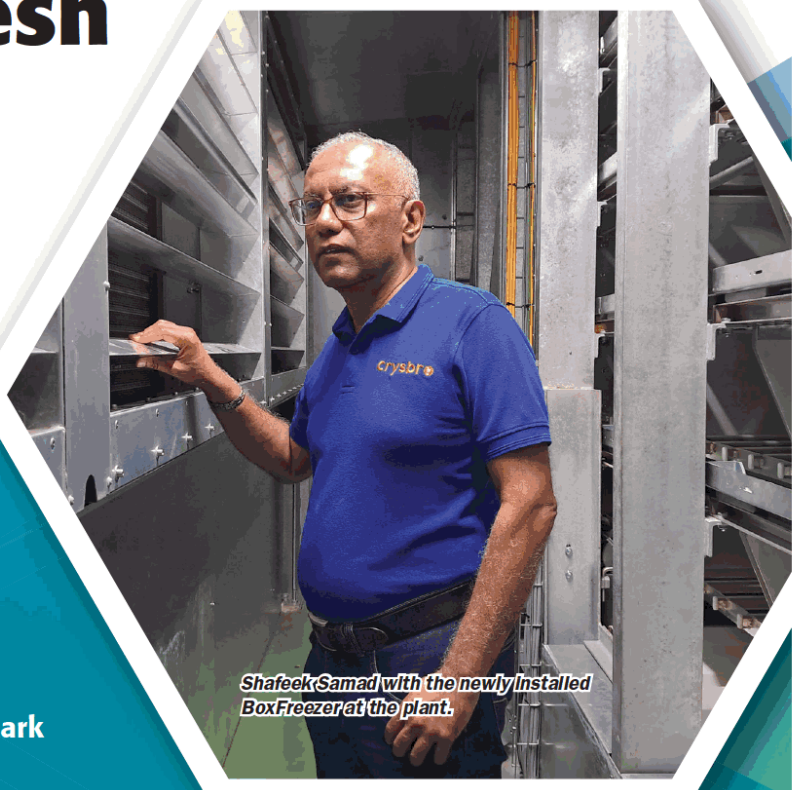
FEATURE

Crysbro's innovative freezing technology keeps frozen chicken fresh



Shafeek Samad with the newly installed BoxFreezer at the plant.

Crysbro Group of Companies, a leading poultry producer in Sri Lanka, is setting a new benchmark in freezing chicken products with its innovative approach to freshness. The company has invested heavily in automating its processing plant to ensure high-quality chicken products, writes ZAHRAH IMTIAZ.

Founded in 1972, the 50-year-old company is a vertically integrated poultry producer with a grandparent farm, hatcheries, broiler farms, and feedmill. In 2006, it established a joint venture, Fortune GP Farms, with another leading integrator, to set up a GP operation with Cobb-Vantress, USA. The operation today supplies a major share of the local poultry industry's requirements for broiler PS while exporting.

Basic freezing is not good enough

Around 50% of the market in Sri Lanka is dominated by frozen/chilled chicken products, but whether all products retain the same quality is questionable. Shafeek Samad, Director at Crysbro, told *Poultry & Meat Asia Magazine* that many rely on batch-freezing techniques like blast freezing. This is now outdated.

He explained that they invested in automating their freezing technology with ▷

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a BoxFreezer (from AAT-Freezing, a BT-Systems GmbH division in Austria) to achieve an 'instant' and 'uniform' product freeze. "This means there would not be a lag between processing and freezing, assuring product freshness. This minimizes drip loss and ensures a first-in-first-out process for our products," he said.

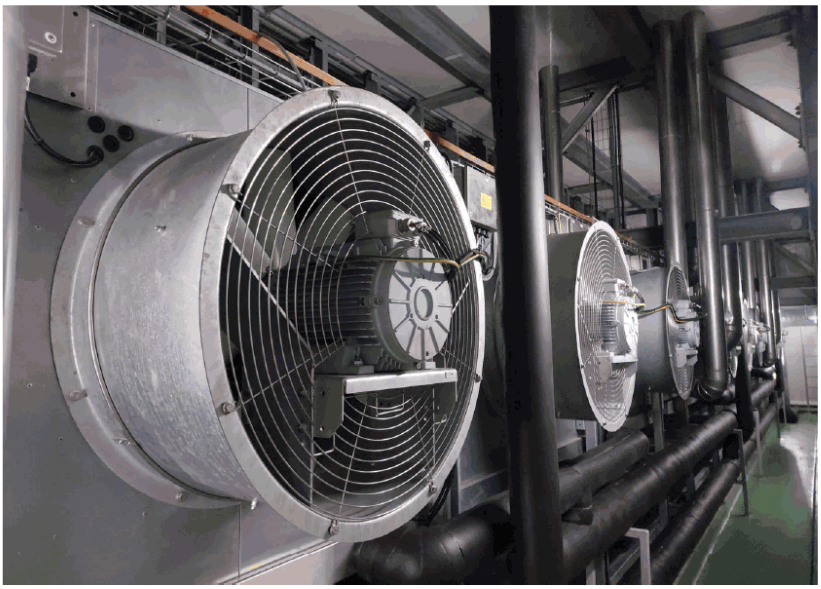
In this special BoxFreezer, air coolers are arranged laterally so the airstream blows directly through the product stack. The freezing air reaches the product faster and shortens the freezing time. The total air distance is shorter than in other systems because the air must only cross the plant's width.

This minimizes ice crystal formation on the chicken, better preserving the meat's texture, flavor, and nutritional value because it freezes faster than a traditional blast freezer. The uniform freezing also reduces the risk of freezer burn and maintains high product quality.

Complete automation from the start

Crysbro also had to automate the packing line to accommodate the new freezing system. The 6000 birds/hour plant already operates fully automated scalding, plucking, evisceration, and cut-up lines. A longer plucking tunnel was previously introduced to ensure the birds are subject to soft scalding. "This avoids burn marks on the breasts," added Mr Samad.

He also highlighted that the plant benefits from a reliable and fresh source of soft water—low-mineral-content water from a nearby river—which significantly enhances the quality of the birds processed.



Blowers attached to the BoxFreezer help circulate the air within the system.

To preserve the purity of the water source, Crysbro dedicates itself to environmental sustainability through its advanced water purification system, which dilutes effluent at a ratio of 1:7 before returning it to the river. The company's commitment to eco-friendly practices has earned it the ISO 14001 certification for Environmental Management Systems.

Conveyor belts were introduced to accommodate automation of the packing line, allowing a continuous flow of products from cut-up to freezing. Mr Samad noted that this allowed them to reduce the number of freezing and logistics crew by 50%. In addition, the BoxFreezer has made the plant's energy consumption more efficient while lowering its overall carbon footprint. Furthermore, using ammonia instead of freon in a centralized two-stage refrigeration system supplied by GEA, Germany, results in an environmentally friendly and highly efficient overall system.

At the packing line, products are also categorized into their respective SKUs and packed in bar-coded boxes, allowing them to be tracked on their way to the Freezer and beyond. Mr Samad explained that the BoxFreezer, which can accommodate a 9000 kg/hour capacity, is divided into 18 different zones to accommodate various types of products.

These zones can operate with three distinct temperature zones thanks to polyisocyanurate insulation panels, allowing different products to be processed at varying temperatures within the same unit. This capability is particularly beneficial for handling diverse product types, from chilled to deep-frozen.

Additionally, the BoxFreezer's zoning feature provides significant energy-saving potential. During periods of lower production output, one or more zones can be switched off, reducing energy consumption without compromising efficiency. This adaptability makes the BoxFreezer highly efficient and cost-effective, particularly for operations with fluctuating production demands.

The Freezer also maintains a steady temperature of -40 degrees as products are loaded and unloaded. Thereafter, frozen products are automatically sent to storage at -20 degrees before being delivered to their final destinations.

The BoxFreezer's machine room accommodates a compact and energy-efficient freezing unit for the plant.

Refrigeration equipment supplied by GEA Germany.

Going global

The complete automation of the freezing section, through the BoxFreezer, allows the company to remotely monitor and control the process, even via a mobile phone, said Mr Samad. This also allows the equipment provider to perform preventative maintenance on the machine from other parts of the world. This reduces breakdown times and maintenance costs, noted Mr Samad.

Crysbro has also enhanced hygiene and prevented cross-contamination by implementing separate staff canteens for workers in different plant areas. These measures align with international best practices and ensure that their products meet stringent quality standards.

This is the final stage of automation for the company's processing plant, which started 24 years ago. Mr Samad believes these upgrades will help the company gain an advantage in export markets, particularly in the EU, where poultry products must meet rigorous standards. "Our chicken today can meet any international standard, given that we control the whole value chain from GP to final product. The next step is taking it global." ■

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◁ comparison with the control group (Table 1).

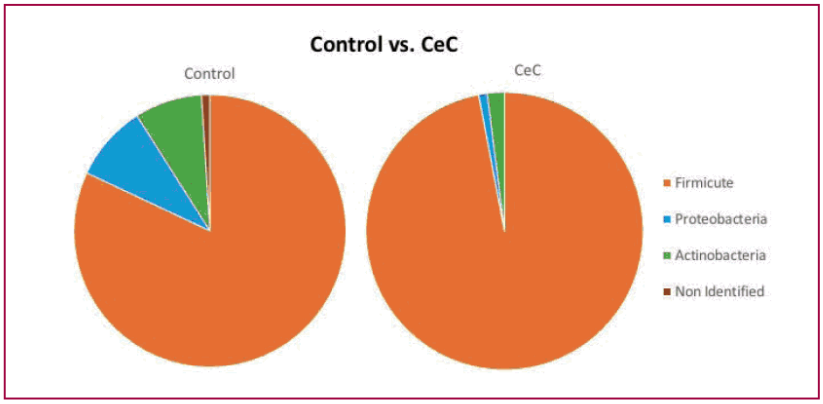
Birds supplemented with CeC had a significant higher live weight than control group animals (+1.9%). Feed conversion ratio (FCR) was numerically improved by -0.5% with CeC supplementation, exhibiting that CeC, with its mode of action on the modulation of gut microflora, helps support nutrient absorption (Table 2).

Evidence-based practice

Following many in vitro studies indicating the effects of CeC against pathogenic bacteria, this in vivo trial has demonstrated that CeC influences the gut morphology and microbiota of broiler chickens. By favoring the development of commensal microflora, such as Lactobacillus, and by limiting the development of pathogenic microflora, such as E. coli, CeC has a positive impact on average daily gain and FCR.

B-Safe is a patented combination of copper ions at a very low level and a synthetic zeolite, backed by more than 35 research trials. With these promising findings, ADM has developed a feed solution to support poultry growth and ensure a well-balanced and secure microflora during the whole life cycle of broilers. This CeC solution has been shown by the literature to be a reliable improvement in animal protein production efficiency and animal health, thanks to effective modulation of the chicken gut microbiota.

Figure 1: Family microflora diversity in the gut of each group



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