INTERNATIONAL 33 / 2020

MEATINGPOINT magazine

SUSTAINABLE TECHNOLOGY, PROCESSING & PACKAGING

VEGAN MINCED MEAT, SECURELY AND SUSTAINABLY PACKAGED IN PAPER-BASED ETRAY®

METAL DETECTION VS. X-RAY INSPECTION: HOW EACH ENABLES SAFER FOOD PROCESSING

TRANSFORMATIONAL PLANT MEAT FORMULA

CLEVER CONCEPT FOR IMPROVED HYGIENE IN THE PROCESS

LASKA 14½ years

High cutting speed and perfect product quality.

Improved blade shaft
Custom-developed bearing technology and seals allow high cutting speeds of up to 160 m/s, while increasing operational safety.

360-degree cutting
Special cutting geometry, optimised knife shape, and improved cutting chamber ensure a uniformly fine and consistent product.

Outstanding product quality
Improved fineness, stability, and mixing of sausage meat thanks to small cutting gaps, variable knife head and bowl speeds, and backwards movement.

Simple to clean
Innovative seals, closed base plates, and knife hoods that swivel out to the side reduce cleaning time and expense.

laska.at

Dear reader,

Jenny Smart

I'm sure I'm not alone in feeling the sense of a fresh start with the beginning of September. The excitement of the 'back to school' September feeling can result in an increased willingness to make changes, and increase productivity. A positive frame of mind is more conducive to enhancing focus and concentration, and so we are more likely to attain our goals and resolutions by starting them at this time of year. September also brings with it an inescapable urge to better yourself, set new career goals, and timelines. Let's get started! To begin with, you can review the newest innovations in the meat and poultry industry in our latest issue.

Our food safety feature addresses the importance of identifying and sorting out defective packaged food products as it is critical for protecting the consumer. The article aims to provide a better understanding of equipment performance so that the probability of foreign object contamination is minimised. Both metal detectors and X-ray inspection are used to inspect packaged food products and detect the presence of foreign objects, but which technology is ideally suited for your intended application? Find out on pages 42-43.

This issue's cover story " Vegan Minced Meat, Securely and Sustainably Packed in Paper-Based eTray" demonstrates how the perfect match can be achieved when companies are sharing common values of sustainability and responsibility. Sealpac's resource-saving packaging solutions meet the requirements of Ponnath Group " As little plastic as possible, as much as necessary". Read the article on pages 26-29.

Henk Hoogenkamp continues his article series on pages 30 -34. This issue's article details how plant-based proteins continue to grow in popularity and how rising health awareness and shifting dietary preferences will generate increased demand for meat analogs. These "lifestyle foods" practices, including veganism and flexitarianism, have been edging into the mainstream options.

As always, we have some latest business and industry news, sustainable packaging trends, research articles, and customer stories.

Enjoy your read!

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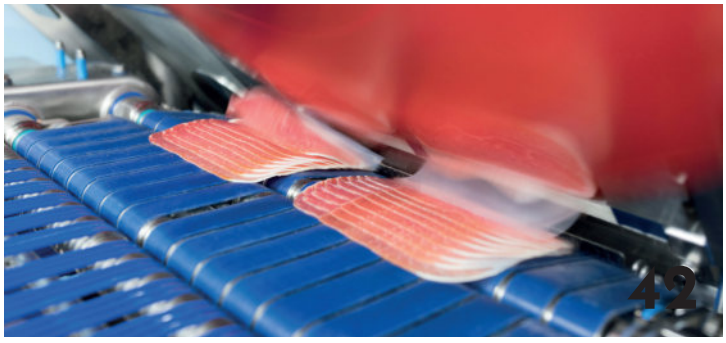

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* Food Safety, Hygiene, Disinfection
* Freezing Equipment
* Production and Packaging of Convenience Food

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BETTCHER INDUSTRIES ANNOUNCES NEW SENIOR EXECUTIVE APPOINTMENTS, PROMOTIONS

Bettcher Industries, Inc. announces five senior executive appointments pertaining to Bettcher Group and its sister organization, Cantrell•Gainco Group, effective immediately. These appointments position the organization to achieve robust sales growth while moving into the future with strong, purposeful leadership.

Bettcher Group

Ed Steele has been promoted to president – Bettcher Group, where he is responsible for guiding the company's vision, strategic and operational plans encompassing market strategy, pricing, product development, operations and branding. Steele joined Bettcher in 2012 as vice president of engineering and quality, subsequently receiving several promotions, most recently as vice president of operations. Prior to joining Bettcher, Steele held a variety of key managerial roles in engineering, sales and service, including as vice president of engineering for a division of Danaher Corporation. He holds a bachelor's degree in electrical engineering from Ohio State University and an MBA from the University of Cincinnati.

Ed Steele, newly appointed Bettcher Group president.

Mark Host has been promoted to vice president of sales – Bettcher Group, with responsibility for the strategic direction of the company's sales and service activities including worldwide distributor management, equipment sales and service. His focus encompasses developing and implementing programs and practices to increase sales and profitability, along with participating in acquisition efforts and new product development initiatives. Host joined Bettcher Industries in March 2020 as North American director of sales, bringing more than 20 years of experience in the food, beverage and agricultural sectors while working in a variety of leadership and managerial roles in business development, key account management and organizational growth/profitability positions, including as western hemisphere sales director for TOMRA Sorting Solutions. In addition to his extensive industry and managerial experience, his educational background includes a bachelor's degree in biology from St. John's University in Collegeville, MN.

Mark Host, newly appointed Bettcher Group vice president of sales.

Kyle Stoffer has joined Bettcher Group as chief financial officer, where he is responsible for financial stewardship, information technology and risk management. His responsibilities include setting financial and operational strategies, developing metrics tied to those strategies, and developing control systems to ensure accurate financial reporting and preservation of company assets. Stoffer has extensive background and experience in all facets of business finance, most recently serving as vice president and chief financial officer at Master Fluid Solutions. He has also held key business and financial roles at Clarcor Engine Mobile Group (acquired by Parker Hannifin) and

Kyle Stoffer, newly appointed Bettcher Group chief financial officer.

Eaton Corporation. Stoffer holds a bachelor's degree in finance from Central Michigan University and an MBA from Case Western Reserve University.

Cantrell • Gainco Group

Thomas Holm has been appointed president of Cantrell•Gainco Group, where he leads the company's strategic and operational planning including establishing market strategy, pricing, new product development, operations and branding aimed at achieving above-market revenue growth along with increased customer penetration. Prior to joining Cantrell•Gainco, Holm was employed by Bettcher Group since 2012 in positions of increasing responsibility – most recently as president of Bettcher. With more than 20 years of managerial experience in protein processing segments, Holm's roles have included sales and business development positions at FOSS Analytical in Europe and Scanvaegt in the United States. In addition to his extensive industry background, Holm holds a degree in business from Aarhus Business College in Denmark. He also served in the Royal Danish Army as part of the Danish special operation forces.

Thomas Holm, newly appointed Cantrell•Gainco Group president.

Russ Stroner has been appointment vice president of sales – Cantrell•Gainco Group, with responsibility for establishing and carrying out sales and service strategies including plans for increased focus on international markets. Stroner will also participate in new product development as well as acquisition initiatives. He has more than 20 years of experience in domestic and global sales and service within the food processing industry. Prior to joining Cantrell•Gainco, Stroner served as Bettcher Group's vice president of global sales, and before that held key senior management, sales and business development positions at MP Equipment, LLC and Provisur Technologies, Inc. where he achieved significant business growth and profits in domestic and international markets. His educational background includes a bachelor's degree in engineering management from Lacrosse University.

Russ Stroner, newly appointed Cantrell•Gainco Group vice president of sales.

Commenting on the new appointments, Tim Swanson, chief executive officer stated, "These moves underscore our commitment to building a leadership team with a shared vision of maximizing organic growth, acquiring new capabilities and enhancing our business system. We see these actions as a foundational step in accelerating our growth agenda on a global basis."

www.bettcher.com

SECANIM UNVEILS STATE-OF-THE-ART ANIMAL BY-PRODUCT PROCESSING FACILITY

SecAnim, the UK's leading provider of safe and secure collection and disposal services to the farming and meat production sectors, has unveiled an all-new Category 1 animal by-product processing facility at its pioneering renewable energy and recycling site in Widnes, Cheshire. The world-first operation completes a two-stage site regeneration plan, supported by a capital investment of more than £15 million.

Set to be commissioned in October 2020, the Shepherdson High Efficiency Plant (SHEP) will turn raw material into high-quality tallow and meat and bone meal. The tallow will be used as a core ingredient for the production of biodiesel, by companies such as SecAnim's sister company ecoMotion, while the meat and bone meal will provide fuel for the site's combined heat and power (CHP) biomass plant.

At the heart of the SHEP development is a highly advanced primary processing plant, which harnesses the latest advancements in low-temperature drying technology to maximise operational efficiencies. Designed to minimise environmental impact, the facility uses significantly less energy than the operation it replaces and is powered entirely by renewable electricity generated through the Category 1 animal by-product (ABP) rendering process. The plant harnesses state-of-the-art automation and health and safety processes (including gas detection and operator protection measures), while also setting the standards in odour elimination technology.

Operating alongside the site's existing ReFood anaerobic digestion (AD) plant, SARVAL Category 3 rendering facility and bubbling fluidised bed (BFB) power plant, the SHEP development will complete the Widnes site's pioneering operations, which will collectively provide the world's first fully-integrated solution for protein manufacturing, biomass recycling and renewable energy production – harnessing next-generation technologies to maximise the value in by-products arising from across the food chain.

Heat required for the SHEP's operations will be provided by the on-site biomass CHP plant, supported by biomethane from the ReFood AD plant. Effluent will be treated on-site, in line with the latest environmental standards, while the CHP plant will also be used to eliminate odours from the SHEP facility, rather than relying on chemical treatment.

Collectively, the plants will also provide a recycling outlet for the disposal of bioliquids, as well as producing two arable fertilisers (Kalfos, a dry phosphate product; and ReGrow, a PAS110 liquid biofertiliser) – a completely integrated, closed-loop solution for the UK's food supply chain.

Philip Simpson, commercial director at SARIA – parent company of SecAnim, SARVAL and ReFood, commented: "Our Widnes operation has provided safe and secure animal by-product processing services since the 1930s. The site has long-since featured in the UK National Animal Disease Control and Eradication plans.

"We are delighted to unveil the culmination of our redevelopment programme, which creates a completely unique, fully-integrated, state-of-the-art solution for by-products arising from the food chain and represents a total recent SARIA investment at Widnes of almost £50 million. Forming an integrated unit together with the SARVAL, and ReFood plants, as well as the BFB, the SHEP facility sets the standards in capability, efficiency and sustainability – no other single operation in the UK can offer similar facilities or deliver similar benefits."

The new development consolidates SecAnim's Category 1 national processing infrastructure into a single, integrated site. As part of this programme, the company has announced that its Exeter facility will close later this year. ABP collection services across the South West will be unaffected, thanks to existing facilities in Cornwall, Devon, Dorset and Somerset.

www.saria.co.uk

CABINPLANT OPENS NEW PRODUCTION FACILITIES FOLLOWS STRONG FINANCIAL RESULTS

Cabinplant, innovative and global supplier of tailor-made processing solutions for the food industry, opens a new factory. This will increase the production area by 50 percent at their facilities in Haarby, Denmark. The investment follows a record financial result for 2019.

Recently Cabinplant opened a new production plant of 4,500 square meters, increasing their production facilities in Haarby with more than 50 percent. The expansion ensures Cabinplant sufficient capacity for continued growth in the coming years.

The new plant meets a large and urgent need to be able to expand production. Cabinplant has faced a significant increase in the demand for processing equipment aimed at the global food industry and the existing facilities have been utilized to the fullest at the factory in Denmark. Sales have increased by 25 per cent over the last few years, reaching more than 50 mio. Euro in 2019.

- It feels fantastic to be able to stand in a production hall like this today and we all have great expectations as to what we can achieve in the next few years. It is no small investment, said Ralf Astrup, CEO of Cabinplant A/S at the opening. He continues:

Ralf Astrup, CEO of Cabinplant A/S at the opening of the new production facilities in Haarby, Denmark.

- We have great ambitions for our global growth and with the new facilities we are well equipped to meet customers' further automation and streamlining of their production lines. We have chosen to invest in Haarby because this is where we have our development and production competencies. Further, we have access to innovative robotic environments that have emerged in the area in recent years.

Cabinplant has production in Denmark and Poland, where individually adapted equipment and solutions for the food industry is developed and manufactured. Focus areas are within fish & seafood, fruit & vegetables, meat & poultry, and ready-meals. Additionally, Cabinplant provides multihead weighers and packing solutions for a wide range of industries.

Founded in 1969, Cabinplant celebrated its 50-year anniversary in 2019. In 2016, the American industrial company CTB, Inc., a Berkshire Hathaway company, took over 80 percent of Cabinplant's shares to back up further expansion including development of new products and partnerships.

www.cabinplant.com

The new Cabinplant production plant of 4,500 square meters, increasing their production facilities in Haarby with more than 50 percent.

Cabinplant develops and manufactures processing and weighing solutions for the food industry. Here the Multibatcher – a combinatorial weigher for large batches up to 35 kg.

HIGH VACUUM FILLERS FROM HANDTMANN OPEN NEW DIMENSIONS IN HAM AND COOKED SAUSAGE PRODUCTION

Handtmann offers system technology for the production and portioning of cooked sausage and ham products: the high vacuum filler (HVF) system. HVF 664 and HVF 670 high vacuum fillers open up new dimensions in terms of performance, quality and cost-effectiveness. Examples of the technical highlights are the vane cell feed system, latest generation control technology, Handtmann's servo drive technology and the Intelligent Vacuum Management System IVM. The perfect interaction between these components results in first-class product quality and allows a wide variety of applications while ensuring exceptional cost-effectiveness. The customer benefits from optimum product protection, a high production output and accurate portioning.

By focussing the two HVF 664 and HVF 670 models on clearly defined market segments, target groups and product types, the system is able to cover the entire market volume in all its diversity. Formed ham from small-piece initial

HVF 670 with cutting valve

product or ground material with pieces weighing up to approx. 500 grams as well as cooked sausage can be produced with maximum quality and weight accuracy for the industrial volume market with the new HVF 664. The HVF 670 covers the segment including large and whole muscle pieces with individual pieces weighing over 500 grams, up to entire silversides/top sides. Adapted in line with various different performance requirements the HVF 670 is available as the HVF 670-7 version with 7-tonne filling capacity, HVF 670-11 with 11.5-tonne filling capacity and the proven large-scale industry version, the HVF 670-16 with 16-tonne filling capacity. However there are no compromises in terms of processing quality – all the versions operate with the proven high vacuum hopper system and the special vane cell feed system for whole muscle pieces.

The requirements placed upon cost-effective automation solutions in industrial ham and sausage processing are continuously increasing. These requirements are met by the Handtmann high vacuum filling technology. The filling and portioning units are compatible with all standard additional equipment and are synonymous with most modern production. The Windows CE-based control system developed by Handtmann combines the mechanical and electronic

components to form a perfectly matched and synchronised overall system. As reliable production factors, the HVF 664 and HVF 670 provide process reliability, which is decisive for long-term success in high-performance industrial production.

www.handtmann.de

Your partner for sausage production

Marel's wide range of linkers and peelers incorporate over 50 years of expertise in the sausage making industry.

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marel.com/sausage

TRANSFORMING FOOD PROCESSING

marel

RVF 760 -THE INNOVATIVE ALL-ROUND SOLUTION

The RVF 760 is designed for industrial use. The housing with its smooth and hygienic design is self-supporting and entirely made out of stainless steel and ensures efficient cleaning. The conveyor system has been designed in such a way that during cleaning water can flow out of the feed system.

A simple pressure levelling piston ensures highest portioning accuracy. All models of the RVF 700 series can be equipped with a MC-3 in-line grinder.

RVF 760 can be delivered with a lifting/tipping device for 200-litre standard lifting trucks (optional). Two different hopper sizes can be selected according to the needs of the operation. Folding hoppers in volumes of 250 and 350 litres are available.

The feeder screw in the hopper ensures optimum in-feed for all non-viscous or viscous products into the rotary vane conveyor system.

The standard touchscreen control makes the machine easy to operate and can be used to drive various clipping machines and attachments. There is also the option of attaching the REX hanging system.

It goes without saying that the RVF 760 can always be fitted with a rotating or fixed casing holding device to make twisting of artificial or natural casings easy. The RVF 760 can easily be equipped with the REX in-line grinder technology, thus providing users with a wide range of possible applications.

The Advantages

- Large rotary vane conveyor system for gentle transport
- Minimal energy consumption
- Modern hygiene design
- Very simple operation thanks to 12" touchscreen operation
- Modern servo drive concept for accurate portioning
- The folding hopper allows simple cleaning and variety change

www.rex-technologie.com

KOMET VACUUM PACKAGING OFFERS RECYCLABLE VACUUM MACHINES AND POUCHES

KOMET's company philosophy values quality that is both superior and sustainable. This approach has many benefits for its customers:

Sustainable buying:

KOMET's customers receive a vacuum machines that are made almost entirely of recycled and recyclable components. This includes the plastic insert plate, metal parts such as the housing, screws and bolts, gas springs and pressure pieces, and cast parts such as the vacuum pump. The machines are packaged and delivered in recyclable wooden or cardboard packaging.

Sustainable working:

The issue of discarded leftover food is a global one. Vacuum packaging machines offer many different ways of tackling this problem whilst at the same time saving resources. Products stay fresher and have a longer shelf life, there are fewer wasted offcuts from products such as sausages, and leftover food can be used later. What's more, original packaging can be resealed, which helps to protect the products against moisture and prevent them from spoiling too quickly.

Sustainable disposal:

Because KOMET machines are almost 100% recyclable, they can easily be disposed at the end of their life cycle with a clear conscience.

KOMET also takes care to ensure that natural alternatives to plastic trays, such as reusable jars, wooden-fibre containers and trays, or fully recyclable vacuum pouches, can be used with the machines and can be easily and sustainably recycled locally.

www.vakuumverpacken.de

EAGLE PRODUCT INSPECTION LAUNCHES BREAKTHROUGH PXT™ DETECTOR TECHNOLOGY FOR POULTRY

To provide poultry processors with a total inspection solution based on their unique requirements, Eagle Product Inspection has introduced a new detector technology that combines the latest advancements in dual energy technology and image analysis software. The new PXT™ (Performance X-ray Technology) is a breakthrough inline inspection technology that captures more detailed data about the product being inspected than has previously been possible. When these images are instantly processed, you'll see an increase in detection accuracy and significantly reduced false reject rates.

Eagle's RMI 400 and Eagle Pack 400 HC machines are now available with PXT™, which allows the application of multiple processing algorithms to work in parallel for every image captured. "This breakthrough technology, which has set a new industry standard for performance, improves bone and contaminant detection while simultaneously performing quality and integrity checks, leading to an overall lower cost of ownership," says Simon King, General Manager for Eagle Product Inspection.

Unparalleled detection is a key benefit of the new detector technology. PXT™ provides poultry processors the ability to repeatedly detect the smallest bone fragments, down to 1 millimeter. Lower false reject rates result in less product rework, a priority for many poultry processors facing labor challenges.

When paired with the latest-generation SimulTask™ PRO software, PXT™ improves quality by reading and interpreting data for desired fill level inspection, mass measurement, zonal measurement, package integrity, fat measurement, component counts and the identification of missing items, all in a tenth of a second.

Versatility is built into the new PXT™ technology. The solution can be deployed across a wide range of applications and can handle both thick products like turkey breasts and thinner items like fresh or frozen chicken tenderloins. PXT™ is suitable for single lane or multilane setups and in lines configured for bulk flow or retail packaging.

"PXT™ is a game changer in the industry. Eagle poultry systems now provide the total answer that processors have been seeking, enabling them to configure their inspection systems to fit their unique and varying requirements," says King.

www.eaglepi.com

MORE SPACE FOR ORGANIC MEAT PRODUCTION:

Biomanufaktur Havelland and Lißner Engineers + Architects Carry out Refurbishment During Ongoing Operations

Dennis Lißner, Thomas Schubert, Tobias Lißner

Biomanufaktur Havelland, a subsidiary of the German organic supermarket chain Bio Company, stands for organically produced meat products. Thanks to high demand, the company reached its capacity limits and commissioned Lißner engineers + architects to expand the available operational space. For more than 30 years, the specialists from Appen near Hamburg have been designing new buildings as well as conversions, refurbishments and expansions in line with the most modern standards of food production facilities, especially in the meat processing industry. One of Lißner's strengths is the implementation of construction work during ongoing operations.

The Goal: More Room in the Available Area

For Biomanufaktur Havelland the goal of this refurbishment project was to optimise production flow and create more space through optimal spatial planning. Production was to be ongoing during the entire project. The greatest challenge was the lack of possibilities to expand the building externally. Optimisation was therefore primarily dependent on internal changes to design and layout.

The Preparation: A Detailed Master Plan

Guided by a comprehensive master plan, Lißner engineers + architects determined basic parameters such as production processes and quantities, and calculated the expected capacity required of the planned expansion. Dennis Lißner says: "We mapped out the desired increase in production - including expansion reserves - within the specified budget". The planning process included aspects such as ensuring the shortest possible production paths and avoiding reverse paths or paths that cross. The final check involved establishing which points of the existing process could remain as they were and at which points innovation was essential.

The Construction Phase: Central Elements at Weekends

Refurbishment started in 2017 in four construction phases. Careful planning reduced pressure on the day-to-day business as much as possible. To ensure optimal production flow with short paths, some areas were completely opened up by removing walls. Some work areas were relocated, while other parts of key areas remained in their original location and were expanded there. Construction work at central production points took place

Konrad Schrötter, Production manager Biomanufaktur Havelland

at weekends. Biomanufaktur Havelland increased production in advance to make Fridays available for construction work on these central elements.

The Result: More Space, Modern Technology, Greater Performance

Thomas Schuber said: We at Biomanufaktur Havelland are extremely satisfied with the results. In addition to more space and optimised processes, we have achieved considerable energy savings with the new cooling system". State-of-the-art ventilation and electrical installations complete the project. Those responsible praise the close, collaborative partnership with Lißner engineers + architects during the whole project, as well as the high transparency of costs. Total costs deviated only slightly from the cost estimate given. The organic meat producer is particularly pleased that despite the ongoing construction work, it has been possible to continue producing the entire range of products and further expand sales. This enabled the company to increase its production of 2 tons of sausage per day to 4 tons. The new, improved capacity can be increased to 6.5 tons - enough space to create successful new organic meat products.

www.lissner.eu

HPP AND TOLLING, AN ALTERNATIVE FOR SMALL-SCALE PRODUCERS

Hundreds of enterprises around the world have trusted in HPP technology of Hiperbaric to revolutionize their process no matter size, sector or product.

"High-pressure processing (HPP) is an instantaneous and uniform process that not affect food covalent bonds but modify the three-dimensional structure of proteins and polysaccharides. This breaks microorganism's membrane, inactivating pathogens, while preserves nutritional and organoleptic properties like a fresh product", says Alejandro Blanco Sales Manager of Hiperbaric.

"These are the reasons of its great success however, a lot of people have doubts about how much cost HPP technology and how the installation can be financed. One way is HPP tolling", clarifies.

What is HPP tolling?

"Since its inception in 1999, Hiperbaric has designed, developed, produced and marketed its high-pressure processing units internationally. The company's intensive R&D, combined with an outstanding team of professionals, has prompted it to a leading position (more than 60% market share), with 300 machines installed worldwide", claims Mr Blanco.

Thanks to these continuous R&D efforts done by Hiperbaric, its HPP units add interesting advantages that reduce time-outs and speed up processes, making them more reliable and that is why many of these units are in HPP tollers facilities.

Tolling service allows developing and commercializing HPP products to SMEs, entrepreneurs, start-ups, HORECA enterprises and new exporters that cannot or do not want to invest now in an HPP unit. Thank to these services they enjoy the benefits of technology and tolling.

- No Capital Investment. Instead of investing capital initially, companies can adopt the technology by paying a service fee, usually on a per-pound basis. This allows flexibility for seasonal products, and the introduction of new products and new markets.
- More competitive retail prices. Using facilities and processes of a toller, companies reduce associated production costs.
- More economic security in a recently created business. To reduce capital tie-up offers a lower financial risk.
- New "export" alternatives. Booking HPP tolling services in the destination country allows stint on tax and customs costs, among others.
- Greater safety in innovation processes. The development of products in collaboration with a toller offers the opportunity to modify recipes and probe the consumer with affordable costs, guaranteeing food safety and a higher success rate in the launch of the final product.

Webinar: High-Pressure Processing Tolling

Aware of the interest that technology arouses, especially in times of COVID, Hiperbaric held on September 24 a new webinar aimed at making known HPP tolling, both to companies interested in providing high-pressure processing services, as well as users, who seek in this service the opportunity to commercialize a wide variety of HPP products, as a preliminary step to investing in the technology.

With a hybrid presentation and round table format, the attendees not only learned about high-pressure processing (benefits for the consumer, equipment, challenges and opportunities, trends,...) or tolling services (advantages for companies, global HPP tolling network, case studies,...), but they could also ask their doubts live to several HPP tollers from different regions worldwide and also to Hiperbaric specialists.

www.hiperbaric.com

FUTURE READY: SUSTAINABLE WHEAT INGREDIENTS FOR FUNCTIONAL CONCEPTS

How the Corona Crisis has Led Consumers to Rethink Their Attitude to Food – A Statement by Henrik Hetzer, Managing Director of Loryma

The post-corona era calls for innovation and more global responsibility in the food industry. Consumers increasingly demand sustainable, safe and uncomplicated products. Market research institutes such as Mintel1 (Global Food and Drink Trends 2030) are forecasting a long-term trend reversal in the food market after the crisis: towards higher expectations in terms of quality, as well as increased awareness of added health benefits and environmental compatibility. As experts in ingredients made from the natural raw material wheat, we at Loryma can respond to current consumer trends through innovative technology. As a result, manufacturers benefit from higher quality end products using the same or optimised production processes.

There are three megatrends at the epicentre of the corona disaster that will prove to be true innovation drivers in years to come. The crisis has led to a reorganization of the way we work, greater respect for the older generation and a desire to take more responsibility for our environment. These experiences will have a lasting impact on people's living and consumption habits. Key learnings are a daily diet with less meat, easy preparation of food at home and a need for healthy and ethically justifiable nutrition. This is where the natural raw material wheat offers great potential: using extrusion technology, it is versatile and combines nutritional and technological advantages. Wheat proteins optimise the consistency of products such as meat alternatives, cereals, baked goods and convenience food. They provide high-quality amino acids and help to reduce global meat consumption, contributing to a better ecological balance. Wheat starches improve stability, texture and flavour, while extending shelf life and positively influencing the nutritional profile of food products, for example through sugar reduction. The use of functional blends enables individualised visually and texturally convincing

applications that are quick and easy to prepare. This holds true for a virtually unlimited number of solutions, from breadings and vegan meat substitutes to confectionery, snacks and ready meals.

Our great asset is the flexibility of wheat combined with the expertise we have acquired over several decades. Loryma is a brand of the Crespel & Deiters Group, which processes 330,000 tonnes of wheat annually, which equates to an area the size of 57,500 football pitches. 100% of the guaranteed GMO-free raw material comes from the EU, 75% of which is harvested and processed in Germany. The regionality of this renewable natural product ensures a reliable supply, short transport routes and low emissions. Thanks to joint production, i.e. the creation of different products from the same raw material, the wheat can be utilised almost entirely with a yield of 99 per cent. This guarantees efficient and resource-friendly handling. Loryma's products are crisis-proof and pioneering for use in globally significant markets of the future.

www.loryma.de/en

1 Mintel: Global Food and Drink Trends 2030

USING THE CURING PROCESS TO INJECT VALUE INTO BACON

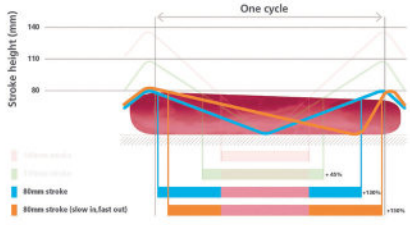
GEA Product expert Wim Sturm highlights different aspects of bacon injection which contribute to high brine retention and low standard deviation - crucial to ensuring consistency, quality and yields.

The curing of bacon products can present a number of challenges to food processors, given the natural variations that occur between cuts such as inconsistent fat to lean content, or issues caused by the injection process itself such as insufficient brine retention and uneven distribution. Drip loss or purge following injection leads not only to reduced yield, but also to reduced quality of the bacon, and even reduced shelf life. The brine must also be evenly distributed throughout the meat if brine pockets and blow-outs are to be avoided. All these can cause inconsistent results during slicing and therefore cause waste and reduce profitability. Uneven distribution of brine also results in a reduction in shelf life from potentially six weeks to around two, which can prove very costly and wasteful.

Furthermore, poor brine retention and distribution in cuts of cured bacon can lead to loss of flavour, uneven texture and 'tiger stripes.' Consumers will not purchase bacon products which have an inconsistent appearance, discolourations, or a short shelf life. The ultimate pain point is of course a potential product recall. The points below demonstrate the advanced injection technique developed by GEA Food Solutions, which overcomes these challenges through unique state-of the-art technology.

Tight Needle Pattern

Introducing brine in a dense injection pattern, combined with low injection pressure, avoids injection points becoming saturated which can cause the brine to leak out. A higher density of needles allows less brine per needle to be injected at a lower pressure. The distribution of brine is even, consistent and well retained within the product. The tight needle pattern, in combination with immediate post-injection handling such as shaking or vibration, helps needle marks to be closed and the brine is more easily absorbed by the meat.



Using a high density injection pattern, bacon producers can:
- Benefit from improved slicing yield.
- Reduce post-injection purge and drip loss.
- Ensure optimum moisture and salt levels within the product.
- Avoid injecting air or foam – this can alter the pressure and cause blow-outs.
- Benefit from minimal standard deviation.
- Improve the shelf life of bacon by several weeks.

Ultra-Strong Yet Flexible Needles

The quality of injection needles used also has an impact upon the efficiency of the injection process as well as the quality of the end product. Bent needles lead to underinjection and overinjection areas in the final product, which lead to triger stripes along with inconsistent product quality and shelf life. GEA OptiFlex needles are stronger than traditional stainless steel, and have the superior property of recovering their shape time and time again instead of being deformed or bent.

For bacon processors this means:
- Long term cost savings when using more durable needles.
- No bent needles or broken shards.
- Helps avoid clogged needles

Time in Meat

Time-in-Meat is a GEA injection precision technique based on the specific combination of stroke height and injection cycle time, both optimised for each product type, running on GEA MultiJector. Thanks to the Time-in-Meat technique, the needles stay in the product longer during injection, which leads to better brine uptake and more even brine distribution. As a result, product quality and consistency are significantly increased, and higher efficiency and yields can be achieved.

The meat and poultry sector can doubtless benefit by taking greater control of the brine injection process. This is driven by understanding of the process and the quality of the equipment deployed to carry out the tasks involved - to ensure the benefits extend from the processor to the reseller and ultimately to the all-important end consumer.

www.gea.com

CLEVER CONCEPT FOR IMPROVED HYGIENE IN THE PROCESS

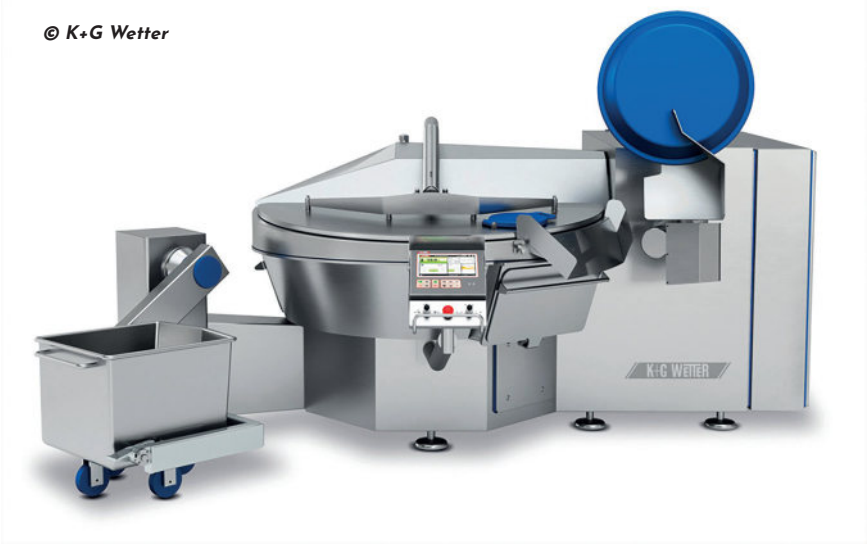
Solutions in Numerous Details Ensure Hygiene Safety

Increasing demands on production processes and compliance with the highest hygiene standards: The meat industry is experiencing a similar development with ever more rapid progress in all areas. This also brings with it new challenges for technical solutions in bowl cutter construction. As a result, the experts at K+G Wetter are constantly developing new approaches in order to stay more than one step ahead and set new standards with their clever solutions.

The development of the new industrial bowl cutter series "Hygienic Secure" has broken completely new ground. So, every detail with regard to the technology but also with regard to the process technology was closely examined. The focus here was on the economy and optimization of process sequences, hygiene and safety, ease of operation as well as ergonomics and energy efficiency. "Hygienic Secure" excels in all areas. Together, these factors ensure that the end products are of the highest quality.

Easy and Hygienically Safe Cleaning Thanks to Innovative Design

Seals are wearing parts which need to be replaced at certain maintenance intervals over the course of a machine's life. In the new "Hygienic Secure" machine generation from K+G Wetter, the very vulnerable hygienic area between cutter bowl and vacuum vessel now operates completely without seals.



Details make the difference: The vacuum industrial bowl cutters of the "Hygienic Secure" series rely not only on the tried and tested K+G Wetter quality but also on innovative approaches. For new standards in efficiency, safety and hygiene.

"The issue of wear and tear and the risk of contamination has been settled at this point," says Volker Schlosser, International Sales Manager at K+G Wetter. "Especially the advantages regarding a hygienically safe cleaning process have reached a completely new dimension. Where there is no seal, there will be no possibility of deposits forming." This is precisely why the product range is also called "Hygienic Secure", as it stands for the best hygiene and (product) safety properties.

The two-part stainless steel lid (knife and noise reduction lid) is also a feature of "Hygienic Secure". The loading and unloading time is significantly reduced. An additional special feature and novelty: The cover strip on the knife lid is self-adjusting and can be removed without tools for cleaning. Both the lid strip and

Easy and safe cleaning: No seal is required between the cutter bowl and the vacuum vessel. This ensures hygienic cleanliness.

the mushroom topper and bowl scraper, which can be removed without tools, can be easily and thoroughly cleaned - for smooth production processes, maximum hygiene and product safety.

Even the cleaning of the vacuum vessel area, which is usually difficult to clean, is hygienically safe with the new design. Two large cleaning flaps in the vacuum vessel, which can also be moved without tools, ensure that the area is completely visible and accessible and can therefore be cleaned safely. The "Hygienic Secure" series lives up to its name and, like all machines from K+G Wetter, provides extra safety, hygiene and efficiency in the entire production process.

"Our brand stands for quality and top-quality machines," emphasises Volker Schlosser, Sales Manager International at K+G Wetter.

Volker Schlosser: "With this new generation of machines we are now offering our customers cutters whose development technology has taken a true quantum leap. Just some of the key words here are hygiene, safety, energy efficiency and ease of operation, even when servicing is required.

Anyone investing in a new bowl cutter today will be looking specifically for solutions which provide comprehensible advantages and benefits and eliminate hygiene risks. We have taken all this into account in the development of the new generation of machines, also with the feedback we have collected from customers and their experiences. It is a pleasure for me personally to present and sell this generation of bowl cutters on the market together with our dealers. After all, our brand stands for quality and top-quality machines".

www.kgwetter.de

UNIQUE HYGIENIC DESIGN SOLUTIONS FROM LASKA

Designed in Compliance with EHEDG Guidelines, Certified by Weihenstephan and Verified by the Highly Respected Fraunhofer Institute

The Laska Philosophy

Since it was founded 140 years ago, Laska has pursued the same vision: of building machines that process food even better, with more precision, efficiency and hygiene than ever before. As well as improving performance and longevity, the company is dedicated to the idea of hygienic design – down to the finest detail. Why? Because if a machine is easy to clean in a single process, users can save valuable time and money that would otherwise be spent on cleaning. Day in, day out. Not to mention the opportunity to ensure longer shelf life for the food product by preventing contamination, as well as the ability to meet the highest standards for food safety and product liability demanded by customers and the market.

In this context, Laska goes beyond merely keeping up with the growing importance of hygienic design – it actively shapes and advances it. To ensure successful hygienic design, the company utilises its knowledge about the importance of appropriate material selection and geometric machine design to constantly review and optimise every product group in terms of design and development. Laska is certainly not the only developer and manufacturer of processing machines that employs hygienic design principles. But there are probably no greater perfectionists when it comes to consistently pursuing this approach.

Designed in Compliance with EHEDG Guidelines

All the company's new machines are developed and designed in compliance with the strict EHEDG guidelines. These guidelines guarantee easy, safe and hygienic cleaning and are becoming increasingly important in the food processing industry, especially in the field of meat processing. To meet the standards, Laska engineers have developed special sealing rings for sealing metal connections, as well as a hygienic casing for scrapers, because none of the existing components met the toughest demands.

A non-detachable screw complying with EHEDG guidelines was recently designed and certified. To achieve this certification, individual components of a machine designed for cleaning with liquids underwent a comprehensive testing and inspection procedure at the Weihenstephan research centre.

Hygienic Design Weihenstephan Certified

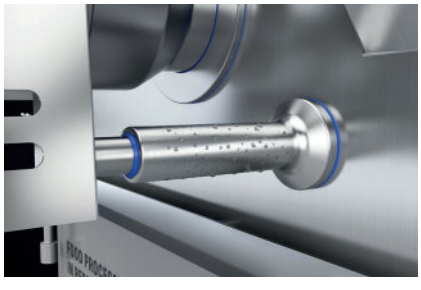
A further certification from Weihenstephan assesses the level of implementation of hygienic design requirements in an entire installation compliant with EHEDG, the EN 1672-2 standard and the EU Machinery Directive. To be designated as an HDW Hygienic Design Certified System, all components are assessed for their level of compliance at an individual part level. This is a consistent extension of the EHEDG

individual component certification. Laska became the world's first company to successfully obtain Weihenstephan hygienic design certification for a grinder as a complete installation – the WWR 200. The entire machine was inspected on site at component level as part of an exhaustive, multi-day testing and acceptance procedure, full documentation of implementation of the standards was presented and assessed and a comprehensive risk analysis was conducted.

Verified by the Fraunhofer Institute

Those who aim for perfection have to judge themselves by the most rigorous models of best practice and measure themselves in the toughest testing procedures. Laska spares no expense in this regard. Its most recent efforts to set the highest possible bar for hygienic standards have seen the company's hygienic design components verified by the highly respected Fraunhofer Institute. In a practical test set-up, which compared a standard design component with a hygienic design component, Laska demonstrated effective simplification of cleaning and associated resource savings of up to 35.5%. This was accompanied by an impressive residual contamination figure of less than 5%.

To perform the test, the components supplied by Laska were sprayed with a specially formulated contamination emulsion, dried for several hours and then cleaned using standard everyday methods. The success of the cleaning process was measured and compared over multiple cycles at key positions such as weld seams, axes, rotation mechanisms and seals.



These and other tests clearly verified the superiority of the hygienic design components.

These successful certifications and test results serve as a recognition of Laska machines' hygienic design. Thanks to these prestigious official credentials, the company can offer its users even greater assurance.

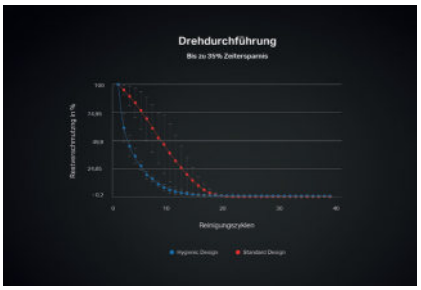
Meticulously Developed for User Satisfaction

Laska's designs are continuously updated and improved with a view to building machines whose entire bodies are easy to clean. Every step taken to ensure hygienic design delivers a longer-lasting advantage to the machine operator. During production, for instance, the machine design reduces cleaning time and cost while minimising the risk of contaminated goods and secondary costs. And ultimately, the benefits of these improvements shine through on retailers' shelves, where the high quality of the goods produced makes a convincing impression.

New Benchmarks in Hygienic Design

The range of hygienic design measures implemented set Laska's machines apart from the rest.

The use of high-quality, hygienic plastic seals instead of unreliable metal joints minimises the risk of secondary costs accruing from contaminated goods. Bacteria have next to no chance of surviving thanks to exceptionally smooth sloping surfaces made of polished stainless steel. This also ensures that water automatically runs off after cleaning, leaving no residue and reducing the time and effort required for cleaning. Double seals, both on the products and



the drive systems, keep the risk of contamination to an absolute minimum. Threadless machine feet create a larger distance between the bottom of the machine and the floor, providing sufficient space for a simple cleaning process.

Another hygienic feature comes in the form of the smoothed weld seams. These have the advantage of making it easier to carefully clean hygiene-critical areas, as well as ensuring that the water used to clean the machine runs off without leaving residue behind. Smooth conveyor belts have a wiper at the end to ensure optimum hygiene during processing. The gearing is hidden hygienically in the drum to save space. Where required, hinges can be installed on the inside. This means that there is literally nothing to get in the way of a hygienic cleaning process.

Laska makes a clear promise to its customers: perfection in food processing. The company's serious commitment to achieving this goal is evidenced in its tireless pursuit of advancements and perfection.

www.laska.at

THE RIGHT AIR QUALITY, WHERE IT IS NEEDED

Because Clean Air is Important for Products and Employees

The Challenge

In the meat processing industry, there is a big focus on ventilation technology for the prevention of the virus outbreak. Due to a lack of standards in the industry around ventilation, there is very little guidance around what should be considered as the clean air requirements for the facility. Scientific studies have shown that recirculation of air, around a facility, can cause the spread of harmful viruses. These studies have shown that in areas of poor ventilation the virus can remain in the air for up to 3 hours. In this facility, the production area needs a sufficient amount of supply air.

Also, the temperature in the production areas needs to be maintained between 6-10 degrees Celsius, which was controlled by the air circulation system. The room utilised recirculated air, this meant that the air in some areas was reused in other areas. This type of system is often used to help reduce energy consumption but it can have negative effects, without adequate filtration, in this case, viruses, can be spread throughout a building.

During the virus pandemic, this system needed to be addressed and a balanced hygiene approach was required. Camfil's challenge was to create a solution that will help ensure that the clean air introduced to the facility will protect the health of the employees as well as optimize the low energy consumption initiatives that were in place.

The Solution

- CC6000 air cleaners, equipped with H14 HEPA filters (Clean room standards) , free standing
- CC2000 air cleaners, equipped with H14 HEPA filters (Clean room standards), free standing and wall mounted.

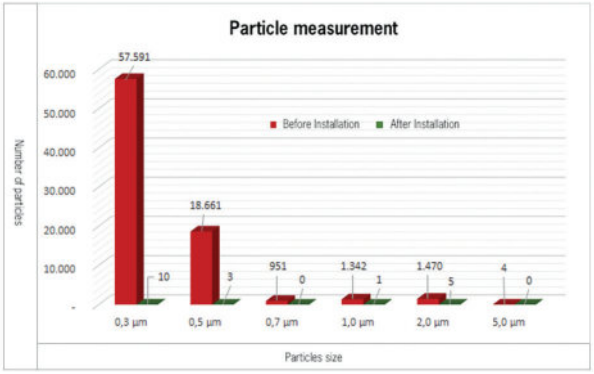
In addition to the general precautions that need to be taken during a pandemic - such as protective face masks, social distancing, and workplace separation - the company wanted to focus on improving the indoor air quality and how it can help protect their workforce. Meat processing companies require clean air to reduce the particulate levels within the facility to both improve production room conditions

FACTS:
Air Cleaner CC 6000:

- Healthier employees
- Improved employee wellbeing
- Reduced cleaning costs
- Reduced environmental impact
- Uniform temperature distribution across all production areas

ABOUT TÖNNIES GROUP

The Tönnies Group is a global meat processing company, that stands for quality meats. The international company operates in eight divisions, has approximately 16,500 employees, and in 2018 generated annual revenue of EUR 6.65 billion.



„Hygiene is particularly important in the meat industry. It is particularly important h ere to purify the indoor air using appropriate high-performance filters in order to protect employees, processes and products. The CC 6000 and CC 2000 air cleaners, equipped with ProSafe HEPA H14 filters, ensure clean air and that with low energy consumption."

Dirk Leinweber,
Director Sales & Marketing, Camfil GmbH

and to protect against the spread of airborne viruses. The reason for this is the viruses use airborne particulates to travel and particulates removal in the air will reduce this risk.

To ensure that the air was cleaned to the required standards, high-performance air filters/cleaners were suggested to be installed. High-efficiency filters would help capture the airborne viruses such as COVID-19 and ensure that the HVAC system utilised would have reduced risks. As a solution, Camfil was able to offer our CC6000 and CC 2000 range of air cleaners that were equipped with H14 HEPA filters. After the technical design and installations of these patented air cleaners, a team of experts, including occupational hygienists and physicians from a recognised university - carried out testing on-site for several days using cold smoke and particle measurements. The systems were wall and ceiling mounted to allow a good airflow and even distribution of air across the production floor.

The Benefits:

- Clean air in your facility
- Healthier Employees
- Efficient Production/ Operation
- Reduced Cleaning Costs
- Reduced Environmental Impact
- Even Temperature Distribution in the Production Rooms
- Low Energy Consumption and Costs
- Service and Maintenance Friendly
- Process Reliability because of Prosafe Air Filters

Prosafe Certificate

Air filter products with the ProSafe logo ensure guaranteed performance using high quality materials for maximum process reliability. Prosafe is also fully traceable for the control of materials and processes.

Prosafe - Benefits at a Glance

- Conforms with the BRC Global Food Safety standard 8.0
- Biological resistance and antimicrobial growth - ISO 846 tested
- Food Safety- EG 1935/2004
- Hygienic ventilation and IAQ guaranteed - Conforms to VDI 6022

Test Results:

Shortly after the air cleaners were turned on the particle levels were reduced by more than half.

The use of Camfil Air Cleaners has removed the airborne microbes and particles sufficiently from the indoor air to ensure a safe production environment for both the personnel and the processes involved. The tests proved the reliable and optimal performance of the air cleaners as part of the pandemic prevention scheme. This system allowed the production facility to become operational again without the hazard of transmission.

www.camfil.com

VEGAN MINCED MEAT, SECURELY AND SUSTAINABLY PACKAGED IN PAPER-BASED ETRAY®

SEALPAC
Forming Innovations

Those who opt for plant-based foods are no longer an exotic species. More and more people are either consistently vegetarian or vegan, or have become flexitarian, meaning that they occasionally and consciously decide not to eat meat products. Experts see this change not as a short-term hype, but as a real megatrend that will prevail. This is also due to contemporary plant-based alternatives, which come so close to their meat-based role models in both taste and consistency that refraining from meat no longer has to go hand in hand with a significant decline in enjoyment. Among the suppliers in the premium vegan segment is the brand Vantastic Foods, which belongs to the medium-sized company Absolute Vegan Empire (AVE) in Nabburg, Bavaria. Since 2017, this company has been part of the Ponnath Group. With innovative vegan products, such as Vantastic Fish Fingers and Vantastic Burger, it has already caused a stir at retail.

The group's latest development is vegan minced meat, in no way inferior to its carnal alternative. With eTray®, another contemporary innovation, Ponnath found the right, resource-saving packaging solution. By setting up a joint project, the launch of the product in its brand-new packaging was realized within the shortest period of time. Around the market launch, all parties involved came together at Ponnath's production facility in Freiburg to make up the balance, discuss expectations and to peak into the future. We spoke with Michael Ponnath (CEO of the Ponnath Group), Michael Schertl (CEO at AVE), Michael Ascherl (Managing Director Production Technology at Ponnath GmbH), Frank Mayerhofer (Manager Sales & Marketing at MPV GmbH, Ponnath's sales division), Robert Richter (Plant Manager at Ponnath GmbH), Karl-Peter Jaun (CEO at Jaun-Neoform GmbH) and Clemens Berres (Area Sales Manager at Sealpac GmbH).

Ponnath is a family company with a history that dates back to the year 1692. What motivated the company, traditionally a butcher, to open up the plant-based food business?

Michael Ponnath: Basically, consumer behaviour is becoming more diverse. We expect less meat consumption in the coming years, causing an increasing demand for plant-based alternatives. Also, within the meat segment, we detect a move in the direction of more conscious, responsible eating patterns. We are convinced that meat products will continue to have their justification and will remain in demand, but it is clear that in the future we will not be able to feed the growing world population with animal proteins alone. As a sustainable food producer, we aim at the future. The vegan and vegetarian division fits very well in our philosophy and makes up an excellent addition to our range of meat specialties. The focus of the Ponnath Group is clearly on those two pillars.

Michael Schertl: The exciting thing is that the area of plant-based proteins is no longer a niche market or an ideological segment. We are dealing with a trend that has become mainstream. In Germany alone, next to seven million vegetarians and one million vegans, there are approximately 17 million flexitarians that like to consume plantbased meat alternatives occasionally. They have adjusted to the eating habits of vegans and vegetarians, but still do not completely give up meat. The segment of vegetarian and vegan products grew by 32% compared to the previous year, mainly due to buyers on the flexitarian side. We expect these numbers to continue to rise worldwide, resulting in a market share of up to 40% for „green foods". Even fast food

Michael Ponnath
CEO of the Ponnath Group.

providers nowadays add plant-based alternatives to their menus. If it does not go at the cost of enjoyment, it will be easier to

turn to meat alternatives. With the products that we sell under the Vantastic Foods brand, we have succeeded to convert taste deficits into real taste experiences.

Vegan minced meat sounds like a special product. What should we imagine?

Michael Schertl: The 100% vegan mince is produced on the basis of soy proteins. It also contains other herbal ingredients, such as coconut fat and natural spices. The product does not differ visually or sensorially from minced meat and offers the same kitchen use, e.g. for lasagne or pasta Bolognese.

Robert Richter: In our production area, there is a daily quality check by the product development department, which consists of trained butchers. We received extremely positive feedback with regard to taste, consistency and appearance. The product is widely accepted.

Frank Mayerhofer: Incidentally, all of our vegan products do very well in independent tests. They are regularly awarded with prizes and attract substantial attention from influencers, such as well-known television chefs.

Michael Ascherl
Managing Director Production Technology at Ponnath GmbH.

How did this extraordinary product get its appropriate packaging?

Michael Ascherl: That was the next piece in the puzzle. We wanted the packaging concept to underline the sustainability of the product, so eTray® came at the right time ...

Karl-Peter Jaun: The basic idea of eTray ® was to reduce the amount of plastic of the tray, suitable for meat products, to a minimum. The packaging components, in this case a mixture of a cardboard base and plastic inlay, also had to be 100% recyclable. We succeeded in doing this with eTray®, which we as Jaun-Neoform developed together with SEALPAC.

Clemens Berres: Shortly before, SEALPAC had already successfully launched FlatSkin®, a fibre-based skin packaging system for meat products. Here, a flat cardboard carrier is used with a thin plastic layer. Soon, our customers asked for alternatives when running products that are not suitable for skin packaging and require MAP. It was important for us that, when applying alternative packaging, the consumer immediately recognizes the need for and simplicity of separating the pack into its cardboard and plastic parts. The company Jaun-Neoform presented us with a matching concept. Another crucial aspect for us was that our customers, the food manufacturers, should be able to implement the packaging innovation without major investments, so on their existing equipment and preferably with their existing tooling.

Robert Richter
Plant Manager at Ponnath GmbH in Freiburg.

Karl-Peter Jaun: eTray® is a paper-based modified atmosphere packaging system, which starts with a cardboard base that can be printed in highest quality on both sides. It has a thin plastic inner layer that purely provides the sealing and barrier function. Compared to common trays in the market, between 40% and 60% less plastic will be used, depending on shape and size. eTray® is suitable for various fresh food products. By using mono PP instead of PET for the inner layer, the concept fulfils the latest guidelines in German food retail, which requires packaging materials based on polyolefins. Both components are fully recyclable. After removing the product, the cardboard base and plastic inner layer are easily separated, for example by squeezing the tray together. As such, they can be disposed of in their appropriate recycling bins.

Clemens Berres: It is important to communicate this message to the consumer. With eTray®, there is plenty of space for storytelling due to the double-sided printability of the cardboard base. In this case, for example, after taking out the product, the instructions for correct separation and disposal, which are printed on the bottom of the tray, become visible through the transparent plastic inlay.

Which aspects prevailed in your decision for eTray®?

Michael Ascherl: We immediately recognized the match between our sustainable product and this resource-saving packaging solution. However, product safety is always our main priority, so 100% process reliability when running the trays on our packaging equipment was mandatory. In addition, we demanded that the new packaging system would have the same barrier properties as a pure plastic tray. With regard to the packaging machine, its reliability and performance at highest cycle rates, which we already knew from other SEALPAC equipment that we have, proved decisive. Due to our trusted partnership, which exists for decades, we had the courage to break new ground here together. And fast too: it only took six weeks from the decision to start the project to the delivery of the equipment.

Vegan minced meat:
Safely and sustainably packaged in eTray®.

Clemens Berres: At IFFA 2019, we presented eTray® for the very first time. In those days, the inlay was produced from PET. In order to meet the various requirements of our customers in fresh and processed meat, we also developed eTray® with a PP inlay. After we were able to inspire the company Ponnath with the idea, we implemented the project in record time. A SEALPAC A7 traysealer with 5-impression tooling for eTray® in 190 x 144 mm size is now present at Ponnath's factory in Freiburg. Of course, this machine and tooling configuration is also capable of sealing conventional plastic trays in 190 x 144 mm size.

Karl-Peter Jaun: We worked jointly on the development of the paper-based tray. The adhesion between a natural product like cardboard and a plastic film is not that easy. PP is also a softer material and shrinks more than PET in the sealing process. From the start, the challenge was to combine the two materials in a reliable way, but without neglecting their separability after use.

Robert Richter: We are quite satisfied with the new packaging. eTray® allows for fully automatic denesting and filling, as well as highly reliable sealing. It was our goal to achieve the right overall package: performance of the traysealer, productivity, price and efficiency – and naturally service and support. That is given in this partnership.

How will the food industry develop in terms of plant-based alternatives, but also in terms of overall sustainability?

Michael Schertl: The minced meat segment is huge in Germany. With our vegan version, we have been able to create a product that can compete with its meat-based original in terms of quality, appearance, sensory properties and taste. Our research & development activities with regard to plant-based proteins will continue, because we are certain that in the future there will be plant-based alternatives in every major food segment.

Frank Mayerhofer: Due to the situation with regard to resources, we expect a „green revolution" in the entire food industry. The strong growth will remain.

Michael Ponnath: We ensure that we acquire our ingredients, such as soy, from responsible sources, because at Ponnath quality starts with the selection of the raw materials. Sustainability and responsibility are just as important in our traditional business, which is the production of high-quality meat products. To this end, we recently started our Ponnath Traditionshof® program, with which we promote increased animal welfare by using species-appropriate, healthy animals and by preserving the traditions of farming. With selected farmers, we implement comprehensive animal welfare criteria concerning keeping, feeding and processing. This

Full recyclability:
By pressing the eTray® together, separation of cardboard and plastic is made easy, hence allowing for their separate disposal and recycling.

includes 100% more space for the animals, floors covered with organic materials, a ban on docking the pigs' tails and a regulated number of animals per farm. And of course, the farmers receive a guarantee on purchase and price. Our meat products, created according to these strict criteria, receive the highest possible award from the German animal welfare association.

What contribution can the packaging of the future make to more sustainability?

Frank Mayerhofer: Our aim is to bring natural products from both segments in an appetizing and food-safe manner to the consumer. In the ideal situation, we would see maximum avoidance of packaging materials, or, alternatively, the use of natural and renewable raw materials, or recyclable materials with 100% reusability.

Michael Ascherl: When it comes to plastic packaging, there are several starting points. Existing materials must become thinner and more recyclable. However, we are also open to new solutions, such as eTray®, which allow us to reduce the plastic content. Maybe in the future it will be possible to use recycled plastics for food items. Process and food safety must, however, always be guaranteed.

Clemens Berres: I can only agree with you here, because one thought usually gets lost in the discussion: the basic function of packaging is to protect the product and extend its shelf life. Preserving resources also means that we need to prevent food from spoilage. Not all food products can be offered safely without packaging. For some products, there still is no alternative to plastic when it comes to the density of the pack, required to have a suitable barrier against moist and oxygen.

Excellent handling: The innovative eTray® allows for smooth transport across the packaging line and is reliably sealed owing to its uninterrupted sealing edge.

Karl-Peter Jaun: That is why our motto can only be: „As little plastic as possible, as much as necessary". The packaging industry is called upon to improve the recycling options by working with mono materials. But the recycling industry should also adjust, in order to keep a closed loop on the materials.

Clemens Berres: From our point of view as a machine manufacturer, we could offer labelling, for example by printing a QR code directly on the packaging line. That label could contain information about the packaging materials, in order to improve recycling rates. PET or PP, mono materials or laminates, food or non-food – those are the most important data required for accurate disposal. By applying a source code, a refund system that we know from PET bottles would become feasible. Nevertheless, consumers have to be on board as well to make it work. The consumer can thus decide to opt for mono materials with a much shorter shelf life or for technically more complex packaging solutions. However, this requires intensive education. That brings us back to the primary food packaging, which should offer plenty of space for communication.

Exciting plans in challenging times, hence this final question to Mr. Ponnath: how has your company coped with the Corona challenges?

Michael Ponnath: We immediately implemented numerous measures in all our factories and offices, from strengthening our already strict hygiene and safety standard to changing the work organization, such as separation of teams and increased use of home offices. As far as the productivity in our plants is concerned, we see different effects. While the demand from the food retail sector increased, therefore cushioning the decline in out-of-home sales, we do feel the loss of the catering segment. Although we recorded more sales in the food retail sector, on the other hand we clearly have additional costs due to tighter hygiene measures, special logistics, surcharges on Sundays and public holidays, and many more. As a family company that will soon pass into the hands of the 13th generation, sustainability in this context also means ensuring profitability and income for our employees to get through these difficult times. We do this by manufacturing contemporary, innovative meat-based and plant-based products that give consumers a choice, and by offering healthy, honest and enjoyable food items without pointing fingers or becoming a teacher.

www.sealpacinternational.com

TRANSFORMATIONAL PLANT MEAT FORMULA

By Henk Hoogenkamp

The transformational road to concoct a "veggie burger" that is juicy and flavorful with the right bite and texture is quite long and not easy to navigate. Fortunately, with the arrival of cellular agriculture and improved extrusion knowhow, major development hurdles can now be successfully taken. In fact, assembling certain compounds and ingredients from plants allows for a more level playing field when compared to the traditional formulated meat products, like burgers and chicken strips.

The Covid-19 pandemic resulted in a significant shift in consumer behavior from food service and restaurants to grocery shopping, accelerating to unprecedented retail demand. In a matter of only a few years, both Beyond Meat and Impossible Foods have become the world's most recognizable brands in the plant-based meat market. Both companies - as well as some late entry legacy companies - are dramatically expanding the retail and footprint of the mail order supply chain offering versatile and convenient products, including 500 gram "bricks" of ground "plant-meat" for home cooking.

The Need to Diversify

To meet country-specific regulations, plant-meat companies such as Beyond Meat and Nestle have various product iterations. For example, co-manufacturing facilities for the Beyond Meat burgers in Canada and the Netherlands use different formulas than their US flagship product.

In order to secure supply and costs of its core protein ingredient, it is likely that the large "plant meat" companies such as Impossible Foods, Beyond Meat, Morning Star Farms (Kellogg's), and Nestle, forge closer relationships with their plant protein suppliers. In addition, it can be expected that these companies want to diversify the plant protein options in their products to minimize dependence on just one crop. At this moment, both soy protein and pea protein are clearly the plant proteins of choice with some other emerging options such as mung bean, fava bean, rice protein, and chickpea protein gaining momentum.

Quality & Perception

Both the quality and availability of "meatfree" meat analogs or meat substitutes have improved significantly over the last few years. Despite the flavor masking challenges, plant-based proteins continue to grow in popularity. The current baby boom generation (born 1946-1964) will most likely be the first and last generation that consumed meat every day.

Rising health awareness and shifting dietary preferences will generate increased demand for meat analogs. These "lifestyle foods" practices, including veganism and flexitarianism, have been edging into the mainstream options.

In the US, flexitarians outnumber vegetarians 3 to 1 and the EU is following closely behind. Germany and the UK have the highest penetration of the flexitarian consumers and the trend is accelerating to double-digit growth to drive the market for plant protein forward.

Flexitarians are a rapidly growing consumer segment aiming for transformative change, albeit often driven by psychologically and emotionally inclined aspects associated with animal welfare. Also, young and adolescent girls going through puberty often decide spontaneously to stop eating (red) meat.

Consumers have multiple motivations to embrace a plant-based diet, driven by personal and planetary health, including considerations for wellbeing, environment and sustainability, as well as personal

convictions such as religion or animal welfare.

Although -until to date- there is not a set definition of a plant-based diet, plant-based eating is gaining momentum, probably with the help of the fashion and entertainment industry, which endorses a lifestyle in an inspirational and modern way. The Impossible Burger and the Beyond Meat range of plant meat foods are appealing to a much larger segment of modern consumers who have started to make food choices based on organoleptic preference, health and environmental concerns.

As such, a new type of consumer is emerging, and this category can be identified as "flexitarians". This motivation to purchase plant-based meat options is not necessarily due to an increase in strict vegetarian diets. Instead, the flexitarian consumers view plant-meat alternatives, not as a replacement for meat, but as an occasional and acceptable nutritious and tasty option.

Vegetarianism appeals to surprisingly few people. The true growth of meat substitutes or plant meat foods comes from flexitarians. The latter group consciously eliminates or reduces animal meat from their daily line-up of food and plan for it only a few times each week. When explaining reduction of meat consumption, health is the most cited reason, followed by environmental and animal welfare concerns. Religious reasons are the least cited for cutting back on meat consumption. Eating much smaller portions of meat is the most popular way to reduce meat intake. "Flexitarians" specifically choose to eat smaller portions by substituting vegetables, or they eliminate meat altogether from some meals and instead eat "plant-meat" foods.

Impossible™ Burger, delivered!

Climatarians

Within the plant-based food preferences a new sub-group is trending in the form of "climatarians" or people who are truly worried about environmental issues. Climatarians are conscious of the impact of the globalization of food production and consumption in relation to the planetary health. Within this context, climatarians profoundly believe that regionalization of food production and consumption are the way forward in delivering the products to the market.

Grass = Gas

Humanity needs to feed a fast-increasing global population, and the planet should not be burdened with ever more livestock. Besides the unfathomable amounts of feed and water and land needed, cattle methane emissions are estimated to make up about 10 percent of greenhouse gas emissions worldwide.

In terms of ecological food sustainability, industrial scale feedlot meat production is probably the world's largest environmental problem. Reducing meat consumption will free up vast amounts of land and water. Beef is generally considered the worst part of the meat pyramid because of its very inefficient feed-to-meat conversion and the use of huge amounts of clean water during the outgrow cycle of the animal. Yet, on a worldwide basis, more than 50 percent of all beef is ground and ends up as a hamburger.

However, to be fair minded, a significant number of cattle grazes on non-habitual unproductive agricultural land and as such

contribute to the maintenance of main parts of the geographical infrastructure.

Meat happens to be incredibly tasty and nutritious and perhaps the only way to reduce consumption is to develop a superior plant-based product that is at least equally good in organoleptic performance. The recent introduced plant-based burgers and sliders such as Impossible, Beyond Meat, Garden Gourmet (=Nestle) and Moving Mountains are well on their way to get to par with the meat burger equivalent.

There are major differences between animal meat and "plant-based meat". Plants typically contain just a few percent of protein, while animal meat has an abundance of high-quality protein and a great mineral profile. These differences need to be brought in line and harmonized.

Another major difference are the flavors and aromas of meat, and this is especially true for beef. When beef is cooked, literally hundreds of different aroma compounds come through and together create the ultimate taste humans prefer, which is the golden standard for comparison and quality reference. No doubt that flavor and texture of meat is hard to replicate. That is by far the highest hurdle for the meat alternative products to climb.

Health or Environment?

The verdict is still out with regards to answering the question whether personal health or the concern for climate change is the main reason for increased numbers of people in developed countries actively reducing their meat intake.

Some surveys indicate that health is still the main reason as some scientific studies demonstrate a connection between high processed meat consumption and several degenerative chronic diseases. On the other hand, an increasing number of people -especially the younger generations- are predominantly influenced by the constant barrage of anti-meat publicity from the media raising concerns about climate change.

Yeast: Flavor and Aroma is Key

Besides labeling issues, formulating plant-based meat alternatives may bring challenges such as texture, color, odor, and taste. This is especially the case if all-natural label specifications are needed for positive consumer expectations, such as the elimination of chemically-sounding additives.

Typically, yeast extracts contain proteins, free amino acids, carbohydrates, vitamins and minerals. These "vegan" ingredients fit perfectly in consumer products that need a natural label, while meeting all sustainability considerations. A main component of plant-based meat products are nucleotide yeast extracts that perform to mask the beany off flavors typically associated and inherent of plant-origin proteins. To further improve upon water-binding performance and improved juiciness, gellan gum is often part of the ingredient deck as well.

Increasingly, yeast extracts are used with specific characteristics like meat notes, umami flavor, while at the same time masking undesirable notes that often are associated with certain plant protein ingredients such as soy and pea. Yeast extracts are also used to imitate the taste of the various product types that are smoked, roasted or grilled notes.

Meat flavors develop at different rates as fat, connective tissue and meat cook, and subsequently, the maillard caramelization reaction of carbohydrates creates hundreds of flavor compounds during heating. This is a very difficult problem to solve for the vegetarian burger formulators. However, let us pause for a moment and recognize that true vegetarians and perhaps flexitarians, have debased their flavor and eating sensations. Quite a few perhaps do not know or have forgotten what an actual pure beef burger taste like.

Even when plant protein formulated meat equivalent products reach a high degree of flavor, aroma and texture equivalency with the real

McCoy, there is still one major component missing from the burger attributes: blood. Of course, there is no real blood in raw meat but rather a combination of myoglobin and some extracellular water that creates the reddish looking meat juices.

Oil Secrets

At a molecular level, everything from an animal's lean and fat tissue can be replicated using plant fractions instead. For example, the "plant fat" can be replicated by using several methods. One specific technology is to structure coconut oil with extruded plant protein and pea protein - or potato protein - to entrap the fat. When heated on a grill the plant fat begins to melt, very similar like beef fat.

Texture and color are important variables when it comes to using plant-protein ingredients to mimic meat. It is a fine art to duplicate the textural subtleties, such as chew, fibrosity and flakiness of the meat or fish. Proprietary innovative manufacturing and formulation technologies have become available and are now increasingly used for animal-protein replacement.

Plant protein ingredients, as well as support and modification additives such as plant fats and oils and methylcellulose and konjac flour –a fibrous root vegetable with a rubbery texture/consistence- can be modified for varying degrees of textural density to meet consumers' expectations.

To simulate beef fat for marbling and sizzling, both coconut fat and cocoa butter can be used to melt and tenderize, much like a ground beef burger. Common plant-based fats include those high in saturated fatty acids, such as coconut oil, palm kernel oil and palm oil. These

oils are more solid in structure and less prone to oxidation. Oil sources support lubricity to help simulate mouthfeel of animal-based products as well as regulate moisture stability. The amount, type and release of fat are important factors for achieving the desired sizzle when cooking and juiciness when eating.

Consumers at Turning Point

By far, most of the people who purchase plant meat products are meat eaters, this category is universally termed "flexitarians". It is a definite sign of the times that even very traditional UK and German meat companies are now entering the market for meat substitutes. Trends seem to indicate that meat alternatives sales in affluent markets are developing at the expense of meat: Meat analog sales are expected to accelerate further continuing double-digit sales growth, whereas meat sales in affluent countries will stabilize or even slightly decline.

The plant-based meat alternatives are a category that is outpacing growth in the broader packaged foods sector. Strangely, most of the sales growth of plant-based meat products does not come from common vegetarians, but rather from the Millennial consumers (born 1982-2004) and their children who facilitate a long-term habitual change in consumption patterns.

Hybrid Anyone?

Hybrid concepts in food, beverage and meat products are taking a variety of formats, including fusion and the blending of two or more different protein components. In the Western world and affluent societies, hybrid foods are generally focusing on health, dietary or flexitarian elements. In developing countries, hybrid is nearly always associated with the need to significantly reduce food costs and thus to make the product more affordable for the masses.

In the Western world the blended or hybrid protein trend is in vogue. For these markets' "hybrid" foods can be defined as products in which animal- and plant proteins are combined offering enhanced nutrition. Part of this trend is the transformational change from side dishes to more of a center-of-the-plate presence at mealtime. In other words, side dishes will go from meal compliments to meal makers. This change is especially obvious

for millennials and Generation Z, increasingly snacking at all hours by substituting a snack for a meal. These changes result in people eating more fluidly throughout the day, which creates demand for food options that can be eaten anytime.

Global Perspective Soy: A Missed Opportunity

It remains a mystery why the rather conservative US soy protein industry had a lackluster attitude about the necessity of product innovations to further advance the market. Instead, they took the easy way forward and carried on using dated technology of extruding defatted soy flour - limiting its applications due to flavor constraints - and continued maximizing inclusion levels which clearly did not impress consumers. Even though consumers showed a strong dislike due to negative perceptions and flavor associations, until the year 2000, the soy protein industry did little or nothing to make the necessary changes to improve technology and develop better tasting extrudates made from soy concentrate rather than soy flour. The large soy companies are now facing a new landscape in which they are no longer considered a pioneer but have become followers in a market they once dominated.

Meat Ingredient Options

Computational science application is increasingly successful in determining values of plant species, such as those present in soy, wheat, corn and rice, as well as finding combinations to create nutritive and great tasting sustainable sources of protein and other bioactive phyto-compounds.

Combining the virtues of plant protein and technology has unlocked the secret to create near-perfect replicas of muscle meat. These meat analog foods are formulated using plant proteins derived from wheat, soy and pea using a structuring process that uniquely creates and mimics meat-like alignment and fibrosity. This technology breaks away from the typical, outdated extrusion processes of meat substitutes –such as the rather old-fashioned textured soy flour-which often lacks the fibrous texture moisture retention and has poor flavor. Increasingly textured plant protein products are formulated from a combination of several protein concentrates such as soy and wheat gluten and potato starch.

Structured plant protein foods have a lot of advantages: no cholesterol, no transfats or saturated fat, and are made of plant proteins free from antibiotics and hormones that are so typical for lean meat. Also, gluten-free vegan options have become a reality. There is a certain plant-based meat alternative market that is focusing on gluten-free pea or soy protein ingredients. These textured ingredients ideally are formulated with a minimum of 60 percent protein on a dry basis, as well as significant functional benefits such as hydration capacity, clean flavor and textural properties.

"Perception is Reality."

To gain acceptance from mainstream consumers, the meat alternative should ideally be just as a convenient, tasteful, and ultimately even cheaper than the animal meat protein product. Over time "plant meat" products are expected to be cheaper than animal-harvested meat products.

For premium plant-based meat analog foods, the Holy Grail are products that look like real meat when cooked and can be pulled into shreds, or appear as minced or crumbled, or used as part of a coarse or emulsified vegan sausage like a breakfast sausage, bratwurst or hot dog.

The 3D Plant Steak

The successful replication of beef steaks is one of the remaining holdouts which the plant-based meat industry still needs to conquer. Sensorial parameters for plant meat equivalency are important to recreate premium beef cut's texture, juiciness, chew, mouthfeel and fat distribution.

The arrival of 3D precision printing technology to achieve texture, color and flavor embedded in intimate interactions of the individual components will accelerate the go-to-market time. Also, recently developed "flat" extruded plant protein components will allow "layering" of the hydrated extruded portion which enables the creation of true steak-appearance. Using separate innovative ingredient compositions for "plant muscle", "plant fat", and "plant blood" will allow the creation of meatfree products that are not only healthy and sustainable, but also provides the consumers the experience of eating a food that simulates whole muscle meat alternative products that meat-lovers embrace and just happens to be vegetarian.

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DIGITISATION WILL HELP COMPANIES "RELY ON FACTS RATHER THAN INTUITION"

The coronavirus crisis has intensified the digital transformation in the food processing industry, which in addition to traditional needs such as data-based business management, is also seeing increasing requests for artificial intelligence.

These were the key findings of the recent CSB Discovery Days, a digitisation conference organised by food and drink IT specialist CSB-System which – fittingly – was held online rather than the planned face-to-face event, owing to the pandemic.

The two-day conference, which attracted around 200 participants from 26 countries, discussed the findings and experiences of CSB-System experts and several of its customers.

One clear message from the event was that the process industry has a strong interest in further expanding digitisation and automation - predominantly, but not exclusively, with the aim of increasing efficiency. At the same time, the current crisis has also accelerated other strategic process adjustments for companies, with hygiene, quality and traceability being strong additional requirements. The ultimate aim is to enable corporate management to be carried out based on performance indicators.

"Digitisation has allowed us to establish an entirely different basis for decision-making, using facts rather than intuition," explained Marko Markovcic, Technical Manager of the food companies Pivka and Delamaris, based in Slovenia. "Today, we speak about specific KPIs instead of estimates, for example with regard to sales volumes or forecasts."

Similarly, two IT experts from the Belgian Colruyt group, Grégory Messiaen and Mathias Bongaerts, demonstrated how they were able to enhance product freshness while significantly lowering losses in production, an innovation that quickly turned into profit.

As CSB Vice President Dr. Klemens van Betteray pointed out, economic added value must be evident in any success story. "Every step towards Industry 4.0 ultimately is also a step towards more turnover or profit, whether through smart glasses in picking, robots in dairies, industrial image processing for the quality assessment of raw materials, or the blockchain," he said.

The optimum basis for the digital transformation of the company is, and will remain, the ERP system, as it is the business management backbone controlling the company's data pool. "A digital transformation combining your ERP system with data from other systems will put you in an ideal position against the competition," said van Betteray.

The conference also heard that, among the many current technology trends, artificial intelligence has the highest potential. There are already a growing number of examples within the process industry, some of which have even reached market maturity, as Michael Zerbe, head of CSB's development department, explained: "Above all else, image recognition is taking the lead, simply because

AI makes almost no mistakes - as opposed to humans. Examples include the quality control of fruit and vegetables, or the recognition of reusable transport packaging."

In addition, predictive maintenance helps to optimise the upkeep and to minimise the downtime of machines. Huge progress has also recently been made in the calculation and forecast of raw material and product availabilities. "AI is able to interpret tremendous data volumes in a short time and this is what makes it so interesting for the process industry," said Zerbe. "AI will come in big steps, so now is the time to deal with this topic."

The importance of the digital transformation was demonstrated by the fact that for many companies, it was not a question of 'when' but 'how'. "Begin by looking for the quick wins," was the advice of Robin Gremlich, who is responsible for CSB's consulting unit, saying that actions that have positive effects on turnover, profit, processes, or products should be further expanded.

For example, online shop systems should not be limited to selling products or managing subsidiaries. "One of our customers now controls the entire complaints management process via web interfaces," reported Gremlich. "This is much more efficient than before, because the relevant data is entered directly by the customer.""

Other hands-on examples with real benefit for daily business include product and price calculations which are highly relevant to food manufacturers. "Using digital solutions and simulations, you can identify the areas where money is gained or lost," continued Gremlich.

According to Gremlich, digitisation is not a matter of company size. Every enterprise can do it. And as for finding the right approach, he suggests: "Ask your staff. They will know precisely in which processes there is room for improvement."

The next Discovery Days are already being planned for May 2021 which, thanks to the huge success of this virtual conference, will combine a physical event with digital elements. "With the Discovery Days, we aim to make the digital transformation tangible for decision-makers," said Frank Braun, Head of Marketing at CSB and creator of this year's virtual event. "And it is a good opportunity to try out new channels in the event communication."

www.csb.com

HIJOS DE JUAN PUJANTE ALWAYS FOCUSES ON PRODUCT QUALITY

Spain Embraces ATLAS

Hijos de Juan Pujante is a much respected name in the Spanish poultry industry. It owes this respect to its longlasting, continuous focus on achieving the highest quality level for its poultry products. To maintain and even improve this quality in today's world of ever stricter regulations, the company had to modernize its live bird handling and anesthetization systems. The logical choice for Pujante was Marel's ATLAS system, the first one in Spain, together with CAS SmoothFlow.

Executive Patricio Pujante says, "We were looking to replace our live bird handling system, as it had been overtaken by today's fast changing regulations on animal welfare, sustainability and food safety. For us, however, the most important argument for considering a new supply system was being able to achieve the highest level of product quality."

Requirements

Patricio Pujante continues, "We formulated some clear requirements which the new system had to meet. It should make for easier loading of birds in the sheds, with fewer people and less time needed for the job. Loading and unloading from the trays should cause no damage to the birds. Last but not least, the containers should be easy to maintain and clean to give us the highest standards of hygiene and prevent contamination." The ATLAS system met all of Pujante's requirements; its containers' large openings allow for quick unobstructed loading, no protruding drawers allowing containers to be placed anywhere in the shed, no frame and no blind spots for thorough cleaning.

Spanish Heat

Pujante's processing plant is located in the town of Beniel, in the Levante region on Spain's east coast. This area is known for its summer heat with birds having to be transported from farm to plant in temperatures of up to 42°C [107°F] at 50% relative humidity. In the decision process for a new transport system, one of Pujante's key concerns was the ability of the system to cope with these extreme temperatures. It's therefore logical,

"At the end of the day, good care of our live birds is crucial for ensuring the best product quality."

Daniel Chust (Maintenance & Engineering Manager Pujante), Patricio Pujante (owner Pujante) and Pablo Bustamante (Production Manager Pujante)

that SmartStack came out best. Even in the truck, driving in the heat, birds experience the coolest conditions possible, profiting from the largest headroom available in the industry.

The Future of Stunning

In combination with the ATLAS system, Pujante opted for CAS SmoothFlow. Executive Pablo Bustamante says, "We clearly see CAS as the future of poultry stunning. It is the most humane way of anesthetization, with the greatest effectiveness and highest cost-efficiency. The risk of damage to the birds is reduced to an absolute minimum with this stunning method. The birds stay in the SmartStack tray, where they've been since they left the farm. They go to sleep gradually and very calmly, which reduces the risk of broken wings or bruises." Animal well-being considerations too motivated Hijos de Juan Pujante's move towards Controlled Atmosphere Stunning and ATLAS.

Farm to Fork

Focusing closely on product quality, Hijos de Juan Pujante processes 8,000 bph [133 bpm]. With an average weight of 3.1 kg [6.8 lbs], the broilers are fairly heavy. The processing plant operates many other Marel solutions, including the evisceration department with automated giblet harvesting. "As we control the entire production process of our birds, from farm to fork, its start is extremely important to us. At the end of the day, good care of our live birds is crucial for ensuring the best product quality," concludes Pablo Bustamante. The Pujante family has great trust in Marel's new primary processing systems, "We were very pleased we could visit a factory in Belgium and see for ourselves the on-farm catching and loading process using ATLAS.

www.pujante.com
www.marel.com

TAILOR-MADE GEA PROCESS LINE FOR SPANISH PRODUCER OF SERRANO HAM AND SAUSAGES

Photo GEA

The high-performance slicing and packaging line from GEA meets each customer requirement.

Ramón Ventulà S.A, a family business in the north-east of Spain, famed internationally for the quality of its extensive range of meat products, has installed a new holistic slicing and packaging line from GEA. The new line, which brings together scanning, slicing and thermoforming technology from a single source, achieves improved yields, greater efficiency, less downtime, reduced use of packing materials and greater product flexibility and consistency.

The company has been in business since the 1950s and now has four plants producing 5,000 tons of food every year with 90 separate products, including bacon, Catalan cured fuet and chorizo sausage, in 750 packaging formats. It was the first exporter of Serrano ham to Germany in the 1970s and now exports its range of products to around 70 countries worldwide. Ramón Ventulà's excellent reputation has been built on its commitment to quality and innovation, and the principles of food safety, respect for the environment as well as health and safety at work.

The GEA Factor

Ramón Ventulà knew GEA. In 2019 the company had bought three GEA PowerPak thermoformer machines that had been performing well, and the excellent service provided by GEA made the company the obvious choice when upgrading older equipment. Pilar Ventulà, Managing Director at Ramón Ventulà, said that making the traditional Catalonian and Spanish sausages starts with selecting the best quality raw materials then putting them together in a meticulous process. "This requires us to employ precise and reliable process technology," she said.

Which is exactly where GEA comes in. The company has a long experience of designing automatic slicing, loading and packaging systems and offers a modular approach to designing production lines specifically to meet individual customer needs. According to Norbert Brunnquell, Senior Product Manager Slicing & Loading for GEA, it is this modularity and compatibility of all the GEA equipment that allows the company to create unique holistic production systems for a wide range of customers.

"Each part of the line is perfectly matched and synchronized with each other to create a seamless process that is efficient, safe and environmentally sustainable in today's market." Norbert Brunnquell, Senior Product Manager Slicing & Loading for GEA.

Process Requirements

From Ramón Ventulà the requirements were clearly formulated: they required the finest quality slicing, easy handling, low give-away and high output. To achieve this level of productivity and control GEA advised the use

High-quality sausage products from Ramón Ventulà will be sliced and packed by a fully automated GEA production line starting in May.

of its GEA DualSlicer II 1200 slicer, working with the new GEA PowerPak PLUS thermoformer, with supporting control equipment. These had been designed to work together and would provide the flexibility, control and productivity the company required to allow it to expand its range of products and enter new markets. The whole contract was valued at over €1 million.

The DualSlicer can be integrated into fully automated lines with GEA loading systems and packaging machines.

Photo GEA

The GEA Line

The complete line uses the GEA OptiScan to scan two logs at a time for density and shape prior to slicing. This helps ensure accurate weight control of each package and provides high yield with the minimum give-away.

Optimal slicing quality and consumer-friendly handling is achieved with the GEA DualSlicer with interleaver. As the name suggests the DualSlicer can slice two calibrated product logs such as a round sausage or an uncured ham at the same time. The system synchronizes all components to produce perfect slices with the minimum give-away, maximum yield and a high percentage of on-weight packs.

The interleaver is designed for high-speed operation, operator safety and easy handling. With two separate film drives to slicer can process each log independently even if the products are different. The interleaver film is positioned in between every single slice in the slicing process of the product and makes it very convenient to separate the portions. Operators can fix the overall paper length for each portion which allows the tare weight to be set into the calibrated checkweigher GEA Check 4000. This prevents unnecessary rejected packs. Paper jams can be cleared without stopping the machine.

The GEA ShingleLoader 600 automatic loading system provides a continuous flow of product to the thermoformer . It also allows the products to be overlapped within the package to create a more attractive shelf appeal and to reduce the size of the overall packs to minimize the use of plastic materials and make the best use of available retail space.

Thermoforming is performed by GEA's new PowerPak PLUS thermoformer. The new machine includes a host of new features that combine to improve packaging quality, reduce film consumption, make handling simpler for operators and improve overall reliability. These advancements include transparent sliding doors that are hygienic, provide easy access for maintenance and a perfect view of the machine to help operators judge when films need changing. The film rollers have been standardized for easy maintenance and reduced inventory. GEA engineers have also supported the top and bottom webs on both sides, rather than just one, so that the process can be more accurately controlled. Both films are adjusted automatically, so the pack seals are always perfect, and there is no need for a skilled engineer watching over the machine all the time. These advancements have allowed GEA to reduce the forces on the top web by around 75% allowing the use of thinner films (and even mono films) without losing structural integrity or pulling the labels out of shape.

The line at Ramón Ventulà is completed with the GEA PowerGuide Speed that funnels multiple pack lanes into one for final packaging. The integration of the GEA equipment throughout the line enables it to produce slices of the highest quality, with consistent thickness and an output of 1.600 kg/h. Achieving the objectives David Gracia, Technical Manager at Ramón Ventulà said that it was always clear that the new line would be built by GEA, because the company has demonstrated a high degree of commitment to the client, with excellent project work, contract negotiation, manufacture and highly efficient technical service. "We've listened to the needs our customers and engineered our machines accordingly, simplifying product flows as much as possible. Our focus is to achieve a high level of process reliability, ease of handling and manageability.", Volker Sassmannshausen, Senior Product Manager Thermoforming at GEA.

www.gea.com

METAL DETECTION VS. X-RAY INSPECTION: HOW EACH ENABLES SAFER FOOD PROCESSING

By Alex Kinne, Applications Engineer, Thermo Fisher Scientific

Consumer safety has always been a top priority in the food processing industry, with regulatory agencies and standards in place to ensure it remains that way. Food manufacturers' food safety plans include the identification of critical control points, a step in the food manufacturing process designed to prevent food safety hazards. These critical control points often include the use of foreign object detection equipment to prevent food from becoming unsafe. This preventative approach is part of the FDA's shift in focus from reactive to proactive measures. Food manufacturers follow strict guidelines around food production safety, and substantial fines and penalties may occur for those that do not comply.

Unfortunately, even with inspection equipment in place, foreign objects can still escape into food products. This can result in harm to human health, costly food recalls with millions of dollars lost and damage to brand reputation. More commonly, consumers and news outlets associate recalls with biological contaminations like E. coli, Salmonella or Listeria, but the hazards of foreign object contamination cannot be overlooked. Foreign materials that can enter the process include types of metal like ferrous, nonferrous and stainless steel; rocks or shells from harvesting; glass, plastic and bones.

The two most common technologies food processors rely on to find foreign objects are metal detection and X-ray inspection. Both technologies are typically found in a food processing plant and either or both may be appropriate at a critical control point depending on the hazardous material identified, the detection needs of the application, and the packaging material.

Metal Detection – Improves Food Safety and Operational Efficiency

For decades, metal detection has been the workhorse food safety inspection technology in the meat industry. Until recently, however, metal detection had shortcomings as a result of both the high-salt properties of meat products that can mimic metal and susceptibility to electromagnetic interference (EMI) and temperature changes in the plant environment. Newer technology mitigates these limitations by allowing the operator to quickly and easily fine-tune one or five frequencies to achieve the optimal settings to find only the metal.

Along with overcoming those challenges, new software innovations enable automated set-up of detection parameters by less-skilled line workers. What used to take hours can be accomplished in minutes, resulting in maximum food safety and operational efficiency.

X-Ray Systems – Detect Metal and Other Foreign Objects

X-ray systems are capable of detecting a wider range of foreign objects including metal, glass, hard plastic, stone and bone. Packages that have metalized film may not be suitable for metal detection, making X-ray inspection the more

Sentinel 1000

appropriate choice. Additionally, X-ray inspection may be the more appropriate choice if non-metal contaminants could enter the process from the farm through processing and packaging. As with metal detection, the detection solution should be suited to the specific application.

X-ray inspection systems can range from easy to own and use entry level systems to sophisticated product handling solutions capable of finding metal, rock and glass in free-flowing unpackaged goods like nuts or seeds. Contaminants are removed early in the process rather than once packaged.

How to Decide Which Technology is Right for Your Application

Because a host of factors can impact detection – from the product itself and the potential contaminants that could enter the process, to the package type and environment factors – it is important to have a detailed product test to ensure that the solution or solutions under consideration will meet your food safety needs and protect your brand, your most valuable asset. Typically done by the equipment supplier, a comprehensive product test will, to the extent possible, simulate production conditions and establish what materials are detectable and the contaminant sizes that can be found reliably. The result is a better understanding of equipment performance so that the probability of a foreign object contamination during production is minimized.

NextGuard

About the author:

Alex Kinne is an applications engineer in Thermo Fisher Scientific's Product Inspection business. He is a subject matter expert regarding the company's Thermo Scientific Sentinel Multiscan and Selectscan metal detection technologies and X-ray technologies for food safety inspection. Previously, Kinne was a product development engineer for Thermo Fisher Scientific and active in the development of the company's new metal detection technology platform.

www.thermofisher.com

KM PACKAGING LAUNCHES MONO MATERIAL POLYPROPYLENE LIDDING FILMS

Global flexible packaging and lidding films supplier KM Packaging has launched a new range of mono-polymer material lidding films, made from polypropylene (PP), that is designed for recyclability.

The sustainable films seal and peel to PP and PE-lined PP trays and can be used during microwave cooking as well as being suitable for ambient, chilled, or frozen applications.

Part of KM's K Peel range, it allows food manufacturers to meet the growing demand, particularly from supermarkets, for mono material packaging that is designed for recycling.

The lidding films are ideal for the packaging of poultry, meat, and chilled prepared foods. Features include:

- Mono structure made of one material type.
- Designed for recyclability.

Ideal for use during food preparation and microwave cooking.

- Peelable from the tray.
- Suitable for ambient, chilled, or frozen applications.
- Exceptional transparency.
- Excellent anti-fog capability.
- Available with or without barrier.

As well as satisfying the needs of supermarkets and consumers who are seeking more recycle-ready solutions, KM is helping to future-proof its food packaging.

KM Packaging's commercial director Graham Holding explained: "If you have a piece of flexible packaging that, for example, is a combination of paper, plastic, and aluminium foil, then that would be a really difficult thing to segregate and put into a recycling stream.

"It is anticipated that the UK government's Extended Packaging Producer responsibility regulations, due in 2023, will quite highly penalise packaging like this that is difficult to recycle."

The new PP lidding film is also designed for recycling around the world, with some countries already having well-developed recycling infrastructures for polyolefin (polyethylene and polypropylene) plastics.

In the UK, front-of-store recycling facilities allow consumers to return polyolefin-based flexible packaging. A similar approach is taken in other markets. For example, Australia's REDcycle initiative and, in South Africa, polyolefins are the largest plastic commodity recycled by weight.

Therefore, putting a tray/film combination of polypropylene onto the market feeds into an already well-established recycling system.

And the new "Designing for a Circular Economy" guidelines from CEFLEX focus on polyolefin-based flexible packaging. This is due to the material making up an estimated 70-80% of the flexible packaging waste stream and because the ability to sort and mechanically recycle it is already proven at an industrial scale in Europe.

KM Packaging's main purpose is to "protect, present, preserve". That is delivering the best packaging solutions by:

- Protecting products throughout the entire process, from factory to table.
- Presenting food in a way that is attractive, professional, and recognisable.
- Preserving food and extending shelf-life across the food industry.

Graham said: "The main goal of our packaging is to look after and protect food. We don't compromise on that. But we're also trying to make sure it's designed for recyclability and, when appropriate, it's thinner and lighter. These are big drivers in our product-development process."

The new polypropylene lidding film products follow KM's recent launch of all-polyester (PET), weld-seal, mono-material lidding films within its K Seal range.

Both solutions are designed for recyclability and will allow customers to avoid putting multi-layer trays and films with different plastics combined into the market.

ww.kmpackaging.com

SEALED AIR CREATES CHLORINE-FREE SHRINK BAGS FOR CIRCULAR ECONOMY

Sealed Air has developed chlorine-free vacuum shrink bags to help food processors and retailers improve food safety and sustainability in a circular economy.

The new CRYOVAC® brand OptiDure™ Bags (ODF4005) are made from a carefully selected range of resins to deliver a highly protective chlorine-free EVOH barrier. This is designed to extend shelf life, reduce waste and safeguard food during distribution, storage and retail.

Total packaging material weight is reduced by more than half in the high-tech generation of multilayer, coextruded shrink bags, which enables operators to lower carbon footprints by up to 39%, compared to standard bags.

Jos Van den Block, Food Proteins Packaging Director at Sealed Air, comments: "The principles of a circular economy are increasingly becoming standard practice. Consumers across Europe are demanding less waste and better use of resources. They want cleaner, safer and more sustainable ways of living, which influences how they buy food.

"CRYOVAC® brand OptiDure™ Bags (ODF4005) have been designed for food processors and retailers to meet these market demands. The chlorine-free EVOH barrier offers excellent resistance to oxygen and other potential contaminants such as moisture, humidity and aromas. This protects food quality and safety, extends shelf life and minimises waste."

Food integrity is further protected by the outstanding shrink qualities of OptiDure™, as well as its strong abuse resistant material. Together, these prevent rips, tears and punctures, whilst the shrink bag's reliable pleated heat seals stop leaks and seal-in freshness and flavour.

Jos Van den Block adds: "The benefits of OptiDure™ extend beyond its protective qualities. Its overlap sealing properties, combined with automated high-speed packing systems, stop bags from sticking together. This can reduce levels of extra work caused by seal failures by up to 45%, helping improve efficiencies and further eliminating waste. Additional benefits are delivered by the shrink bag's bright, glossy and transparent material. This improves pack appearance and enhances the consumer brand experience to encourage purchasing."

OptiDure™ Bags work with a range of heat-sealing vacuum packaging systems, such as shrink bags or ULMA Flow-Vac® and are perfect for packing fresh meats and poultry, smoked and processed meats and cheeses.

Jos Van den Block concludes: "CRYOVAC® brand OptiDure™ bags represent another innovative step forward in providing food processors and retailers with modern packaging solutions that perform on many different levels. Market demands and expectations of packaging are becoming greater and it's more important than ever for food packaging to deliver both outstanding safety and sustainability benefits."

www.sealedair.com

SUPPORTING SECURITY OF SUPPLY FOR MEAT PROCESSORS & RETAILERS WITH RETURNABLE TRANSIT PACKAGING IN THE 'NEW NORMAL'

Attribute to Nick James, Sales Director, Schoeller Allibert

It would be difficult to identify another grocery sector that has been scrutinised and challenged to the degree that fresh meat and poultry has been over the past decade.

From demands for greater supply chain transparency brought about by the horsemeat scandal in 2013, to the impact of the health agenda and trends towards plant-based, vegetarian and flexitarian diets, the result has been a dynamic change in consumer behaviour. Added to the mix is the drive for greater sustainability within the supply chain and the huge shift to omnichannel retailing, exacerbated in recent months by Covid-19.

Perhaps prior to the pandemic, even with consumer cries for 'convenience, convenience, convenience', the fresh meat counter was one that would prove resilient to e-tail. After all, shoppers like to inspect their meat purchases closely, checking for quality cuts and signs of degradation. Published as recently as March this year by the food industry association, FMI, The Power of Meat 2020 report described supermarkets as 'meat powerhouses', with more than half of shoppers primarily buying their meat and poultry in bricks and mortar stores.

When Covid-19 hit, grocery retail was transformed almost overnight; in the hour following Prime Minister Boris Johnson's announcement of a UK nationwide lockdown on March 22, as many shoppers visited Ocado's website in that hour as the entire previous quarter[1]. As the impact of lockdown continued to be felt, increasing numbers of consumers switched to do their supermarket shopping online. In the UK as a whole, online share of grocery sales grew from 8.3% in week eight of 2020 (w/c February 17) to 11.3% in week 16 (w/c April 13)[2].

The effect was replicated in the fresh meat sector which saw online volume growth surge by 44.3% in the four weeks to April 19, 2020[3]. Even as lockdown restrictions have eased, there are signs that online could be here to stay when it comes to meat purchasing – in the four weeks to July 12, 2020, online sales of fresh meat, fish and poultry grew by 38%, having doubled in size year-on-year to £190 million[4].

The panic-buying that ensued in the early days of the pandemic left supermarket shelves empty and put unprecedented strain on the e-commerce element of retailer operations, with products not in the right place at the right time and leaving items out of stock and unavailable. This unprecedented period highlighted global supply chain complexity and more than that, vulnerability, like never before.

For retailers and meat processors, the need for robust supply chain efficiency and sophisticated omnichannel logistics solutions has never been more apparent than it is today. In this 'new normal', security of supply has become paramount, yet volume spikes are likely to continue for some time to come, albeit more likely on a regional basis rather than national or international scale. The sector must learn lessons from these past months and adapt for the long term by implementing processes that enable it to be agile and responsive to volatile market demand.

It is crucial that these new processes do not come at the expense of sustainability. Whilst there has been a hiatus during recent weeks, it would be naive to believe that

1 Digitalcommerce360.com, July 20, 2020 'The Coronavirus pandemic lifts global online grocery sales'.
2 Kantar Group July 2020
3 Kantar, FMCG Purchase Panel, date to 19 April 2020
4 Kantar, FMCG Purchase Panel, date to 12 July 2020
5 Meat in a Net Zero World - www.wrap.org.uk/content/meat-net-zero-world

the environmental agenda is not being reignited by key NGOs.

In June, WRAP announced the UK meat industry's aim to halve the amount of meat wasted each year. The Meat in a Net Zero World initiative brings together trade bodies, retailers, meat processors, hospitality and foodservice companies, and is focused on reducing waste, improving productivity and cutting emissions. WRAP estimates that more than 380,000 tonnes of meat, worth £3 billion, is wasted each year from production through to consumer, measuring more than four million tonnes in equivalent $CO2^5$.

Returnable transit packaging (RTP) is designed to deliver enhanced logistics efficiency, sustainability and hygiene to support today's meat supply chains overcome the complexities faced in recent months.

Stackable and nestable solutions, such as JumboNest® and Maxinest® E-tail from Schoeller Allibert, demonstrate a clear commitment to supporting the circular economy, while at the same time addressing key challenges when transporting meat and poultry to store or consumers' homes. The number of containers that can be transported when filled or empty is optimised ensuring valuable freight space is boosted and the nesting design leads to a reduction in return transportation costs and logistics carbon footprint.

High quality RTP is designed to be robust, practical and resilient. Features, such as reinforced bases, integrated shock absorbers and easy grab handles, facilitate safe manual handling and ensure containers can withstand the rigors of the supply chain, preventing damage to meat products and reducing waste and the associated costs for both processor and retailer.

A key challenge when transporting meat is it's short shelf life and ensuring it remains chilled or frozen. Well-designed RTP can support efforts in this area. JumboNest, for example, can withstand temperatures from -7°C to +40°C and has conical sidewalls to improve cold air circulation when containers are stacked and flanked. This reduces the amount of energy needed to store temperature-critical meat produce, minimising the environmental impact in transit and also ensuring product quality is maintained. It potentially provides a huge cost benefit to the food processor through the reduction of food spoilage and waste in the supply chain.

Covid-19 has put hygiene, sanitisation and food safety firmly in the spotlight. RTP designed with drainage holes allows for easy drainage or flushing of liquids and contaminants, increasing food safety and preventing bacteria proliferation. Smooth surfaces and no 'awkward-to-reach' areas enable easy cleaning and hygienic use, while substrates that are 100% food-grade certified add another level of food safety.

Schoeller Allibert fulfils consumer and supplier demand for supply chain traceability by incorporating RFID panels, designated clear-view label zones and Internet of Things (IoT) functionality within some of its RTP solutions. Complete transparency regarding key information including location, temperature and humidity at every stage of the transportation and storage process, is enabled with such features.

Meanwhile, the increased adoption of e-commerce and 'click & collect' services, and the added complexity

these bring to the meat retail supply chain, mean retailers and processors are seeking transit packaging solutions that drive greater efficiency within warehousing and logistics operations.

An increase in microfulfilment centres – small-scale warehouse and distribution centres within urban spaces that combine the speed of local delivery associated with in-store order picking with the efficiencies of robotics fulfilment from large automated facilities - is transforming online retailer logistics by streamlining and shortening supply chains. The complexities and costs associated with last-mile delivery are ultimately negated.

RTP is today being manufactured with this model in mind. Transit packaging that is versatile and adaptable to the automated and robotic warehouse systems of the future, combined with the features and benefits that the meat supply chain demands, will simplify processes to enhance speed-to-market, sustainability and resilience – core requirements in this new era of grocery retail, whether online or in-store.

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