

MEATINGPOINT

magazine

SUSTAINABLE TECHNOLOGY, PROCESSING & PACKAGING

FROZEN SEAFOOD IN PERFECT SKIN PACKS AT LOWEST OPERATING COST

STAINLESS STEEL CONVEYING
FOR MAXIMUM HYGIENE

TINY HELPERS
WITH BIG EFFECT

A CLEAN SOLUTION FOR
SAFE FOOD PRODUCTION

Production lines. Absolute efficiency.



Increased output

Machine networking and intelligent control system boost output.

Optimise raw material costs

Material is processed efficiently and true to the exact recipe.

Absolute hygiene

Hygienic design reduces cleaning time and lowers the risk of downstream costs due to contaminated goods.

Intuitive control

The entire system can be viewed on a touch display and centrally controlled.

Dear reader,

Fish is a hugely important source of protein, making up 16% of animal protein consumed globally, and demand is set to rise, according to the United Nations' Food and Agriculture Organisation, largely thanks to rising disposable incomes. In the opinion of Allied Market Research, the global seafood market is predicted to reach a value of \$155 million by 2023, registering a CAGR of 3.6% from 2017 to 2023. But supplying fish sustainably, without depleting natural resources and harming the aquatic environment, is a continuous challenge. With overfishing which is getting hugely problematic, we're now seeing a promising focus on plant-based fish alternatives. In this issue, you can find a wide portfolio of solutions for fish alternatives on pages 20-27.



Jenny Smart

What's more, consumer demand for packaged and frozen products, has seen steady growth since COVID-19 began, as households looked to stock up on non-perishable food. The frozen food packaging market was valued at USD 41.53 million in 2020 and is expected to reach a value of USD 56.2 million by 2026, at a CAGR of 5.18% over the forecast period (2021 - 2026). Recently, according to consumers convenience, frozen food packaging provides features like the packings are lightweight, unbreakable, and re-sealable, lower fossil fuel usage, and is also capable of greenhouse gas emissions, water usage for creating an eco-friendly environment.

Maintaining product quality and delivering the highest levels of hygiene and protection are vital factors to help companies maximise opportunities in such a fast-growing competitive market. Our cover story highlights the benefits of skin packing of frozen seafood, and its advantages such as excellent shelf life, optimal visibility of the product to consumers, and the use of less packaging.

As usual, we feature the industry's latest news and developments, company profiles, as well as research papers, and the latest technological innovations.

Enjoy your read!

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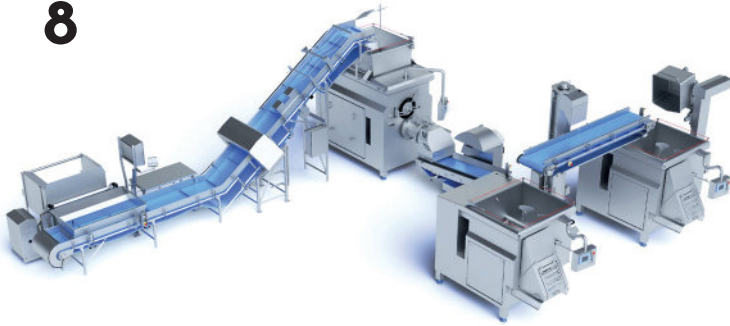
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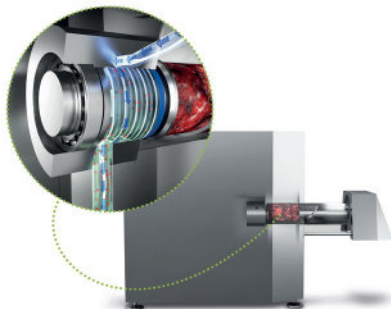
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TAKING LOW-PRESSURE FORMING UP A LEVEL

Marel's New RevoPortioner 1000 Increases Throughput, Quality and Consistency

Marel started development of its first low-pressure forming equipment over 25 years ago. Since then, a continual journey of innovation and development has led to the next step forward, and the introduction of the latest solution in the RevoPortioner series.

Continuously Forming - Continuously Performing

The RevoPortioner 1000 is the newest advancement in Marel's successful line of low-pressure forming RevoPortioner solutions. It continues to build on the proven technology of previous generations, however, what makes this new version so unique is a significant increase in capacity. In addition, unique design updates have further improved performance giving industry-leading product quality, shape consistency and weight accuracy.

Increased Volume and Speed

The RevoPortioner 1000 now has a 1000 mm (40") forming width and an improved maximum speed of 40 m/min. These factors combine to increase output significantly. The RevoPortioner 1000 also has the added benefit of an extremely low footprint, compared to previous solutions with similar capacity.

Unique Distribution Design

Building on the performance of previous models, the RevoPortioner

“Not only does the RevoPortioner 1000 introduce new and innovative technologies, it also retains the unique features of the previous generations such as helical forming and pressure distribution.”

Marleen Verburg, R&D Technologist, Marel



Marels RevoPortioner 1000 Low-pressure forming machine
For processors who want to increase output as well as product quality, the RevoPortioner 1000 is the perfect solution.

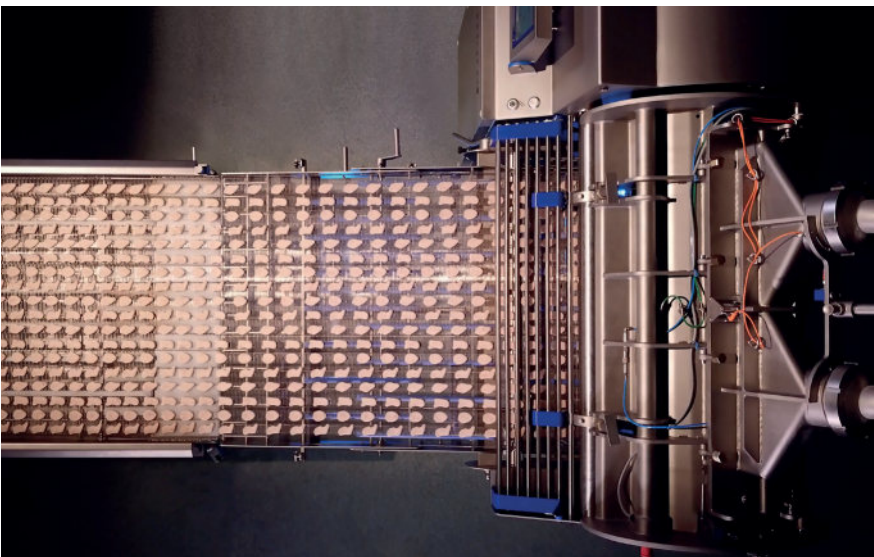
1000 now has a new and improved distribution manifold. This, combined with the patented shoe plate pressure zones, gives a more robust system with optimal

control of the meat mass across the width of the forming drum. The highest levels of product consistency and weight accuracy are always ensured.



Marels RevoPortioner 1000 Low-pressure food forming

Unique air-release function helps guarantee 16 hours of high-level performance with just one drum.



Marels RevoPortioner 1000 increases food forming volume and speed

The RevoPortioner 1000 now has a 1000 mm (40") forming width as well as a low footprint.

Unrivaled Air-Release Function

An improved air-release function gives the RevoPortioner 1000 an

unmatched ejection performance. A redesigned delivery method optimizes the air pulse that discharges products from the forming drum. It gives an

enhanced release and maintains product integrity better than any comparable equipment on the market. This unique function also guarantees 16 hours of high-level performance with just one drum.

Sustainable Processing

The advanced technology and robust design behind the RevoPortioner 1000 ensure an incredibly low level of leakage—less than 0.3%. The high levels of consistency in product shape and weight reduce rework by approximately 50%. In addition, the system uses significantly fewer cooling agents and 40% less compressed air, compared to previous solutions with comparable capacities. This significant reduction in waste, energy and resource consumption, contributes to a much more sustainable production process.

Your Partner for Convenience Food Processing

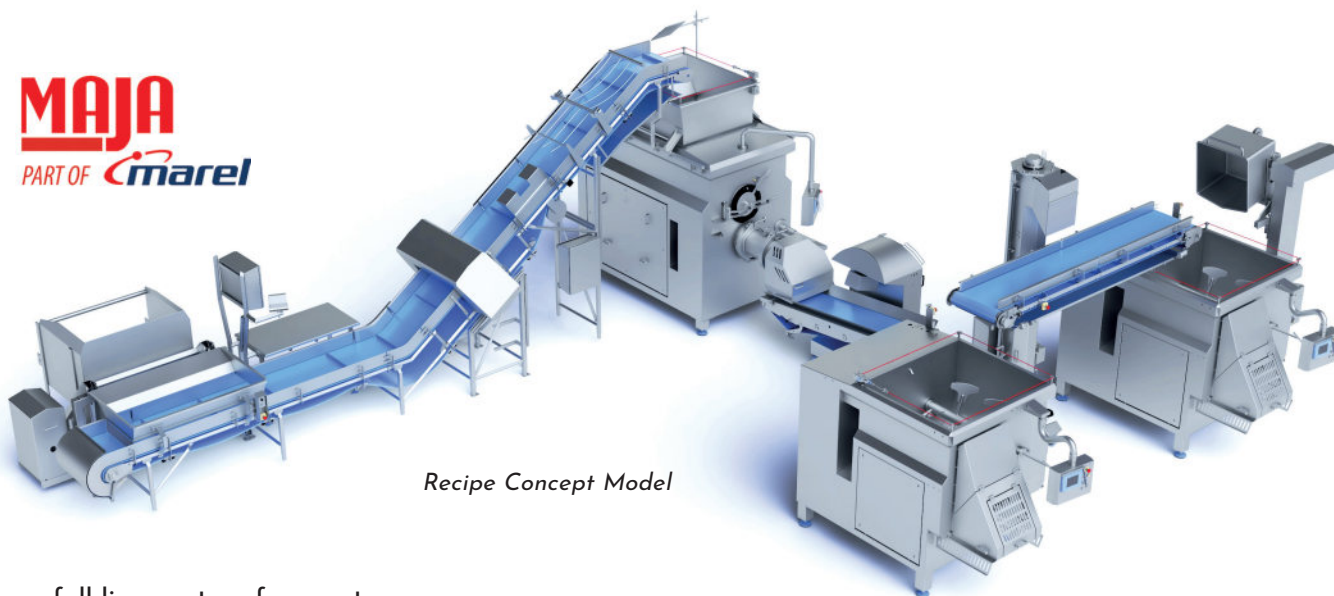
With the introduction of the RevoPortioner 1000, Marel now has the most extensive range of low-pressure forming equipment on the market. Whether you are forming chicken, pork, beef, fish, plant-based protein, potato or pet food, we can create a full food processing production line to meet your needs.

www.marel.com

MAREL IS THE MEAT INDUSTRY'S PARTNER FOR FLEXIBLE SYSTEMS FOR A UNIFORM GRIND AND MIX

Elements of an exemplary Marel meat preparation line for the production of burger patties, minced meat or sausages, consisting of:

- Infeed conveyor to bring the meat up to the grinder
- Swing loader and infeed table for fresh and frozen meat
- Giraffe to feed the meat up to the belt between the two SPEEDMix
- FATscan to analyze the meat and measure fat content, moisture and protein



Being a full-line partner for meat processing companies all over the world, Marel can offer an excellent variety of meat preparation equipment, including grinders for both fresh and frozen blocks, fat analyzers, mixers, emulsifiers for sausage production, plus a wide range of lifting, conveying, and silo equipment. The focus is to create the most efficient lines with fewer operators and gentle handling of the meat, as well as preventing protein destruction.

All the components can be put together to create a complete processing line and are fully controlled by the Marel recipe system. The operator chooses the recipe on the main operator panel, then the system automatically changes all the settings on the machines in the line, including

grinder settings, belt speed, mixing program, etc. The recipe system always guides the operator step by step, and the operator needs to confirm each completed task before moving to the next step. After each batch, a report is stored in the database for further documentation.

The Marel mixer portfolio is ideal for mixed and ground meat products, offering single- and double-shaft mixers with tank capacities from 400 to 7,000 liters. They perform quick, gentle, and homogeneous mixing of fresh or frozen ground meat.

The square design of the mixing bowl creates very efficient mixing, shortens the mixing time, and minimizes protein destruction. For soft- or speed-mixing, two different

types of paddle arrangements—side-by-side or overlapping—are available. The frequency converters on the mixer wings make it possible to fine-tune the mixing process. The result is consistent product quality, whether the end-product is minced meat, burgers, meatballs, nuggets, or dry or emulsified sausage products.

Marel mixers offer the best-in-class hygienic design to reduce the risk for cross-contamination of the product to a minimum. They also reduce cleaning time and costs. The fully closed control cabinet encloses all the electrical components inside a dry area to eliminate the risk of damage from cleaning.

www.marel.com

NOVELTY: THE SEYDELMANN VACUUM-MASSAGER



Vakuum-Massierer VMR 1800 mit Mastbeschickung

Boiled ham products are increasingly in demand worldwide. The production rates in the manufacturing companies continue to rise. However, manufacturers in the cooked ham production sector are currently facing ever increasing demands on their products and production processes. Particular attention is being paid to faster and more cost-effective production, as well as to achieving a homogenous product with high end product quality. Maschinenfabrik Seydelmann KG is able to meet these high requirements. It already offers solutions for customers in the field of cooked ham production and has established itself as a reliable and strong partner in this product segment. In order to be able to handle the growth even more optimally, it is now concentrating on cooked ham production with the new Vacuum-Massagers in addition to its cutters, grinders, mixers and production lines.

In this new machine, the cooked ham is processed in a fixed hopper

with two moving massage axes with paddles and/ or spirals in a rotating principle. Therefore the process is particularly gentle and intensive. The massaging axes are equipped with short spirals towards the outlet and the hopper



with hydraulic discharge flaps, which ensures quick and complete emptying. In addition, electropolished massage axes are used, which lead to a particularly functional and quantitatively optimal protein build-up on the meat

surface without product abrasion. Furthermore, product build-up and thus product loss are avoided and simple and quick cleaning is ensured. The Vacuum-Massager is loaded via a vertical loading device with 200 or 300 litre loading trolleys, a loading device for large containers, suction via vacuum or conveyor belts. The machine processes the product gently and individually thanks to the stepless and frequency-controlled three-phase drive at maximum hourly output.

Thanks to the proven high vacuum steps and intensive massage technology, a lot of time can be saved. In contrast to the use of a standard tumbler, the Seydelmann Vacuum-Massager only needs about 40 % of the time. In addition, the degree of filling and therefore also the hourly output in the Vacuum-Massager is higher.

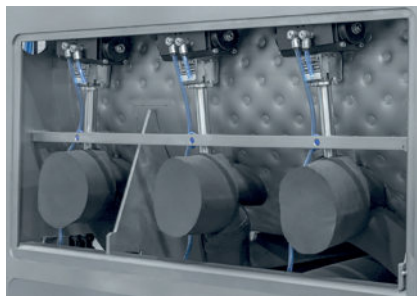
For example, the hourly output of 5 standard tumblers is only approx. 1.560 kg, whereas the same number of Seydelmann Vacuum-Massagers can process on average approx. 3.600 kg. Therefore 2 Seydelmann machines can replace up to 5



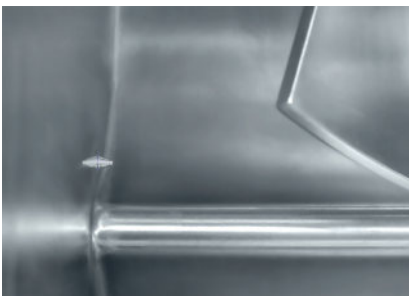
Two paddle shafts



Hydraulic discharge flaps



Pillow Plates and CO2 / LN2-nozzles for cooling



Temperature sensor in the product

standard tumblers, which saves space and reduces process times.

Further advantages of the Seydelmann Vacuum-Massager are the processing of injected and fresh meat. Thereby a fast and even protein yield on the surface of the meat pieces as well as the

absorption of the brine in the product is ensured. This results in a high-quality, homogeneous end product. The color of the end product as well as the taste become more intensive. Due to the fast and gentle massage, the muscle fibers of the cooked ham are not destroyed.

The innovative control system of the machine guarantees a complete recording of all production data. It is also possible to integrate the vacuum massagers into a fully automated production line. This also significantly reduces the costs per kilogram of product. Due to fast loading and unloading times, product-oriented mixing shaft solutions and automated additions, personnel costs are saved and process reliability is guaranteed. The optimally matched mixing shaft systems ensure an increase in quality of the end product despite faster processing. The Vacuum-Massager also features the proven Seydelmann Hygienic Design. Thanks to this the machine is robust, durable and easy to clean.

Maschinenfabrik Seydelmann KG has already proven itself worldwide in the production of toast ham, breakfast ham, quality ham and pizza ham. The many customers and millions of end users appreciate the high quality but nevertheless inexpensive produced cooked cured products - every day.

www.seydelmann.com

LIMA: QUALITY IN FISH MEAT-BONE SEPARATION!

LIMA are specialists in the manufacturing of meat-bone separators, deboners and grinders-desinewers with a world presence through a network of more than 70 distributors on all continents.

The company has not only made a name for itself in the poultry, pork, lamb and beef industry but also in the fish industry.

Different models are available with an input capacity from 100 to

20 000 kg/hr (220 - 44 000 lbs/hr) and are used satisfactorily by customers around the world, on salmon, tuna, catfish, tilapia, blue whiting, cod, for surimi base production lines and many other varieties of fish, to produce:



- Nice fibrous meat texture MSM on "S" Separators
- Ground / structured deboned meat on "DD/DDS" Deboners

All Lima Equipment is Designed and

Manufactured to Benefit from the Following Advantages

- No pre-breaking needed
- Optimal high yields
- Low maintenance cost
- a continuous single-stage operation
- hygienic operation
- very low temperature rise

- very easy to operate and quick to clean
- and a quick payback

Thanks to a specific design, the infeed auger handles the raw product very gently with very minimum pressure on it. Also, the low rotation speed of the auger insures a very small temperature increase. This enables the production

of high-quality fish meat ideally textured for further processing.

The profile of the hopper and the head body allows 100 % access for cleaning and disinfection which is very easy and quick. The head adjusts to allow for optimum yield to cope with variations in the fish raw product.

www.lima-france.com

MINCED MEAT PORTIONING LINES MC 3-3 AND RHP 240

The REX mincer portion line range developed by REX is designed to meet all industrial requirements. The modular system is quickly and easily adapted to a customer's specific requirements. This makes the REX minced meat line a most cost-effective line solution, without compromising the product quality.

The final perforated disc in the MC 3-3 is adapted individually to the end customer's mould size. Product widths range from 60 to 220 mm with a very wide selection of final granulation grades. A special final perforated disc can be used to portion multiple rows of Cevapcici on paper, for example.

A very important aspect of ground meat production is the grinding process. The pregrinded product is exactly portioned by the filling machine and ground in the REX MC 3-3 meat grinder to the final grain and product size. The individual speed regulation of the grinder drive guarantees a perfect grind.

The independent servo drive of the filling mincer, set and monitored via the touchscreen controls of the filling machine, makes it possible to adjust the cutting speed appropriate to the respective portion size. The minced meat portioner RHP 240 completes the line. It is linked to the filling machine and attached to the minced meat filling mincer MC 3-3. In that way, it conveys the processed product flow and cuts portions exactly to size, resulting in a very high level of product precision.



The Advantages at a Glance

- Equipment simple to operate
- Free-flow technology delivers a perfect product image
- Optimum product flow minimizes product warming
- Very exact portioning of +/- 1 %
- Paper dispenser for different product sizes
- Perfect, quickly and simple system synchronization when linked to a line

www.rex-technologie.com



JBT IOPS® TRANSFORMS PREVENTIVE MAINTENANCE INTO PREDICTIVE

In a rapidly changing world and with the availability of Industrial Internet of Things (IIoT) solutions and services, the food industry is faced with some key digital transformations. The JBT version of IIoT is called iOPS which further improve our customers' production lines with this performance

Greater Production Efficiencies

JBT's iOPS makes use of collected real-time data providing customers a better view of their operation and supports in planning preventative maintenance well ahead of time. By collecting and learning from real time data from systems

foresee issues ahead of their occurrence, thereby saving money and time. This allows us to move from measuring a single parameter to proactive actions based on trends and expert analysis."

Jean continues: "Our support team transforms the valuable data into supported advice based on



optimisation technology. The technology, which allows for connected equipment and operation monitoring, provides food manufacturers with new and unique possibilities to ensure sustainable and profitable growth through insights and proactive actions that would not have been possible to achieve in a profitable way before.

With the ongoing COVID-19 outbreak limiting our travel and access possibilities, many businesses are now looking to adopt to new technologies faster than they might have planned, acting as a boost for digital, virtual and remote innovations.

and machinery, iOPS can detect potential issues before they become problems and even improve the overall efficiency of operations.

"Today, most Maintenance is Preventive or Reactive, but not Predictive."

The technology enables customers to gain a far clearer idea of the true state of their Overall Equipment Effectiveness (OEE). Jean Bülow, JBT's iOPS manager, explains: "Today, most maintenance is preventive or reactive, but not predictive. By employing remote equipment monitoring we can

knowhow and trends, allowing us to generate alarms and act before a breakdown or premature wear becomes a fact." Jean and his team are working continuously to move the technology from a technical platform to a value adding solution for our customers. "We see a lot potential and areas where we can use the data, and I'm sure we're only at the start of a big transformation," he says. "Within the area of food production, powered by intelligent data analysis and other advantages like re-use product data from PLM or using AR/VR technology, IoT will bring a lot of advantages to our customers and in the end the consumers."



Act Faster through Predictive Data

The next step is to act predictively and being able to adjust and change parts exactly at the right time. "By predicting, I envision that this technology will allow us in the near future to act faster when we see a failure is about to happen," Jean explains. "We will be able to optimise our efforts, such as deliveries of spare parts and the employment of field service

engineers, and thereby shorten the resolution time on customer site and schedule replacement work in advance to when it best fits production cycles."

Proactive means taking steps and replacing parts before machinery breaks, predictive means doing these things when conditions are optimal, i.e. before technical problems arise and at exactly the right time to get the most out of the investment. By making sure problems are tackled in time and avoiding parts being changed earlier than necessary it optimises the total cost of ownership.

Optimisation all over

With the increasing need to maintain high food standards, integration of iOPS can assist

in improving food safety and energy savings. Concentrations of cleaning chemicals as well as cleaning water volume and temperature are examples of things we can measure and document. This provides you with the reassurance that cleaning procedures are being followed, and potential bacterial growth issues prevented. Moreover, iOPS technology greatly helps reduce waste, cost and risks at all stages of the production process.

With the onset of the COVID-19 pandemic, and greater numbers of companies moving to remote working as a result, iOPS integration can provide an overall, accurate picture of food processing operations without always having to be there in person.

www.jbtc.com

STEEN®
www.steen.be

"Translating innovative technology into high yields"



STEEN ST850

Turkey parts deboner

- Optimized processing capacity
- Suited for drum, thigh and wing.

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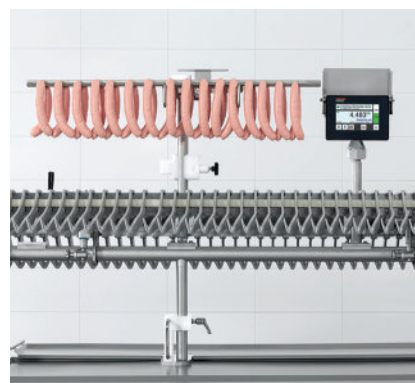


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NEW HANGING UNIT FOR EVEN GREATER EFFICIENCY IN SAUSAGE PRODUCTION



AHE 228 hanging unit



Digital AHE scales

Handtmann offers sausage filling lines for the production of raw, fresh and cooked sausages in natural, collagen or peel-off casing. Its linking and hanging line variants range from systems with manual or semi-automatic casing spooling to a fully-automatic solution. These AL systems stand for high production output and reduced non-productive times with case changing times of less than 2 seconds. Handtmann has enhanced its proven hanging technology and now offers the new hanging unit AHE 228 in two variants: AHE 228-16 and AHE 228-17. As a result, the process step of hanging sausages is now even faster, more ergonomic and with digital support.

Excellent ergonomics – and thus even more efficient operation – are made possible by the individually adjustable height of the AHE 228-17 variant. It has a length of 320 cm and is equipped with a “pivoting” guide belt. This means that it has a flexible and continuously adjustable working height up to 150 mm from the front of the hanging unit with sealing and knotting at the hanging unit’s smoke stick removal rear. The AHE 228-16 variant is available with a length of 220 cm or 320 cm with a “horizontal” guide belt, i.e. the working height is identical at the front and rear of the hanging unit. The new AHE also increases output thanks to optimal smoke stick utilisation.

A minimum hook spacing of 20 mm with 5 mm increments ensures optimal smoke stick utilisation and reduced casing consumption. Set-up time is significantly reduced thanks to the simplified hook placement with LED support and the simultaneous set-up of the linking line and hanging unit. An optional AHE stop button provides additional process reliability. If required, the hung portions trigger an automatic stop of the production line. First-class hygiene conditions are guaranteed thanks to the hygienic design and hygienic features such as a pivotable and height-adjustable collection tray with an integrated residual material container, and much more. The optionally integrated Handtmann digital hanging unit scales, which can be placed directly on the hanging unit, provide added value. Give-away is reduced to a minimum thanks to their optimal weight accuracy. Overfilling can be reduced by up to 60%. The AHE scales are height-adjustable with a 300° swivel-mounted operating unit and optical LED indicator. The AHE scales can function as portion and smoke stick scales.

www.handtmann.de



AHE 228-17 pivoting variant





—STEEL—BELT— —CONVEYORS—FOR— —HYGIENIC—MEAT— —PROCESSING—

Upgrade to an IPCO steel belt meat conveyor for easy sanitizing, reduced cleaning costs and 'best practice' hygiene.

As a world leader in the supply of bacteria-resistant stainless steel conveyor belts for the food industry, we can help to ensure that you maintain the highest standards of hygiene and at the same time reduce your cleaning costs. Ask us for a copy of the VTT Expert Services report confirming the superior cleanability of steel belts, and for details of how our Application Team can support your upgrade process.

ipco.com/hygiene

ipco

GEA HAS THE CURE THAT WILL INJECT VALUE INTO BACON



To overcome the challenges faced by food producers curing bacon products, leading technology provider GEA Food Solutions has developed an advanced injection technique which contributes to high brine retention and low standard deviation – crucial to ensuring consistency of distribution, quality and yields.

GEA's Multijector, an automated injection system, introduces brine in a high-density injection pattern, combined with low injection pressure, avoiding 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.

Benefits for bacon producers using a high-density injection pattern include improved slicing yield, reduced post-injection purge and drip loss, optimum moisture and salt levels, while avoiding injecting air or foam, ultimately extending

the shelf life of bacon by several weeks. Reduced purge not only impacts yields, it also means reduced downtime spent cleaning the equipment and surrounding environment.

GEA product expert, Wim Sturm, said: "Customers will not purchase bacon products which have inconsistent appearance, discolouration or a short shelf life. The distribution of brine should be even, consistent and well retained within the product. A 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."

The quality of injection needles used also has an impact upon the efficiency of the process as well as the quality of the end product. Bent needles lead to under injected and over injected areas in the final product, which causes inconsistent

product quality, short shelf life, and can cause a tiger stripe pattern. GEA OptiFlex needles are stronger than traditional stainless steel, and have the superior property of recovering their shape time and time again instead of becoming deformed or bent.

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 the 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 at a low injection pressure. 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 an 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

MEYN RELEASES UNIQUE SELF-ADJUSTABLE WING CUTTER - THE MEYN WING CUTTER HIGH YIELD PRO



Variation of breeds and weights within and between flocks, combined with the growing average bird weight, can create additional challenges for poultry processors everywhere around the world. The pressure on poultry processors to be flexible with both variable input products (live birds of variable breeds and weight ranges) and output products has never been so apparent. Market margins are getting increasingly smaller throughout the poultry industry forcing poultry processors to increase their yield wherever they can.

The most Carefree and Flexible Cut up Solution

In close cooperation with various poultry processors, Meyn decided to redevelop the wing cutter to cope with variation of bird size and shape more conveniently. The development of the Meyn Wing Cutter High Yield Pro was a fact. This next generation of cutting module has the dual circular knives and their stainless-steel motors fitted within a spring coil suspension, enabling the module to adjust to each bird individually, even whilst running at line speeds of an astonishing 7500 BPH

(15,000 BPH when running a double line). For modern, high-speed poultry processor, smooth-running processing like that of the Meyn Wing Cutter High Yield Pro, makes all the difference.

As a matter of fact, even with a griller weight differentiation of up to 1,5 kg during process, the Meyn Wing Cutter High Yield Pro still reaches an astonishing accuracy in its anatomical cut. The highest accuracy of Cut Up within the market.

Additionally, the Meyn Wing Cutter High Yield Pro is adaptable to processing grillers from 1 kg up to an unrivaled 4,3 kg of griller weight with a minimum of adjustments required. With these heavy birds the operation runs smoothly without any blockage. As a result, flock and breed variations do not cause extra challenges at the processing line, an unseen achievement in any cut up module within in the poultry processing industry.

Cuts the Tie with Filet Harvesting

Accuracy of wing cutting has a tremendous impact on the yield of breast deboning. Here the Meyn Wing Cutter High Yield Pro catches two birds with one stone: the high accuracy of anatomical

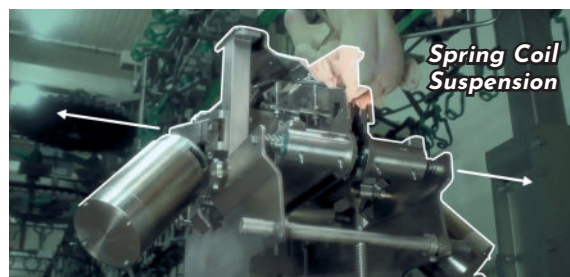
cut, cuts exactly between the two joints. Leaving near to nun pieces of wing joint on the griller, which, on its turn, results in an increased yield in fillet harvesting. When required, the cut can include a maximum amount of



back meat while minimizing the amount of breast meat, but other combinations can be selected as well. "With the new Meyn Wing Cutter High Yield Pro we don't have to worry about the right set-ups no longer. We are extremely content with all that this Wing Cutter has to offer. Both considering the wings, as well as its effects on the processing results of the Rapid Plus M4.2 Breast Deboner." -Poultry Processor within Europe.

With hundreds of Physic cut-up solutions sold worldwide, Meyn cut-up technology has proven to be very successful amongst poultry processors around the world.

www.meyn.com



FROZEN SEAFOOD IN PERFECT SKIN PACKS AT LOWEST OPERATING COST:

How Cabomar Congelados Found the Most Flexible Solution in SEALPAC's RE30 Thermoformer

When it comes to frozen seafood, Spanish manufacturer Cabomar Congelados is clearly leading the way. In its extensive production facility in Galicia, the company processes a large variety of products, such as squid, shrimp, mussels, clams, sardines, tuna and even swordfish. We spoke with Enrique Freire, General Manager at Cabomar Congelados, about setting up cost-effective production lines in general, and the SEALPAC RE30 thermoformer line for skin packaging of frozen seafood in particular.



Cabomar Congelados opened an ultramodern processing area at its building in Marin in 2006.

Rising Star

Cabomar Congelados (www.cabomar.com) is located in the beautiful port of Marin, at the very heart of the Spanish seafood industry in Galicia. The company was only founded in 2004, offering a range of cold storage and manufacturing services, including production and marketing of frozen seafood products. With the financial back-up of the Italian trading company Panapesca, Cabomar Congelados was able to grow its business very quickly. In 2006, Cabomar Congelados opened an ultramodern processing area at its extensive building in Marin. As Enrique Freire,

General Manager at Cabomar Congelados and son of the company founder, explains: 'Based on our comprehensive market knowledge and experience in seafood processing, we were able to design an extremely cost-effective facility, without compromising our philosophy to innovate by means of new recipes, ingredients and pack styles. By providing the optimum mixture in personalized service, quality and cost, we clearly differentiate ourselves from our competitors. As an example, we were one of the first companies in Spain to purchase a high-output thermoformer for skin packaging, hence allowing us to control operating cost.'

Flexible at High Speeds

Several years ago, Cabomar Congelados decided to launch



Cabomar Congelados processes various types of frozen seafood.





SEALPAC's RE30 thermoformer allows Cabomar Congelados to produce skin packs, flexible vacuum and rigid sealing only packs at high speeds, and with short changeover times!



a new product line of frozen seafood, among which 'conchas' (black mussels), in skin packaging with protrusion of up to 20 mm. By investing in a high-output thermoformer, their existing chamber machine and flow packer could be eliminated. In the end, SEALPAC, represented in Spain and Portugal by the company EMO S.A. (www.emosa.com), was able to supply the most flexible solution: a semi-tandem SEALPAC RE30 thermoformer that allowed Cabomar Congelados to produce skin packs,

flexible machine, given the available space in our processing area, and taking into account the various product changes that we have each day. They also suggested jumbo bottom film unwinding, which significantly enhances the production time without changeovers. It was supplied as a side-loading system to optimize the footprint of the line in our factory.'

The Benefits of Skin Packaging

Although skin packaging of frozen seafood is relatively new in Spain, it is an established packaging solution in Italy. Freire: 'Its main advantages



Skin packs provide excellent shelf life and optimal product visibility whilst using less materials.

as well as flexible vacuum and rigid sealing only packs, at high speeds.

The line was designed with a single forming station, a double sealing station and a tandem top film unwinding unit to allow for quick and easy changeover between different pack styles. Furthermore, all different longitudinal and cross-cutting systems, as well as the top labelling system, were mounted onto the RE30 thermoformer. Freire: 'All in all SEALPAC was able to supply the most

are excellent shelf life (between 18 and 24 months for frozen seafood), optimal visibility of the product to consumers, and the use of less packaging materials compared to for instance trays. Due to the solid nature of our frozen products, and the required protrusion, we had to make sure that we have a perfect pack appearance. EMO supported us by comparing different skin films at the SEALPAC factory in Holland. This also helped us in reducing operating cost. A strong driver in the current packaging industry is reduction of consumables. Here, the skin packs are an excellent solution.'

www.sealpacinternational.com

SUSTAINABLE ALTERNATIVES FOR FISH LOVERS

Innovative Concepts Combine Wheat-Based Ingredients and Special Seasonings to Create a Variety of Vegan Fish Applications

Consumer demand for sustainable, plant-based alternatives to meat products is high. As yet, however, vegan fish substitutes have not been a key focus. Nonetheless, this market sector offers great potential and impressive annual growth rates that exceed those of other animal protein sources (meat, eggs, milks, etc.).¹ And, considering both overfishing and the world's growing population, a future shortage of fish meat is a distinct possibility.

The task of creating successful fish and meat alternatives is very similar. Providing an authentic finished product that mimics the colour and organoleptic properties of the original is essential. As such, R&D experts at German wheat ingredient specialist, Loryma, are constantly working on future-oriented solutions. For example, the team has developed an innovative concept for vegan

white meat, salmon, tuna and fried fish applications.

Alternatives in Demand

As recently documented, the plant-based market trend has retained its top-three position as an industry driver for the last three years and will no doubt further increase demand for fish alternatives.² Many people now want to give up or minimise the consumption of animal products, mainly due to ecological and ethical concerns. In the case of seafood, overfishing the oceans, the amount of unused bycatch and the general desire for ethical treatment are key concerns, as well as the accumulation of microplastics and pollutants in the fatty tissues of marine animals. However, only end products that are sustainable and combine indulgence with a valuable nutritional profile and impacts will prevail.

Scope for Variation

Loryma's wheat-based fish products consist of two components: Lory® Stab is a functional mixture of wheat proteins and starches that mimics the species-typical muscle tissue of fish meat, whereas Lory® Bind provides inner binding and a specific mouthfeel.

The ingredients are neutral in taste and can be individually flavoured.



To meet the challenge of imitating different types of fish, the amount of firmness can be modified by varying the bind component content to achieve the right "bite" profile. And, to match the tight flesh texture of tuna, extruded wheat proteins from the Lory® Tex range can be incorporated.

The colour of the end product can also be customised, from white (halibut and cod) to pink (salmon), and the wheat components are available in a wide range of different shapes.

As well, Loryma's modular product portfolio includes wheat-based breadings for vegan baked fish or fish fingers. The functional coatings, such as dry dusting powders, wet or tempura batters, contain special wheat starches that ensure bubble-free adhesion to the breading. Containing no declarable E-numbers, they enable a clean label end product.

Flexibility in Composition

Nowadays, fish is a valued part of many people's diets as a source



fish applications that combines different wheat-based ingredients with tailor-made seasonings to deliver a variety of plant-based

¹ Food and Agriculture Organization of the United Nations (FAO) (2020): The state of world fisheries and aquaculture, p.67.

² Innova Market Insights, Top Ten Trends for 2021

³ S. Colombo and T. Rodgers (2020): Projected Declines in Global DHA Availability for Human Consumption as a Result of Global Warming, Ambio 49, 865-880.

of essential omega-3 fatty acids. But the world's supply won't last forever; the amount of available DHA from wild, farmed and freshwater fish could decrease by around 58% as climate change and ocean warming continues. As a result, 96% of the global population may be susceptible to a DHA (docosahexaenoic acid) deficiency by the year 2100.³ As a replacement, wheat-based fish applications could be designed as a nutrient-rich, high-quality products with added vegetable or algae oil to serve as a full-featured alternative to fish. Extra protein content could even be added with Lory® Protein.

Highly Nutritional and Sustainable

Wheat itself also contains important nutrients, such as amino acids and proteins, and is both abundant and sustainable with a yield of 99%.



Furthermore, it is readily available and, because of regional cultivation, transport emissions are low; the plants also bind large amounts of CO2 during their growth.

To find the optimal solution for each individual product, Loryma supports its R&D with technology and analysis. Tailor-made formulations are developed to meet the needs and requirements of each customer and, as the

company's wheat ingredients are easy to handle and process, it's

a win-win-situation for everyone.
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MEAT SUBSTITUTES: CLOSER AND CLOSER TO THE REAL THING

By Jutta Schock



Lower carbon footprint, zero animal suffering, and often a better nutritional profile too: there are many good reasons for switching from animal to plant-based proteins. But with taste remaining king, if the enjoyment factor isn't there, it's difficult for consumers to change their dietary habits for better. Fortunately, manufacturers of plant-based ingredients now have extensive application knowledge, and the search for innovative raw materials and processing technologies is delivering success. Better solutions are becoming available, and these are making it easier for more and more consumers to give up meat on many occasions or even completely.

A great deal has happened in recent years: According to Acumen Research and Consulting, the global vegan food market is expected to grow at CAGR of around 9.1 per cent to reach US\$ 24.3 billion by 2026.¹ In the early days of the organic and vegetarian movement in the 1980s, it was

hard to imagine that it would ever be completely normal to find plant-based alternatives to meat products on every supermarket shelf. Now, it is the new standard, with the USA, the UK and Germany leading the way in plant-based food and drink product launches in recent years.² Acumen notes that between 2012 and 2017, demand for meat free meals jumped a phenomenal 987 per cent.¹

Target Group: Flexitarians

Plant-derived products are no longer aimed only at vegetarians and vegans, however. The intended, much larger and more lucrative target audience is flexitarians – consumers who want to reduce their consumption of animal products without abstaining completely. So many people now take this approach to food that researchers at Sustainalytics named 2020 “the Year of the Flexitarian”.² They point out that 34 per cent of UK consumers thought of themselves as flexitarian in 2018, up from 28 per cent in 2017, while two thirds of Americans have cut back on their meat intake.²

And it is flexitarians who pose the most difficult to overcome hurdle for many manufacturers – sensory acceptance.

The only way to convince these consumers to put their good

intentions into practice in the long term is if the taste and enjoyment factor of plant-based alternatives is at least equivalent to that delivered by animal-based products. The good news is that the industry has made great progress here – especially within the past two years. Major players as well as industry start-ups have ushered in a new era of meat substitutes. With increasing applications knowledge, raw materials expertise and state-of-the-art technology, it has been possible to raise the meat substitutes sensory profile to a new level. Now it is possible to overcome even that most difficult of challenges – how to imitate unprocessed cuts of meat like steak and schnitzel.

Meat Mimicking for Authentic Enjoyment

The key to authentic meat ‘bite’ is meat mimicking. The aim is to come so close to the original in terms of texture, taste and appearance that, at best, it is impossible to tell the difference. GoodMills Innovation has been successfully working with wheat-based meat substitutes for decades. Advances in technology have brought a breakthrough in meat mimicking. The new VITATEX® range makes it possible to produce a wide range of vegetarian and vegan options based on wheat, soy or pea texturates to replicate

¹. <https://www.acumenresearchandconsulting.com/vegan-food-market>, accessed 07.02.21

². <https://www.sustainalytics.com/esg-blog/2020-the-year-of-the-flexitarian/#:~:text=In%20the%20UK%2C%20one%20in,their%20meat%20intake%5Bii%5D.>, accessed 07.02.21

³. ING Research Report “Growth of meat and dairy alternatives is stirring up the European food industry”, Okt. 2020.

conventional pork, beef, poultry and fish-based products with highly authentic flavour profiles.

Determining whether to use the wheat, soybean or pea texture variant – or a mixture of these – largely depends on the intended finished product concept and positioning. Wheat and soy extrudates have been established for decades, and the application knowledge inherent in this brings advantages. Peas, on the other hand, are a more recent option. They combine contemporary attributes such as regionality, sustainable cultivation and tradition, so are especially suitable for target groups that make their purchasing decisions very consciously.

With all three raw materials, most traditional meat applications can be imitated faithfully, with differences in fibrosity and colour accounted for. To imitate poultry meat, for example, a texturate that is naturally light in colour is the best choice. Depending on the customer's requirements, experienced product developers and application engineers work together to determine the optimal approach, and they have plenty of scope in their proprietary Innovation Center to put their ideas and recipes into practice.

Texture: Critical to Success

Its authentic meat texture is the standout feature of the new VITATEX® range. But, as with all food, achieving excellence on one level isn't enough: The overall blend of appearance, texture, aroma and taste must convince the consumer. This means overcoming challenges

like the off-flavours associated with certain plant texturates. For example, cereal and beany notes have to be minimized or masked.

Careful pre-selection of raw materials is crucial here. To ensure top product quality, GoodMills Innovation works with carefully selected contract farmers to source the best raw materials with defined quality characteristics. Achieving the right flavour is also vital when it comes to creating an outstanding meat-like taste experience. Thanks to today's speciality flavours and spices, sophisticated results can be realised and remaining off-notes corrected at the same time.

Customers benefit from the company's comprehensive knowledge in the field of plant raw materials and texturates, as well as a full service-oriented approach. Whether a client is looking for a simple solution or a complete developmental package, the experts provide individually tailored support in line with the customer's needs and ideas.

Protein Power from Legumes

To make the most of the enormous market potential for plant-based proteins, GoodMills Innovation is working hand in hand with sister company Müller's Mühle. The largest supplier of dried legumes in Germany is currently investing in a plant expansion for the production of legume flours. These can improve the nutritional profile of foods while offering beneficial functional properties at the same time. In meat substitutes, for example, combining plant texturates and flours made from pulses leads

to a higher protein content and enables more attractive claims, for example with Nutri-Score labelling.

Outlook

Climate change, the world's growing population, the animal welfare debate, global resource utilization and individual health choices are among the reasons why demand for plant-based alternative products will continue to increase. According to an ING Research forecast, the European market value for meat alternatives will grow from €1.4 billion to €2.5 billion between 2019 and 2025³. As the market matures, more compelling products will become available. It is up to ingredient manufacturers to continue investing in new raw materials and technologies, and to continuously test and improve the status quo. With a clear focus on sustainability and investing for the future, GoodMills Innovation and Müller's Mühle aim to play a decisive role in shaping this market.

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PROTEIN: REBALANCING OF ALTERNATIVES

By Henk Hoogenkamp

When it comes to protein, consumers have a lot to choose from. Globally speaking, soy protein is by far the largest source of plant-based soy protein, and unique

extrusion facilities, the supply chain has not kept up with the fast-growing consumer demand. A rebalancing between the animal-protein market and the plant-based protein consumer

into premium and sustainable protein foods to nourish the world. Preferably, this needs to be accomplished keeping the protein as natural as possible, i.e. minimizing the use of harsh chemicals to isolate the protein, as well as looking at alternative methods such as dry fractionation. Plant protein ingredients like those derived from legumes, cereals, vegetables, and fruits are now rapidly transforming into valuable functional and nutritional cost-effective ingredients in a plethora of food products. Good protein ideally should possess a handful of properties and characteristics: stellar nutrition, great flavor, color, process adaptability, versatility, and performance in more ways than one.

The behavior and interactions between proteins and their blends are of great importance to a wide range of applications in food, biotechnology, biomedicine, and cosmetics. Protein derived from natural plant sources, such as soy, wheat, pea, rice, mung bean, chickpea, fava bean, corn (zein), potato, sunflower, rapeseed (canola), and algae has all that and more.

The bottom line is that consumers should be encouraged to have diets that are less energy-dense, allowing a larger natural food intake with essential nutrients like plant proteins, healthy oils, vitamins, and minerals.

Meat Rules Protein

There are multiple reasons as to why meat consumption is steadily



alternative sources - including pea protein and mycoprotein - are gaining traction. For some plant protein ingredients, infrastructure, investments, and production capacity, including

market is now in full swing and this is especially the case in the affluent societies.

There is no question that the harvest needs to transform plants

declining in affluent societies. For the aging population, health is usually cited as the main reason, while the sub-30-age groups favor different lifestyle choices with meat playing a less dominant role as center-of-the-plate food.

In addition, the twin effects of time-pressed lifestyles and tight budgets are the main reasons that consumers living in affluent societies are shifting away from traditional home-cooked center-of-the-plate, whole muscle-meat cuts, and switching to semi or fully prepared natural, wholesome dietary-sound options. It is clear that meat is increasingly looked upon as an ingredient or as a small part in a side dish.

"Sustainability Tax to Promote Health"

The potential downside risks for meat companies are the likely physical impact of climate change and the rapid growth of alternative protein formulated foods. Key risks to the meat industry include increased cost of energy (electricity) due to carbon pricing, higher costs of animal feed due to poor crop yields, and increased livestock mortality due to heat stress, as well as increased costs for clean water processing and its recycling.

A growing number of people believe that

the world is moving towards a slaughter-free future. It is likely that governments in some affluent or developed countries will try to flatten the curve of meat consumption. A "sustainability charge", not a "meat tax", will likely be instilled to reflect its environmental costs, including CO2 emissions, and biodiversity loss. All this will be done to encourage and incentivize the consumers to increase the consumption of plant-based foods.

An emerging argument is that animal agriculture is the leading cause of climate change, species extinction, deforestation, habitat loss, pollution, and diversion of clean water needed for human use.

In the hierarchy of the meat pyramid, beef takes the number one spot of having the highest environmental costs per kilo of meat, followed by pork, while poultry has the lowest costs. Another assumption that is increasingly highlighted is the notion that if meat consumption reduces and plant-based nutrition rises, healthcare costs will also reduce.

Baseline Knowledge

When extrapolating 2021 baseline knowledge to 2050 feed and food availability, it can be concluded that the projected increase of ruminant meat and dairy consumption will not be able to keep emission levels within agreed targets, unless major technology improvements occur and are implemented. Hence, based on today's state of technology, it can be predicted that meeting climate targets may require forced reduction in the future of meat and dairy consumption. In reality, this specifically means an increase in per capita consumption in the developing world and a much-needed decrease in affluent societies. However, realistically speaking, this is not going to happen anytime soon.

A Moving Target:

The new US dietary guidelines (2020-2030) back off from strict sodium rules, reverse previous guidance on the dangers of dietary cholesterol, and add strict new advice to cut back on added sugar.

Apart from these guidelines, the new dietary advice can be summarized as an environment-friendly diet, lower in red meat and processed emulsified meats, and de-emphasizing the role of lean meats



Impossible™ Breakfast Sandwich

in the list of proteins that are part of a healthy dietary eating pattern. As a strategy to increase the variety of protein foods, consumers are advised to increase consumption of seafood, vegetables, fruits, seeds, and nuts.

About 60 percent of EU and UK adult citizens are living with one or more diet-related chronic diseases. Without much needed critical dietary reforms, it will be difficult to reverse the current obesity epidemic of disease that is causing great suffering and early deaths.

Most affluent dietary guidelines are not compatible with global health and environmental targets. Science-based guidance, not dietary fads, is critical to ensuring a healthy future across a person's lifespan. It is a fact that the typical affluent citizen overconsumes total energy, saturated fats, sodium, added sugars, as well as alcohol beverages. Intakes of fruits, vegetables, nuts, and whole grains are still lower than the recommended dietary guidelines. Together with these lower consumptions, there is also an underconsumption of calcium, vitamin D, fiber, and potassium, which can be seen as a significant public health concern. Furthermore, there is a growing number of vegans who suffer from vitamin B12 deficiency.

It should also be noted that reducing saturated fat intake and replacing it with unsaturated fats -particularly polyunsaturated fat- lowers the incidence of cardiovascular disease in adults by decreasing serum of total and low-density lipoprotein cholesterol. However, the latter science is debated in new scientific dairy studies which have concluded

the benefits of dairy foods on chronic disease risks at all fat levels.

Emissions

Carbon dioxide emissions from energy and transportation currently take the largest share of climate pollution. On the heels of energy and transportation come the emissions from agriculture, which will continue to increase to keep pace with the significant projected growth of global meat and dairy consumption. It will be necessary to address these increases because without adequate actions implemented, nitrous oxide from the field and huge methane emissions from livestock may double by 2050, if not sooner.

There is no question that the growth of meat production is intimately associated with many ecological issues. It is safe to predict that meat and ecology are on a collision course. The huge requirements of fresh water for meat producing animals, most especially, could eventually have a catastrophic impact on the environment. The world needs to make hard choices and will, at some point, be forced to accept a diet with less animal protein.

Conventional beef production by means of raising animals for a quickly rising world population requires enormous levels of energy, feed, and water expenditure. These factors are damaging the ecological environment and will, ultimately, prove to be unsustainable. In addition, traditional beef production is a time-consuming process that has a high impact on carbon emissions, not to mention the huge amounts of methane released into the air. Methane gases released by cattle

are very damaging for air quality as agriculture is responsible for an estimated 15 percent of the world's greenhouse gases. A significant portion of these methane emission pollutants is 23 times more powerful than carbon dioxide. Cows emit a massive amount of methane through belching and a lesser amount through flatulence. These ruminant animals have four stomachs and digest feed in their stomachs instead of their intestines. The bacteria that aid digestion in these stomachs produce most of the methane. It is therefore fair to ask the question: Is large-scale agriculture-driven cattle farming sustainable in the long term?

The obvious solution is to develop improved genetics of livestock and embrace cell-cultured meat, insect protein extraction, and great-tasting plant-based protein foods like plant-meat and plant-milk. Consumers should be encouraged to eat more plant-based protein foods not only to improve their nutritional status, but also to proactively relieve the unrelenting increase of world's demand for slaughtered meat and overreliance on traditional dairy.

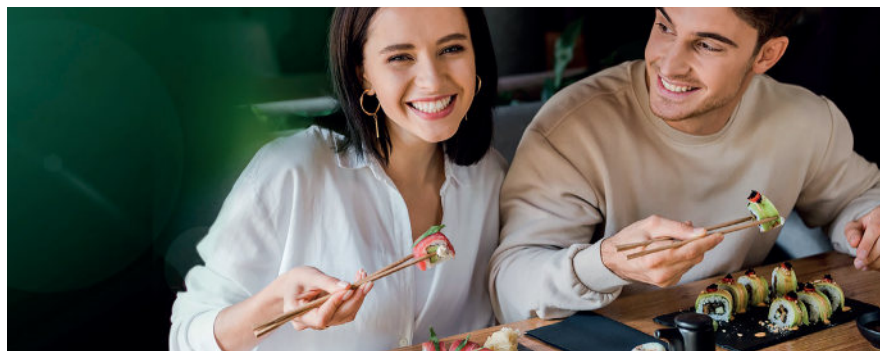
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Henk Hoogenkamp

Proteins, Advisory, Boards, Author

DSM ELEVATES PLANT-BASED OFFERING WITH FIRST-OF-ITS-KIND VEGAN FISH FLAVOR



Royal DSM, a global science-based company active in Nutrition, Health and Sustainable Living, announces the launch of Maxavor® Fish YE – a new vegan, 100% allergen-free flavor solution. Derived from algal oil, this unique innovation allows food manufacturers to deliver an authentic fish taste and mouthfeel in a variety of plant-based fish alternative applications, in addition to fish-based products.

Answering today's growing appetite for vegan fish flavors, Maxavor® Fish YE offers manufacturers of plant- and fish-based foods two taste profiles (Maxavor® Fish M YE and Maxavor® Fish W YE) to emulate the body, mouthfeel and taste of distinct fish varieties; one for rich and oily dark fish and another for fresh, light and fleshy white fish. Maxavor® Fish YE can therefore be used to create a wide range of appealing plant-based fish alternative and fish-based products, such as vegetarian fish nuggets, vegan fish sauce and fish cakes. Maxavor® Fish YE is also Kosher and Halal certified and suitable for several label claims.

Following considerable growth in the meat alternatives category, plant-based fish alternatives are

emerging as an appealing option for the rising numbers of people adopting flexitarian, vegetarian and vegan lifestyles. For example, 28% of consumers across nine countries in Europe reported that they regularly consume fish alternatives. Plant-based fish alternatives also present a more sustainable option for food manufacturers who are looking for ways to address growing concerns over the world's diminishing fish resources – 33% of fish stocks are currently over-fished. However, it can be a challenge for food producers to develop authentic-tasting, sustainable and label-friendly plant-based fish alternatives; most commercially available seafood flavors require the processing of fish/crustaceans, or are unable to meet Kosher or Halal needs.

"The market for plant-based fish alternatives is showing exciting potential, and DSM is proud to be at the forefront of the industry as we introduce the innovative Maxavor® Fish YE flavor," comments Gilbert Verschelling, Director Business Development & Innovation at DSM. "Part of DSM's broad portfolio of plant-based solutions and Maxavor® range of vegan flavors, this unique, algal oil-

derived flavor will undoubtedly help our customers create great-tasting, label-friendly plant-based fish alternatives and fish-based products that meet diverse consumer preferences and that help combat overfishing in support of the UN Sustainable Development Goal 14 'Life Below Water'."

The innovative Maxavor® Fish YE flavor was designed to help producers create a broad range of product positionings and mask the strong flavors typically imparted by plant-based proteins. Added during the blending of dry ingredients, Maxavor® Fish YE is also low in salt, enabling producers to tailor sodium levels and achieve the desired taste and texture, without compromising a product's nutritional profile.

The wider portfolio of solutions for fish alternatives includes GELLANEER™ gellan gum hydrocolloids, which delivers authentic texture in plant-based products, as well as Quali® vitamins and DSM Premix Solutions for enhancing nutritional value. These solutions, combined with DSM's market expertise and end-to-end expert services, can support manufacturers in powering front of pack label claims and bringing great-tasting fish alternatives that meet consumer preferences to market.

DSM aims to support the agri-food sector by delivering high-quality, sustainable and nutritionally valuable protein products, from both animal and plant-based sources, that are accessible, affordable and appealing.

www.dsm.com

STAINLESS STEEL CONVEYING FOR MAXIMUM HYGIENE

Today's meat industry faces the challenge of complying with increasingly stringent legal regulations in terms of health, hygiene and safety. And meat cutting operations - with their multiple stages of handling, cutting, transporting, carrying and re-handling - are certainly no exception.

At the heart of this process is the conveyor that carries materials away from trimming or deboning lines, and research has shown that the use of a solid stainless steel belt can make a significant difference in terms of maintaining high standards of hygiene.

It is widely recognised that the chemical neutrality of stainless steel means it poses no threat to either human health or to the taste of food; it is for this reason that it has become the material of choice for food processing applications of all kinds.

Its greatest advantage in terms of hygiene however, is cleanability. Unless cleaning is complete and effective, biofilm can form on work surfaces and lead to the growth of harmful bacteria and pathogens.

Being perfectly flat and smooth, a stainless steel conveyor belt has no gaps, textures or hidden areas in which microbes could hide, and allows quick and easy cleaning and sanitizing using heat, pressure, brushes, detergents or chemicals. It's also extremely tough and resistant to damage and scratches, and this is very important.



This was confirmed by scientists at Finnish food laboratory VTT Expert Services Ltd who found that that risk of bacterial build-up can be reduced, simply by upgrading to a stainless steel conveyor.

The research looked at the 'cleanability' of three types of conveyor belt: stainless steel (AISI 301), solid plastic, and a plastic conveyor of slat construction. All three were tested in pristine condition, and with knife damage to replicate everyday wear.

A suspension of three types of microbes - *Pseudomonas fragi*, *Candida albicans* and *Listeria innocua* - was applied to the clean belts and left for predetermined periods. The belt samples were then cleaned and assessed.

The conclusion was that: "stainless steel is more cleanable than the two different plastic surfaces tested according to the culturing results. The difference is more significant for damaged surfaces."

As well as offering clear benefits in terms of legal compliance, this superior cleanability also offers commercial benefits. The fact that stainless steel can be sanitized much faster than other materials ensures high availability - important in multi-shift operations. Quick, effective cleaning also represents best practice in ecological and economical terms, with low water consumption and low use of detergents and other cleaning chemicals.

While a steel belt is likely come with a higher price tag, its appeal to many lies in the attractive return on investment when looking at overall lifetime cost.

Durability and corrosion resistance are key characteristics of stainless steel: systems last for years, even decades. And in terms of maintenance, qualities such as good tensioning and tracking characteristics and resistance to stretching mean significantly less downtime than other belt materials,

important considerations when lost production can be costly.

This unique combination of qualities doesn't just come from the inherent qualities of steel; every belt is engineered to perform as it should, as Marko Leber, IPCO Global Product Manager - Food, explains.

"An effective conveyor belt needs to provide stable working conditions when tensioned. These mechanical properties are created during the production process. We engineer long lasting flatness and straightness into the belt."

While most of IPCO's work with the meat processing industry is focused on the manufacture and supply of steel belts, the company can also provide support in the form of system design and the

supply of conveyor components ranging from sheaves and shafts to bearings and breakpoints. Other



*Marko Leber,
IPCO Global Product Manager*

ancillary equipment available includes active and passive belt alignment solutions such as belt edge detectors, guide rollers and compact/automatic tracking devices.

Service and Maintenance Support

The company has fully trained and equipped service teams on the ground in all key markets. As well as enabling a quick response to any service or repair needs, this also means that work is carried out by qualified people with a real understanding of customers' needs and values.

As part of a global business, IPCO's local teams can also call on the support of the company's Special Engineering team if required, experts who can be sent anywhere in the world to troubleshoot issues and provide specialist support in terms of upgrading existing conveyor systems/lines.

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HABASIT® CLEANDRIVE BELTS NOW AVAILABLE IN A SELF-TRACKING LUG DRIVE VERSION

Habasit has expanded its proven Habasit Cleandrive monolithic belt portfolio to include self-tracking positive drive belts with a central lug. The new arrivals in the Habasit Cleandrive family continue to deliver the belts' well-known food safety and hygiene features, along with minimal belt elongation thanks to belt reinforcement with aramid cords. So like all Cleandrive belts, the new lug drive belts ensure less maintenance and fewer belt replacements, leading to reduced operating costs and increased productivity; plus superior cleanability, which improves product safety.

Monolithic conveyor belts are a frequent feature of many processing lines, especially in the food industry, where they help to maintain high hygiene standards. Extruded from a single material, their fabric-free design offers excellent abrasion- and hydrolysis resistance. Nevertheless, the flexible material of the belt could lead to more frequent belt maintenance and replacement, due to potential elongation. To prevent this, Habasit Cleandrive belts are reinforced with aramid cords, and are now available in a new range of self-tracking positive drive belts with a central lug.

Self-Tracking Advantages

The Habasit Cleandrive lug drive design features robust, fixed-width lugs, i.e. transverse interrupted drive bars on the belt's running side, making the belts fully self-tracking and ensuring effective belt positioning. For manufacturers



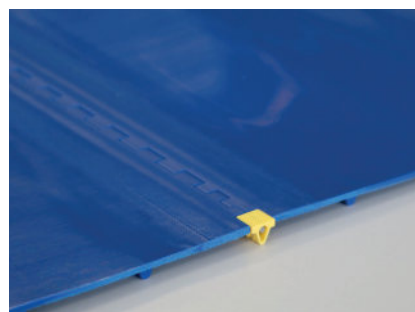
planning new processing lines, this can be a more cost-efficient solution than using belts requiring traditional tracking guides or sidewalls. For retrofits at sites with existing lug-driven lines, the belt shape and lug design make them an easy plug-and-play solution compatible with most lug-driven systems. This includes systems for troughing.

Belt Elongation Minimized

As with all Habasit Cleandrive belts, the new lug drive product range features fully embedded aramid cords, which stabilize the belt and limit elongation. Lab tensile tests under high load have demonstrated a total stretch of less than 1% on the new belts. The significantly reduced elongation of Habasit Cleandrive belts translates into reliable, long-term conveyor performance that requires less maintenance and delivers more uptime.

Food Safety Ensured

Habasit Cleandrive belts comply with the most demanding food industry hygiene requirements and meet all relevant food safety regulations. Their monolithic, extra-smooth surface is easy



to clean. A key feature of these polyether TPU belts is also that they are more resistant to microbiological material degradation. The belts are designed to withstand stringent cleaning protocols, including harsh detergents. They also offer excellent performance in wet or even very abrasive environments.

Customized to Your Needs

Like all Cleandrive belts, the new belts can be fully customized with a variety of belt sidewalls, cleats and fabrication options. This ensures that each belt provides the optimal solution to satisfy the most demanding food belt application needs.

Easy Installation with Mechanical Lace

A particularly popular feature of Cleandrive belts is the option to integrate mechanical lace solutions for installation and removal. The new lug drive belt can also be fabricated with a mechanical lace, which enables extremely quick and easy belt disassembly and assembly whenever cleaning or maintenance is required.

www.habasit.com

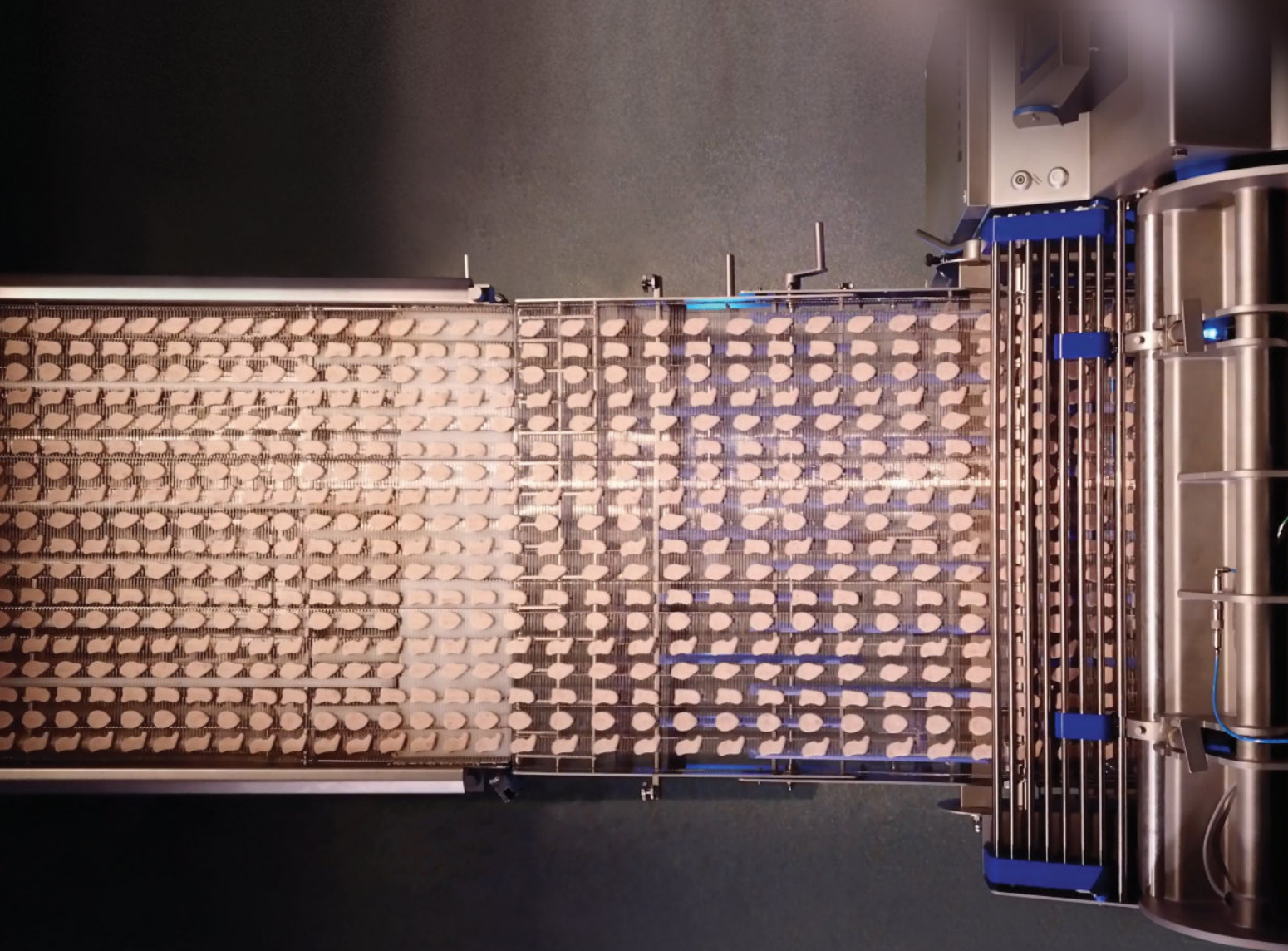
Continuously forming. Continuously performing.

The new RevoPortioner 1000

For processors who want to increase output as well as product quality, the new RevoPortioner 1000 is the perfect solution.

It builds on the proven technology of previous generations, and incorporates innovative new features, to offer a significant increase in volume with unrivaled consistency in product shape and weight.

marel.com/RevoPortioner1000



HYGIENE FOR PERSONNEL IN THE FOOD INDUSTRY

The food industry is crucial in ensuring food supplies for populations. The coronavirus pandemic has resulted in new hygiene requirements, presenting many companies with new challenges. Hardly any other industry is as hygiene-sensitive as the meat and food industry.

Cross-contamination, not just related to COVID 19, must be avoided by managing personnel and personnel flows within a company. Hygienic sluices provide reliable personnel management systems for any sensitive production area. In production facilities, personnel pose the greatest risk of transmitting germs to foodstuffs, so extensive personnel hygiene must be made a priority.

Around 80% of infections are transmitted via germ-contaminated hands. Disinfectants reduce exposure to pathogens and therefore also the risk of infection. Ensure your products are always delivered to consumers in a hygienic flawless condition.

Customized Solutions from Frontmtec

For more than 25 years, ITEC has been developing hygiene solutions to meet the strict quality and hygiene guidelines in the food processing industry. We tailor our solutions to suit any company and any building. Using precise criteria (number of employees, operating procedures, local conditions, etc.), high standards of hygiene can be achieved that ensure the quality and safety of products.

ITECs' strength is in developing adaptable solutions for the future and we can advise you on any necessary modifications for the future expansion of your business. The health of consumers and personnel has top priority, and for customized solutions, your company needs are the focal point.

Personnel Hygiene Technology from ITEC

Pioneering personnel hygiene products from ITEC will ensure your company achieves the best possible hygienic conditions during food production. Hand hygiene and sole cleaning, as well as

disinfecting and cleaning work equipment within your production facility play a major role.

Hygiene Sluices for Secure Access and Smooth Operation

Hygiene sluices enable secure access to production facilities and hygiene-sensitive areas. They therefore comply with the German law on infection control and provide the necessary measures to combat not just the SARS-CoV-2 pathogen.

ITECs' range includes both standard and customized models. Modular hygiene systems, such as the ITEC Star Clean series, are available in different versions and can be easily adapted to operational requirements.

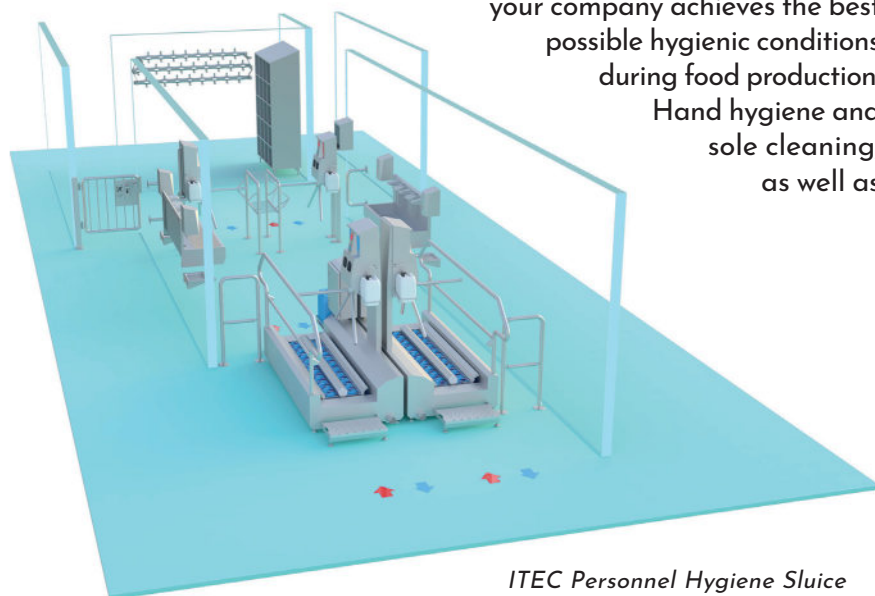
Hand Hygiene

Effective protection against viruses, bacteria and germs can be achieved by using professional hand hygiene systems. These systems ensure that the required hygiene standards are met, from hand washing and drying through to disinfection. They can also be combined with other ITEC access systems.

Boot and Sole Cleaning/Disinfection

Thorough cleaning and disinfection of shoes, boots and soles are indispensable within a personnel hygiene system, and ensure hygienic production line in your company. We offer compact units for smaller businesses and large sluices for industrial companies with high numbers of personnel.

www.itec-hygiene.com



ITEC Personnel Hygiene Sluice

VIKAN LAUNCHES FLEXIBLE HYGIENIC WALL BRACKET SOLUTION



Vikan, the global leader in hygienic cleaning tools and systems, is pleased to announce the launch of a new cleaning-tool storage solution- the Hi-Flex Wall Bracket System.

This system, which consists of four separate products, is intended for use in food processing plants, industrial kitchens, supermarkets, restaurants, canteens and other facilities where food and beverages are produced, processed, served or sold.

Conceived as a wall bracket plus separately available grip and hook modules, the durably constructed system is easy to install and

provides flexible storage of up to five tools. Hygienic design and availability in 12 colours help to ensure hygienic storage wherever cleaning tools and other utensils are used in a facility.

"Proper cleaning tool and utensil storage helps staff locate equipment more quickly and extends the service life of these valuable items," said Jette Fruergaard, Vikan's hygiene product manager. "This new system helps our customers achieve that, while also ensuring hygiene by reducing the risk of cross-contamination and demonstrating appropriate equipment care and control to auditors."

The four products in the system are:

- The Hygienic Hi-Flex Wall Bracket System (1011x), which stores up to five products via



attachable hooks and grip bands

- The Single Hook module (1012) for storing individual products with hanging holes
- The Grip Band module (1013), which stores almost any product with a handle
- The Double Hook module (1014x) for storing two products with hanging holes

While the Hi-flex Wall Bracket System is intended for storing several products in the same place, the single and double modules meet the need to store any product even in very small spaces.

www.vikan.com



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FOOD PROCESSORS ARE ESTABLISHING “THE ERA OF ‘HYGIENE 2.0’” SAYS SCHOELLER ALLIBERT UK

Schoeller Allibert UK, the European market leader in returnable transit packaging (RTP) solutions for the food manufacturing sector, has commented on the changing role of hygiene for food processors, which the business believes points towards the future of food manufacturing.

Nick James, Sales Director at Schoeller Allibert UK, commented: “The food manufacturing sector has a long history of hygiene development and safe handling protocols. That hasn’t changed; the difference we see today is that this is becoming much more visible and important to the consumer. In today’s competitive food retailing sector, where the consumer factors hygiene into purchase decisions, food and packaging hygiene moves from an obligation to a competitive advantage when managed well.

“In essence, ‘Hygiene 2.0’ is well communicated food hygiene and safety management, and we are seeing clear movement in how food safety is being framed by the public. Today, there is a real pressure to deliver hygiene with traceability, transparency - and now visibility.

“We have tended to imagine that consumers aren’t interested in the technical safety measures and critical control points in the food manufacturing process, but we cannot discount the impact that Covid-19 has had on shoppers. While studies have established that food and packaging is very unlikely to spread viruses such as Covid-19, this hasn’t stopped consumers from engaging with



food safety on a whole new level. ‘Hygiene 2.0’ is all about putting food manufacturing safety into the spotlight and making it part of the product value proposition. Shoppers want to know more about how their food has been handled, so it’s a prime opportunity for food processors to shore up their supply chains and create demonstrable food hygiene practices that the consumer is looking for. This begins with tighter control of manual handling and logistics.”

Schoeller Allibert UK has put food processing hygiene at the forefront of its new product development with the launch of Purity Line®, a range of containers that incorporate antibacterial materials to inhibit the growth of bacteria and moulds at every stage of the supply chain.

The Purity material within the plastic migrates to the surface of the container and disrupts bacterial growth by interfering with enzyme production. This stops the bacteria producing energy, and disrupts the cell’s DNA, preventing the bacteria from replicating.

Schoeller Allibert’s Purity Line range of food safe and pharmaceutical

containers provide permanent protection against E. Coli and Staphylococcus Aureus, the most common bacteria found in food environments.

Schoeller Allibert’s Purity Line antimicrobial technology can be incorporated into the manufacturing process of popular totes, including JumboNest® and Combo Excelsior®. Food manufacturers and processors benefit from containers that offer valuable protection to products from harmful bacteria and, at the same time, deliver warehouse and handling logistics efficiency gains to optimise supply chains.

Nick concluded: “‘Hygiene 2.0’ is making food processing supply chains more transparent, and the Covid-19 pandemic has accelerated this need. Food hygiene is no longer treated as purely risk avoidance or a box-ticking exercise; it can be communicated to the consumer as a competitive edge. Brands that can use their food hygiene protocols as part of the brand or product identity are set to find powerful commercial advantages on the table.”

www.schoellerallibert.com

A CLEAN SOLUTION FOR SAFE FOOD PRODUCTION

Cleaning Chamber from K+G Wetter Ensures Double Hygienic Safety when Grinding

With its smart machines, innovation leader K+G Wetter ensures reliable safety and hygiene in production – together with products of first-class quality. The traditional company combines proven quality and modern food processing requirements with its intelligent solutions.

“Our claim is to continuously develop our designs and deliver solutions that are perfectly matched to the daily requirements of the butcher trade and industry.

or even small product particles, can be forced backwards against the cutting set by the resulting pressure.

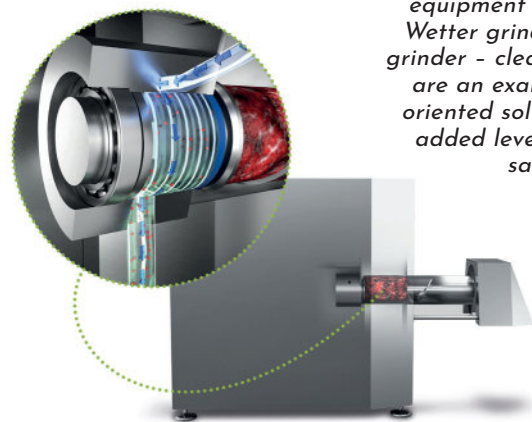
Efficient Solution for Double Hygienic Safety

The high pressure and microscopic imperfections in the components allow microorganisms to bypass the seals. Once they have bypassed the seals, such organisms are able to proliferate in the relatively undisturbed conditions

installed in our meat grinders for many years, offers a remedy here,” explains Volker Schlosser, “because it allows us to rinse the back of the seal from the outside using a cleaning agent and water jet. This means that both sides of the seal are cleaned. The foundation for germ-life is thus effectively destroyed.” Another seal is installed towards the drive to protect it from water. The cleaning water is directed out of the cleaning chamber onto the floor via a drain pipe, so that



The clever details make all the difference: Innovation leader K+ G Wetter combines proven quality with the requirements of modern food processing in all of its machines.



Fitted as standard equipment to every K+G Wetter grinder and mixer grinder – cleaning chambers are an example of user-oriented solutions with an added level of hygienic safety.

This is therefore precisely the basis from which we design specific user-oriented solutions for practical applications. An example of this is the cleaning chambers that we incorporate into our grinders and mixer grinders as standard”, explains International Sales Manager Volker Schlosser.

During the grinding process, the product is conveyed through the cutting set at very high pressure. Fluid product components such as blood, meat juice and liquids,

encountered there. Where the bacterial population is sufficient, the material undergoing processing can become contaminated. Cleaning seals from both sides is good practice for avoiding this effect. Cleaning the reverse side of the seals cannot normally be carried out on the worm drive of a meat grinder because the inside of the machine is not easily accessible to the cleaning personnel.

“Our ‘cleaning chamber’ hygienic solution, which we have successfully

water is unable to remain inside the cleaning chamber. Even with older seals that have received insufficient maintenance or that exhibit wear, the cleaning chamber ensures proper cleaning of this critical area and the effective removal of deposits.

This technical detail is invisible from the outside, but it plays a key role in terms of hygiene safety and pure, unadulterated enjoyment.

www.kgwetter.de

FUTURE-PROOF PE SOLUTIONS BY SCHUR FLEXIBLES: HELPING CUSTOMERS MEET SUSTAINABILITY DEMANDS

Copyright: Schur Flexibles



Sustainable and innovative packaging of fresh food and sensitive products with Schur Flexibles' PE solutions.

Welcoming news for manufacturers of fresh food and sensitive products looking for safe and sustainable packaging solutions. Schur Flexibles extends its sustainable packaging portfolio of PE solutions for almost every application.

The future of packaging lies within a circular economy. Polyethylene packaging solutions will play a key role in this future, as the recyclers favour mono-material over multi-material flexible packaging and PE features a European wide recyclability. Therefore, PE solutions have become a preferred choice but also lead to a range of challenges such as processing high barrier PE material on high end machines. Future-oriented thinking has led the Schur Flexibles sustainability department to be ahead of the game on developments in sustainable packaging. Intensive research and development as part of the "rethink" campaign, in conjunction with the

5R principles (see below), has led the team to develop a range of high barrier PE packaging. These innovative packaging solutions meet the demands of sensitive fresh food while not making any compromises in terms of puncture resistance, high barrier functions and machinability, as well as being in compliance with local guidelines and regulations.

Many Applications - One Supplier

Already today clients can choose from Schur Flexibles' large PE packaging portfolio, covering films for flowpack, thermoforming, shrink, skin, twist and other applications - with diverse options with regards to barriers. The extensive portfolio which Schur Flexibles has rolled out to customers so far is highlighted by two films:

For flowpack applications, Schur Flexibles has developed the highly

efficient MonoFlow(re) E-type range. These films, produced in UK as well as in other production sites in Europe, are already in use by customers and have demonstrated their exceptional qualities in everyday production. They run well on a wide range of packaging machines and offer a range of different barriers that can be tailored to the customers' needs. Due to an innovative production process, MonoFlow(re) E-type films provide enhanced puncture resistance and, importantly, a very low sealing temperature while not compromising seal integrity.

Another highlight of the portfolio are the VACUflex(re) MEX-T films. This range of recyclable PE thermoforming films is the ideal alternative to PA/PE films for flexible thermoforming applications, featuring good processability and high product protection. With high transparency and printability, they allow brands to stand out at the point of sale and enable them to highlight their sustainable credentials. The packaging system is completed with the Group's MonoTop(re) lidding films. These films, also featuring superb printability with up to 10 colours in flexo or rotogravure, are based on a PE structure as well, creating a full PE packaging.

Fulfilling European Packaging Requirements - with Group-Wide Knowledge Base

Schur Flexibles Group is at the forefront of innovations in

sustainability and packaging. One of the reasons behind this is the group's centre-of-excellence concept by which each individual company is an expert in its own field. All members of the Schur Flexibles group do not only draw on their own deep knowledge and experience, but also on the know-how and achievements of other group production facilities in Europe. This enables the entire group to provide tailor-made solutions across an integrated value chain.

rethink! - Schur Flexibles' Initiative for More Sustainable Packaging

The company has a strong track record in helping customers rethink the packaging of their products with regards to sustainability. Responsible for aligning the group's sustainability processes is the Schur Flexibles in-house sustainability department. This department's pioneering work

broke new ground with its 5R programme - Responsibility, Recycling, Replace, Reduction and Renewal. Through their "rethink initiative", Schur Flexibles has not only won several prestigious

the packaging and sustainability experts, the group has developed several sophisticated high barrier PE packaging and is now able to offer a PE solution for most market requirements, making

Copyright: Schur Flexibles



Schur Flexibles extends its sustainable packaging portfolio of PE solutions for almost every application.

packaging innovation awards but has also accompanied clients throughout their journeys towards more sustainable packaging. Based on the extensive knowledge of

Schur Flexibles an attractive one-stop-shop partner in terms of applications.

www.schurflexibles.com



+43 664 44 33 22 1

www.tichytrading.at

ILPRA SPA NEVER STOPS: NEW PACKAGING SOLUTIONS FOR YOUR PRODUCTS!

ILPRA, an Italian leader company in the food packaging sector is proud to present a new model of packaging machine belonging to the Foodpack tray sealer line.

The Speedy DUO is an automatic machine with two independent sealing units managed by a touch screen panel. This allows to eliminate the mould change while saving time for production. Like the other ILPRA models, the Speedy Duo is highly customizable and can be easily integrated with



any process line. Optionally, with some types of trays, it is possible to install a system of automatic size recognition and automatic guide positioning.

Like all other ILPRA packaging machines this model is the ideal

solution to pack a wide range of products (dairy, meat, fruit and vegetables, ready meals...) For instance the PROGAS® technology will reduce the gas consumption up to 50% when compared to traditional solutions. Remote maintenance allows to drastically reduce the intervention time and consequently also the maintenance costs. This machine is Industry 4.0 ready and it is engineered and realized within company's plants in Italy so that to get a complete Made in Italy solution.

www.ilpra.com

MONDI'S NEW PACKAGING FOR BELL GERMANY'S 'ABRAHAM' HAM RANGE REQUIRES 37% LESS MATERIAL AND SAVES 35 TONNES OF PLASTIC

Mondi, a global leader in packaging and paper, has produced recyclable packaging for Bell Germany's 'Abraham' range of thinly sliced gourmet ham that ensures perfect conformity with existing recycling guidelines.

Food Producer Bell Germany launched launching a mono-material recyclable WalletPack in March for over 30 products including Seranno, Prosciutto and Savoy sliced ham. The new solution will replace a multi-material non-recyclable plastic solution, using 37% less material compared to standard modified atmosphere packaging. This switch will also



reduce plastic waste for Bell Germany by 35 tonnes per year thanks to the lightweight solution. It will also lower waste disposal fees for Bell Germany and meets the design for recycling guidelines of leading retailers¹.

Created after two years of development, the new Mondi WalletPack operates as a folder, which the consumer opens to unpack the product. It features a

Mondi's new packaging for Bell Germany's 'Abraham' ham range requires 37% less material and saves 35 tonnes of plastic.

¹ Figures on savings calculated by Bell Germany.

re-close function on the backside to prevent food spoilage, provides excellent protection for thinly sliced deli meats, and has been verified by the German institute cyclos-HTP as 93% recyclable.

Thomas Kahl, EcoSolutions Project Manager, Mondi, says: "Our aim is to create packaging that is sustainable by design. It should be better for the environment, while protecting the food, and standing

out on shelves to represent the Abraham brand. Our unique EcoSolutions approach takes all these elements into consideration: we worked closely with Bell Germany at every stage to ensure that this was the best solution for all their products."

Jessica Trautmann, Senior-Productmanager, Bell Deutschland adds: "As with all food packaging, the priority is to protect the

contents, however it has been our aim for some time to improve the recyclability of our packaging as we look to make all parts of our business more sustainable. Mondi has been a valuable partner in the creation of this solution and we are delighted to be launching this new packaging that is recyclable, while being functional and attractive on the shelf."

www.mondigroup.com

GRAPHIC PACKAGING INTERNATIONAL CAPTURING HIGH DEMAND FOR PAPERSEAL® TRAY SOLUTION

Paper-based packaging leader Graphic Packaging International ('Graphic Packaging'), has revealed that machinery investments will be made at multiple locations in Europe and Australia to keep up with demand for its unique solution, the PaperSeal® tray.



This year, PaperSeal tray machinery will be installed in company and partner locations in Ireland, Scotland, Spain, Greece and Australia as part of expansion plans to deliver 'ready-to-go' trays to new customers.

The innovative PaperSeal tray, which is a barrier-lined solution made from renewable cartonboard, significantly reduces the use of plastic packaging on fresh and processed protein and produce. It is in use by many household brands in the UK, Ireland, Germany, Austria, Switzerland, Italy and other geographies.

Paul Tye, business development director at Graphic Packaging, said:

"The success we've seen with our PaperSeal tray in 2020 has been phenomenal. With the focus on sustainability, major European retailers are making the switch to recyclable and reusable packaging substrates, especially those which are made from renewable resources, to reduce their impact on the environment. Our barrier-lined cartonboard solution, PaperSeal tray, can help meet those targets by reducing the amount of plastic required to help preserve and best present food. It provides long-lasting freshness due to its consistent seal integrity, helping to reduce food waste. In addition, the consumer can easily separate the film liner from the paperboard, aiding recyclability post-use."

PaperSeal tray enables major retailers to package goods across a wide range of applications, including fresh or processed meat and fish, cheese, salad and fruits, via its Vacuum Skin Packaging (VSP) or Modified Atmosphere Packaging (MAP) heat sealing technology. The tray also offers on-shelf differentiation compared to traditional VSP due to its high-quality graphical capabilities.

The PaperSeal tray is available for commercialisation across Europe. "We're delighted to see many major retailers adopt our PaperSeal tray," continued Tye. "Reducing environmental impact is one of our top priorities at Graphic Packaging. However, change doesn't happen overnight. We're committed to supporting our customers in their journey towards a sustainable future and a circular economy."

www.graphicpkg.com

HYPERSPECTRAL SEAL INSPECTION SYSTEM EASILY DETECTS CONTAMINATION IN RIGID PLASTIC PACKAGING



Engilico's new HyperScope in-line seal quality inspection machine for rigid plastic packaging.

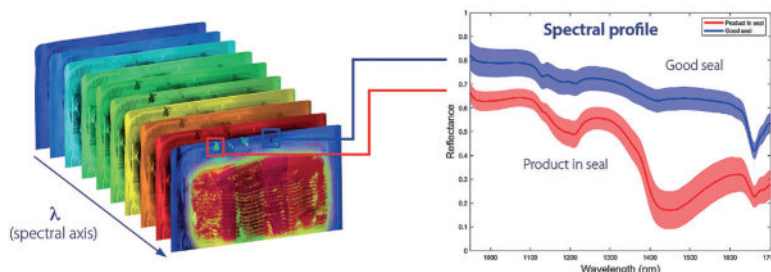
checking the seals on rigid trays, pots and other thermoformed packages sealed with plastic film, even when printed. Product in seal often causes issues for standard vision systems, as there might not be enough contrast between the plastic film and the contamination. In case of packaging with a printed top film, often used for more luxury products, the contamination can even not be seen.

Engilico has solved the problem by harnessing the power of hyperspectral imaging, which analyses a wider light spectrum than just the visible range to include near-infrared frequencies. Infrared waves are able to penetrate plastic film and as different materials react uniquely to infrared light, they can be reliably detected based on their specific properties of transmission, reflection and absorption of these wavelengths. The spectrum of each pixel in the acquired image is analysed to provide information about chemical composition. Any undesired materials in the plastic seal area such as meat, fat or

Production line inspection of rigid plastic packaging enables food producers to achieve better seal quality, higher productivity, end-of-line automation and reduced manual inspection

Belgian seal inspection specialist Engilico has introduced a new system for in-line verification of the integrity of hermetically sealed plastic rigid packaging containing food. In addition to the established SealScope™ automated system for seal quality control of flexible plastic packaging,

the company has introduced a new system, HyperScope™, for



Unlike a standard camera image built from three wavelength ranges (RGB), which only provides visible information, a hyperspectral 3D map is built from hundreds of images in different wavelength bands. Every pixel is analysed individually and differences in materials or chemical composition can be detected, even through printed film.



A point along the seal with contamination has a different hyperspectral profile, indicating where the plastic package is compromised and leakage is likely to occur. It is shown on-screen as a high contrast area in a different colour.

oil can be detected in high contrast, even through an opaque top film, and is shown on the control screen in a different colour.

It is noteworthy that hyperspectral imaging is perfect for this quality control process. Shorter electromagnetic wavelengths from the other side of the visible spectrum, such as X-rays, are good for seeing metal parts, for example, but have too much penetrating power to resolve materials whose density difference is small, such as plastic and food.

Typical applications are 100% inspection of trays containing meat, cheese, fruits, ready meals and snacks. Investment in an automated quality control system directly integrated at the end of a food production line pays for itself quickly, as it minimises the production of faulty product and automatically rejects any packages that have passed through with an unsatisfactory seal. Additionally, the costs associated with line stoppage, manual re-packaging, food wastage and machine cleaning are avoided.

Failure to detect contamination in a seal is a serious issue, as if the package finds its way onto a supermarket shelf, air ingress and leakage would render the consumption date advice on the label irrelevant. Even worse, it could result in health issues for the consumer. In either case, an expensive product recall and potential brand damage are likely.

Engilico's hyperspectral system is installed over an existing or its own conveyor belt and inspects every individual package

at a rate of up to 160 per minute. HyperScope instantly recognises package orientation, processes the image and analyses the seal quality, the information being displayed on an operator-friendly touch screen. All production-related data such as product type, number of good/bad packages, date and time is saved for subsequent production quality analysis. In general, in-line seal inspection enables customers to realise better packaging quality, higher packaging productivity, end-of-line automation and a reduction in manual inspection.

www.engilico.com

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TINY HELPERS WITH BIG EFFECT

Microorganisms Act in Various Ways and Have Been Used Since Centuries to Make Food More Tasty, Digestible, Durable and Safe



When it comes to ready-to-eat foods such as smoked salmon, processed meats and pre-mixed vegetables or salads, the risk of listeria contamination is of top concern for manufacturers and processors. Good bacteria offer efficient approaches to minimise this risk.

“Our product innovation is based on more than 40,000 strains of bacteria. In our company, we call them ‘good bacteria,’” says Michael Erkes, Director Meat & Prepared Foods. “We subject these strains to comprehensive screening and look for the properties that are going to be beneficial to food and health. Strains from the SafePro® range were originally isolated from food products, such as meats, where they were found to suppress listeria growth. We are thus using nature’s mechanisms to keep food

safe and fresh for a longer time.” In 2019, there have been 2,621 confirmed cases of foodborne listeriosis within the European Union. Whilst listeria infections are relatively rare, they can become extremely dangerous, especially for pregnant women and their unborn babies, for the elderly and people with a weakened immune system. Almost all reported cases are hospitalized, the overall case fatality is extremely high (17,6%) and has further increased compared to 2018 and 2017. In 2019 there have been 300 reported deaths in the EU, with highest number of fatal cases in France (56), Spain (55) and Poland (54). This makes listeriosis one of the most severe food-borne diseases under EU surveillance.¹

Generally speaking, food safety is on an extremely high level within

EU. Even so, a contamination with *Listeria monocytogenes* cannot be fully excluded, despite the most stringent hygiene measures, especially for fresh ready-to-eat products, which do not require further cooking by consumers and are therefore particularly popular among them. “For food products like these, our SafePro® cultures



¹The European Union One Health 2019 Zoonose Report; EFSA journal 2021; 19(2):6406

provide an effective hurdle, which operates in addition to a Good Manufacturing Practice, in order to better control this risk”.

Hereby, various mechanisms are at work: First of all, there is a so-called ‘competitive exclusion effect’, which in scientific terms is called ‘Jameson effect’, whereby the dominant culture simply outcompetes undesirable germs. This happens for example by competing for nutrients, oxygen or substrate binding sites. Furthermore, metabolites that are built “in vivo” by microbial cultures during the product’s life cycle and within the product matrix, can impact on harmful germs as well.

Mechanisms like these are used in various ways for a myriad of food products. A well-known example would be acidification processes such as in salami, pickled vegetables or sauerkraut, which have been used for generations: “Good bacteria is what transforms grape juice into wine, cabbage into kimchi, milk into yogurt, kefir and other fermented dairy products these methods have been used since Biblical times for making foods palatable and preserve them for longer periods of time.”

Today, such methods can be used in a targeted manner in order to increase the safety and quality of food products - all the way into the fridge of the final consumer. “Once food leaves a manufacturing site or the supermarket chiller, manufacturers are unable to control how the consumer treats a product - if they leave it out of their fridge or on the bench for longer than they should,” Erkes says. “In most applications, our SafePro® cultures stay active across the entire product cycle



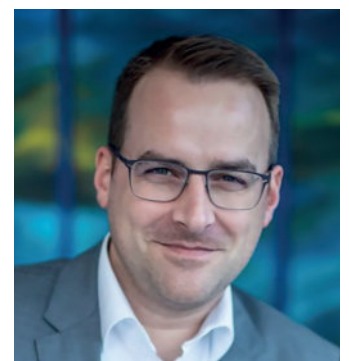
up to the end of the shelf life, and unfold their effect. This starts at the time of manufacture and continues in the packaged product, even once it has been opened. This has substantial advantages especially regarding *Listeria monocytogenes*, as in many cases their growth can be prevented during the entire shelf life. And in order to validate this in each specific case and under the respective processing conditions, our local laboratories and experts support the food producers within the context of individual storage tests and shelf life studies.”

Another use of good bacteria would be to reduce unnecessary food waste by extending products’ shelf life. “In the EU, 20% of all dairy products are thrown away, 80% of which is due to an expired Best Before Date (BBD). This is the equivalent of 29 m tons/year. Using our FreshQ® cultures can add conservatively an extra seven days to the shelf life of a yogurt. This means we can potentially reduce waste of that product alone by 30 percent. And this is just one of the reasons why Chr. Hansen was ranked the ‘most sustainable company’, as announced during

the World Economic Forum in Davos in 2019, and has scored 2nd in 2020.”

Last but not least, the effect of good bacteria is not limited to the suppression of *Listeria monocytogenes* or aspects like food waste only. “In many foods, good bacteria contribute in many ways to achieve tasty foods with a high level of enjoyment! For without good bacteria, we would not be able to enjoy many products such as wine, salami, yogurt or cheese - foods which are so deeply embedded in our cultural particulars!”

About the author:



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WHITE PAPER DISCUSSES EFFECTIVE PACKAGING APPROACH TO FOOD WASTE

The challenges and opportunities for the food industry to become more sustainable are outlined in a new White Paper Food Packaging Versus Food Waste - Moving Towards a Circular Economy, sponsored by Ishida Europe and Aston Business School.

Written by Dr Stella Despoudi, Lecturer in Operations and Supply Chain Management at Aston Business School, the White



Paper provides an overview of current megatrends in the food packaging sector and the wider modern society that are driving the move towards the creation of a circular economy and suggests appropriate solutions to help organisations implement these. It brings together and summarises the findings of a round table discussion and webinar, held recently under the same title and chaired by Dr Despoudi, which canvassed the opinions of a panel of experts from different parts of the food industry together with an audience of over 250 industry professionals.

"The collaborative approach taken by Aston Business School and Ishida Europe in bringing together food producers and packaging manufacturers, along with representatives from legislative and academia, has demonstrated

the significant value in open discussion with all stakeholders to ensure we keep the big picture in mind," commented Dr Despoudi. "There is a balance to strike between the important reduction of packaging materials used, while also improving food safety, maintaining cost-effectiveness and reducing food waste."

Food waste is one of the major challenges that Food Supply Chains (FSCs) are currently facing. It is estimated that between 25% and 50% of food produced is lost or wasted along the supply chain before it reaches the consumer (FAO,2011). Achieving food waste reduction could increase grain supply, food availability and food security without wasting other resources such as land, labour and water, and the circular economy is being identified as a way to achieve this.

For food packaging manufacturers, the challenge is to reduce the amount of packaging used, while preserving and extending shelf-life through the use of materials that are sustainable and recyclable.

Six food packaging megatrends are identified and discussed in the White Paper: Initiatives for Plastic Reduction; Sustainable Food Packaging; Food Packaging and Labelling Regulations; Consumer Trends; Innovative Food Packaging Technologies and Packaging 4.0; and the Cost of Modern Food Packaging.

The report highlights the key findings and challenges in each

of these trends, emphasising the complexity in many of the issues raised. For example, in the drive to reduce plastic packaging, it is essential to ensure that potential alternative packaging materials do not impact on food waste. Similarly, while new flexible packaging can help to increase the efficiency and effectiveness of food packaging, associated machinery will need to be fully compatible with the new materials to ensure seal integrity.

Among the solutions put forward in the White Paper, the need for a collaborative approach - between all stakeholders and also governments and consumers - is emphasised, as well as increased consumer education and engagement

"We are delighted to be sponsoring this White Paper on such an important topic," comments Ross Townshend, Ishida Europe's Business



Unit Manager EMEA - Advanced Services and Data. "Effectively tackling food waste is essential if we are to achieve the 'greener' world that everyone is seeking. Equally important, understanding how we can best tackle these challenges will have a significant bearing on our own work in the design and development of the most efficient packing line equipment and integrated solutions."

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RAMPING UP PORK EXPORTS TO CHINA

To serve the Chinese export market, Spanish pork wholesaler Grup Baucells Alimentació needed to rapidly adjust their weighing and packing processes. With the Cabinplant Multibatcher, Grup Baucells Alimentació has gained the flexibility and accuracy they need.

Grup Baucells Alimentació Has Increased the Profitability of Pork Exports to China

Since 2018, the spread of African swine fever has decimated pork production across Asia. Before this unfortunate outbreak, China was the world's largest pork producer, raising over half of the world's population of swine.

While pork production has dropped in China, demand has not. Pork is still the most popular meat in China, where the average person consumes more than 30 kg of pork each year, compared to 10 kg eaten annually by the average Spanish consumer.

Spanish suppliers like Grup Baucells Alimentació have moved fast to meet the demand for pork in Asia. Since their founding 60 years ago, this family-owned business has gained a global market presence and a reputation for delivering a consistently high-quality product.

Grup Baucells Alimentació maintains a close relationship with the Spanish farms they work with, allowing them to source a top-of-the-line product. Their focus on quality extends to the processing branch of the business, as can be seen at their deboning plant in Vic, one of the most modern facilities in Spain.



With such a high standard achieved in both product and processing, Grup Baucells Alimentació strives to maintain that same quality in their weighing and packaging department. However, as they rapidly adjusted their production line to serve the Asian market, Grup Baucells Alimentació found that their legacy weighing and packing solution was creating a number of serious bottlenecks.

Wholesalers must Adjust to New Demands for Weighing and Packaging

Both the types of product and size of packaging demanded by the Chinese market differ greatly from those in Europe. Pork wholesalers have needed to adjust to shipping large sub-products such as backbones, neckbones and front/hind feet in fixed-weight boxes of 10 kg or 25 kg.

Manually weighing and packing such large products can be tricky.

The process is extremely time consuming, requiring a lot of operators to cope with the demand. It is also very difficult to reduce give-away in the manual process.

Grup Baucells Alimentació invested in an automatic weighing solution, but it wasn't able to handle big



products and it produced a lot of rejects due to inaccurate weighing.



Once reworked, the level of product give-away in the packages was negatively impacting the profit.

Based on their continued struggle with low efficiency and inaccuracy, the management team at Grup Baucells Alimentació decided it was time for a new weighing and packing solution. After consulting with Cabinplant, Grup Baucells Alimentació invested in the Multibatcher from Cabinplant.

More Pork Wholesalers are Choosing the Cabinplant Multibatcher

With headquarters in Haarby, Denmark, Cabinplant has developed and manufactured processing equipment for the global food industry for over 50 years. In recent years, their Multibatcher solution has received a lot of attention from purveyors around the world who need to optimize weight and packing processes.

"Pork exporters like Grup Baucells Alimentació have told us they are struggling with give-away in packages of large products," said Michael Falck Schmidt, Chief Commercial Officer, EMEA & APAC at Cabinplant. "The Multibatcher has helped a number of global pork wholesalers adjust their production lines to more efficiently serve the Chinese market."

After the initial consultant, Cabinplant worked with Grup Baucells Alimentació to customize the Multibatcher to meet their specific production needs. With technical support from Cabinplant on-site, the Multibatcher was installed in one week.

Grup Baucells Alimentació has Reduced Giveaway while Increasing Yield

With their Multibatcher up and running since January of 2020, Grup Baucells Alimentació is now able to perform accurate, high-speed combinatorial weighing of portion sizes of up to 30 kg. By automatically combining batches

of product, the Multibatcher produces accurate packages with a minimal amount of give-away. The operators at Grup Baucells Alimentació have found that manual styling is easier thanks to a new styling conveyor that runs parallel to the weighing conveyor. The ergonomic Cabinplant solution employs a slide rail that pushes the product towards the styling operator, reducing strain and stretching and thus improving productivity.

With help from the Multibatcher, Grup Baucells Alimentació has been able to double production in half the time - even when using four less operators than before. They are now set to keep exporting to China and have the added flexibility they need to adjust to further market shifts in the years to come.

"The Multibatcher provides the speed, flexibility and accuracy we need to serve the Chinese pork export market," shared Ramón Baucells, Owner at Grup Baucells Alimentació.

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1 FEBRUARY

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- Meat Gaining, Slaughtering, Cutting
- Skinning, Deboning & Trimming, Portioning, Gringing, Separating, Sorting (Meat & Poultry Focus)
- Energy Efficient Packaging Equipment Trends

2 APRIL

Ordering Deadline: 12 April, 2021
Publication Date: 26 April, 2021

- Mincing, Blending, Mixing, Filling, Forming Technology
- Fish Processing Focus
- Conveyors and Belting
- Employee Sanitation Practices
- Skin and Whole Muscle Packaging Trends

3 JUNE

Ordering Deadline: 14 June, 2021
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- Sausage, Bacon and Ham Production
- Casing, Netting, Clipping, Labelling
- BBQ Trends, Clean Label, Marinades, Sodium Reduction
- Packaging for Meat Snacks

4 SEPTEMBER

Ordering Deadline: 13 September, 2021
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- Dicing, Stop-Cutting, Slicing
- Smoking, Cooking, Coating, Frying, Air-Conditioning & Ripening Technology
- Weighing, IT Solutions, Process Control, Automation & Robotics
- Sustainable Packaging Trends

5 OCTOBER

Ordering Deadline: 11 October, 2021
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- High-Speed Cut-up Lines
- Thermal Processing, HPP
- Chilling & Freezing Equipment, Ice Machines, IQF Products
- Shelf-Life Extension of Packed Meat, Poultry and Seafood

6 DECEMBER

Ordering Deadline: 6 December, 2021
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IPPE 2022 PREVIEW

- Extracting, Processing and Packaging of Poultry Meat
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- Food Safety, Hygiene, Disinfection, Ventilation, Clean Room Technology
- International Flavour Trends
- Production and Packaging of Convenience Food

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Seafood Expo Global	Barcelona, Spain	27 Apr - 29 Apr, 2021
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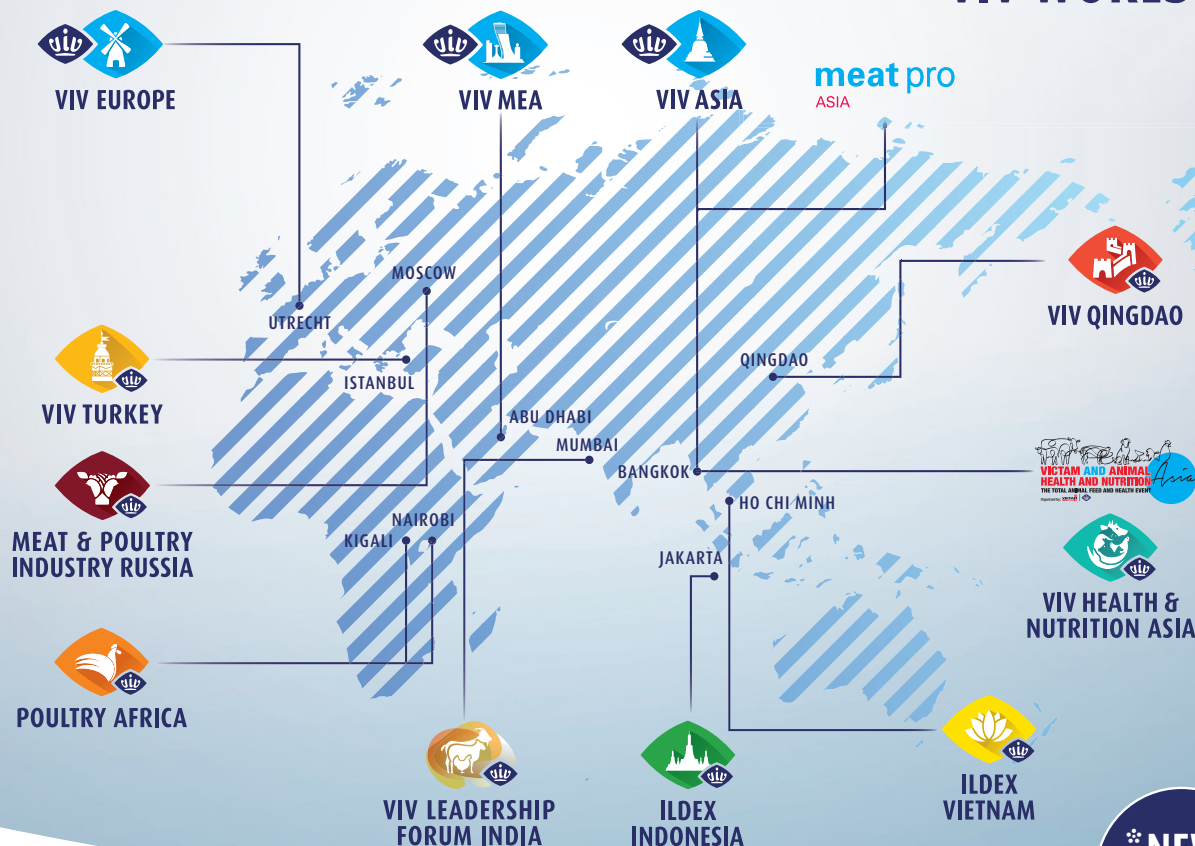
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