the risk of cross-contamination due to the elimination of common chilling water, which can circulate pathogens from one bird to others throughout the system. Air chilling keeps meat tender and eliminates the need to introduce chemicals such as chlorine into food-grade processes, which can be absorbed into the product and impair its flavor, appearance, and nutritional content. Finished products are all natural, USDA Grade A and contain no foreign allergens, chemicals, gluten, or MSG.



Prestage was creative in its food safety measures, introducing interventions not common to the poultry industry, such as the use of pre-scald dry brushes to reduce contamination in the scalding water. The facility's secondary processing areas also feature innovative technology for food safety, such as the use of Clean-in-Place (CIP) systems, vacuum and pump systems, and an ozone skid system that uses a liquid application to treat conveyor surfaces as well as ambient O2 molecules to treat the water supply. Furthermore, Marel's SensorX X-ray and metal detection technology ensure that product leaving the facility meets the highest levels of quality and food safety.

Visibility from Start to Finish.

While air chilling is known to improve the taste, tenderness, and presentation of turkey end-products, it also offers end-to-end data collection for optimal traceability and the industry's most precise yield calculations per bird.

Capabilities:

- Accurate reporting of flock weight distribution a full day in advance of cut-up
- Precise measuring of shackled turkeys throughout air-chill process
- Tight yield tolerance and even distribution across three production lines for birds entering deboning
- Multiple quality control stages for secondary processing, including X-ray, metal detection, and manual inspection
- End-to-end data integrity and ERP storage across integrated QMS, PDS, and WMS systems

Data transmitted by Marel's SmartWeigher and Innova PDS XL software allows the production planner to precisely measure the weight of the shackled turkeys as they move through the chilling tunnels, resulting in real-time feedback that allows Prestage to identify problems and improve efficiency. After chilling overnight, turkeys are evenly distributed by weight to three automated turkey cut-up modules to ensure the tightest yield tolerance through the debone system. Integrations between the facility's Carlisle Live Farm Management System and the Marel Innova System offer end-to-end track-and-trace functionality, transmitting information downstream throughout all data collection points, from live-bird shackling to product shipping.

A Promising New Start.

Historically, Prestage's approach to facility and process design has served it well, allowing it to grow into a nationwide business known for quality and service. But rather than remain static in this approach, Prestage Foods dismantled the processes that were getting the job done to strive for something better. The result is an operation that received **ProFood World's 2023 Manufacturing Innovation Award** for its operational transformation and complete system integration and automation. This overhaul has improved efficiency and reduced costs for the company while delivering a higher quality, more consistent product without passing costs on to customers. Prestage Foods of South Carolina bucks the status quo and raises the bar for the entire industry with a superior production model that is sure to be the new golden standard for poultry processing.

Learn more about Prestage Farms' leading edge processes. →

The Industry's Most **Worker-Friendly Plant**



Traditionally, working in a poultry processing plant for large tom turkeys can be challenging. The roles involved can take a physical toll on workers, requiring continuous lifting and other strenuous tasks. Prestage Foods had a vision to flip this narrative for its Camden facility and developed employee welfare initiatives to improve employee comfort and work-life balance while raising the industry bar for poultry processing facilities.

The most notable of these initiatives has been the implementation of an innovative production schedule. The company's switch to an air-chill processing model, coupled with creative operational shift planning, has allowed Prestage to adopt a 4/10 single-shift facility that offers all production employees a four-day work week. First processing works 10-hour shifts Monday through Thursday. The second processing team works 10-hour shifts Tuesday through Friday deboning and packaging products. This system rewards hard-working employees with the freedom and flexibility to enjoy long weekends year-round and results in considerable savings on labor and utilities.

With first and second processing departments operating only four days a week, Prestage can reduce the number of required cleanings while still maintaining maximum sanitation and food safety. This operational model drastically reduces the volume of water and sanitation chemicals needed for the plant's weekly cleaning cycle. Prestage Foods is proud to be the first turkey processing facility in the country to adapt a 4/10 shift model, and early results have yielded extremely positive feedback from employees and potential hires.

In addition to scheduling changes, Prestage has fully leveraged automated technology to reduce or eliminate the most physically demanding



aspects of the operation. Automation in the plant's evisceration stage was especially impactful. Traditionally, this process can be difficult to keep fully staffed, as manual processing requires team members to lift birds weighing up to 50 pounds for extended periods of time. The newly installed equipment offers advantages in staffing employee ergonomics as well as functional responsibilities. With automated processing, evisceration is now a "no lift" stage for employees. The business's focus on automation solutions also radically transformed the cropping operation, eliminating a physically strenuous job and opening other opportunities for team members. Using conveyors designed and installed by AD Processing Equipment, a Gray company, Prestage ensures that eviscerated parts are automatically conveyed from the production line to the next stage without the need for workers to manually move totes.

To attract the best and brightest employees in the region, Prestage Foods placed special emphasis on employee welfare in the plant's design. Employee facilities feature a spacious layout, easily flowing traffic patterns, large indoor and outdoor break areas, personal storage lockers, and self-service vending. In addition to promoting optimal food and occupational safety, Prestage Foods' use of automation and segregated process areas eliminates the need for employees to be stationed in less desirable processing areas, such as onsite wastewater.

Together, these team-focused initiatives reveal that using technology and innovative thinking to stay ahead of the game isn't just good for the bottom line—it's good for those responsible for making the business successful day in and day out.

Learn more about the Quality of Life benefits Prestage Farms is providing their team members with. →



GrayWay Takes On **A New Frontier.**

It is with equal parts pride and anticipation that we close our final regular issue of the GrayWay. What began as a small, intimate periodical in the late 1970's for our closest friends, partners, and customers has blossomed over the years into a widely distributed publication with a readership that spans all industries and walks of life.

As we've grown, we have always dedicated ourselves to serving our readers with quality stories on relevant industry topics, exciting company updates, and world-class projects. While these goals and passions have not changed, we turn now to a new frontier that will make connecting with you even easier and honor our core value of being customer and relationship driven.

It has been our distinct pleasure to share the GrayWay with you. Please look forward to our regular content on **gray.com**, our monthly LinkedIn newsletter ***Bytes & Insights***, and our other social media channels—including our new Instagram **@lifeatgray**.

We can't wait to see you there!

All the best,

Your Gray Family



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