INTERNATIONAL

31 / 2020

MEATING POINT magazine

SUSTAINABLE TECHNOLOGY, PROCESSING & PACKAGING

INCREASING SANITATION AND REDUCING PLANT DOWNTIME AT FOOD PROCESSING PLANTS

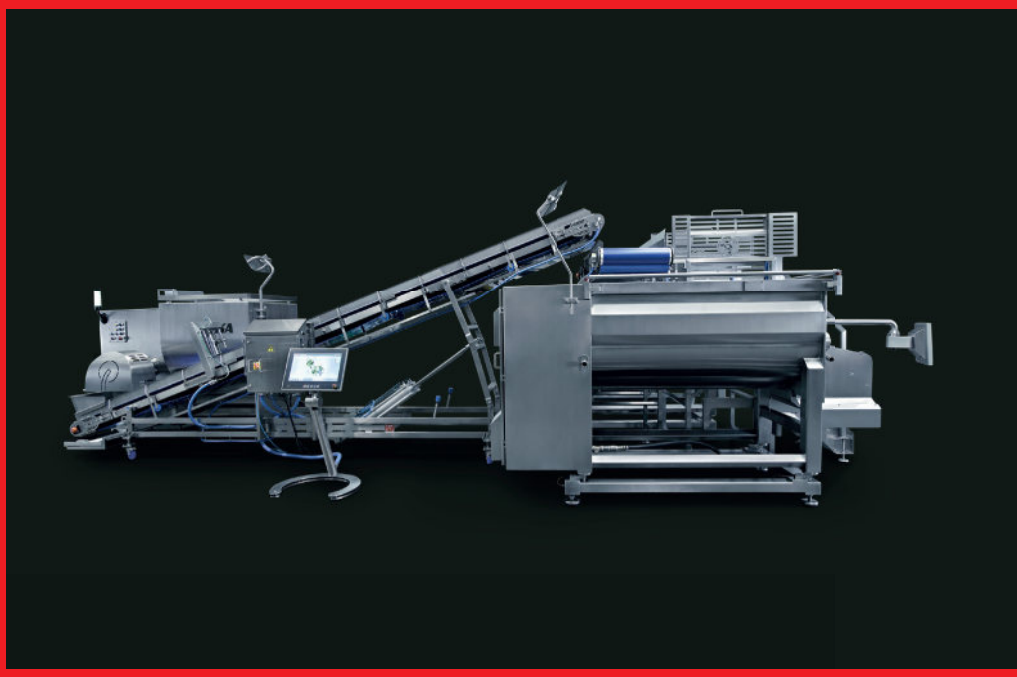
MODERN PRODUCTION OF FINE MEAT AND SAUSAGE EMULSIONS

SOY PROTEIN AND THE ECOSYSTEM

PROCESSING WATER TREATMENT SOLUTIONS FOR THE POULTRY INDUSTRY

LASKA 14 years

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.

laska.at

Dear reader,


Jenny Smart

As the huge impact of COVID-19 continues to be felt across the world, affecting daily life from the man on the street to businesses, undoubtedly the global meat and poultry industry has not gone unscathed. There have been almost 5,000 confirmed Covid-19 cases reported across 115 meat or poultry processing plants in the USA alone, according to the Centers for Disease Control and Prevention (CDC). Major meat processors like JBS USA and Tyson Foods Inc have shuttered slaughterhouses as the virus has spread among plant employees. As many Americans remain under stay-at-home orders, industry experts say the demand for meat has increased grocery stores. At the same time, meat processing is on the decline. Beef processing in the US was down 27%, and pork processing was down almost 20%, compared to this time last year, according to USDA data.

We at Meeting Point Magazine are actively monitoring the situation and its potential impacts on the industry. In this issue, you will find a special coverage on how the pandemic affected the meat and poultry industry and what kind of extra steps have businesses taken to maintain food safety during these extraordinary times?

The global coronavirus pandemic is a disaster presenting a colossal challenge to human civilisation. It is costing lives, devastating livelihoods, threatening food security, crashing markets and widening the socioeconomic inequalities. However, looking at it from another perspective, social distancing and isolation have taught us how to work and collaborate with colleagues and neighbours through online networks, buy food from local suppliers or produce our own, value our food and reduce waste, enjoy valuable time with our families, discover secret green spaces. Many of these lifestyle choices are conducive to a slower-paced and environmentally sustainable way of life.

Enjoy your read!

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- Sustainable Packaging Trends

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KANCOR EMBARKS ON MAJOR EXPANSION IN GOLDEN JUBILEE YEAR

Kancor Ingredients Ltd., a pioneer in the field of global spice extracts, has embarked on a major expansion spree in its golden jubilee year. Established in 1969, the company has already drawn up a three-year-long expansion plan. Kancor Ingredients, now part of France-based Mane Group, one of the largest flavour and fragrance companies in the world, has already invested over 18 million USD in the last four years and will invest over 21 million USD in the next 36 months for the expansion of existing manufacturing facilities and setting up new facilities and incorporating new technologies.

As per the plan, Kochi -headquartered Kancor Ingredients will continue the expansion of its facilities located in Kerala, Karnataka and Uttar Pradesh states in India. In Karnataka, the company is planning to set up an additional facility adjacent to the existing facility at Byadgi. The company is currently in the process of acquiring around 50 acres of land for setting up a new processing centre. It will act as the major processing centre of Kancor for the next 25-30 years. The company, which has two facilities in Bareilly, Uttar Pradesh, has also started the process of expanding both facilities. In the home state, the facility at Angamaly is all set to undergo a major revamp with focus on R&D and new products. It will take three years for the completion of the projects.

Addressing a media conference on 13th Feb, 2020 at Kochi, Geemon Korah, CEO and Director, Kancor Ingredients Ltd., said, *"We carry out major expansion activities in every 10-12 years with a vision for the next 20 years. The last time we carried out a major expansion was in 2004-2005. However, this time we have planned it with a vision for the next 25 years and made it part of the Golden Jubilee celebrations. It is our gift to our employees, stake holders and business partners. At present, all our facilities are operating at their fullest capacities."*

Every decade, Geemon Korah said, *"New challenges emerge in terms of emerging technology, business outlook, consumer behaviours and crop outputs. In every phase, Kancor has led the way by doing things differently. In 1969-70, Kancor was the first company to set up a spice extraction unit in India. It brought out a sea of changes in the spice industry and motivated the industry to focus more on value addition. When it comes to food safety, we were among the first to obtain ISO certification in 1994. At every stage, we have increased our capabilities in terms of technology and products to keep up with the times. We will continue to do so in future,"* he said.

"The company's success lies in the unyielding commitment to excellence. Right from the global sourcing programmes, we ensure that they work closely with the farmers to enrich their work and livelihoods. The initiatives of backward integration for specific crops and community development have already provided very positive responses," said Geemon Korah. He added that *"The sense of commitment continues in the facilities, where state-of-the-art plants deal with the delicate and intricate processes of extraction, distillation and the purification of actives. Our R&D division tirelessly innovates to fulfill complex orders from varied industry segments. We are pioneers in the development of several products, be it the isolation*

of Curcumin from turmeric in 1978, product advancements made in the field of natural colours and natural antioxidants. Kancor has contributed significantly to the industry," he said. *"The acclaims and awards won by Kancor is a testimony to our commitment and spirit to bring the best to the world"* Geemon added.

In terms of employee welfare, the attrition rate at Kancor, which currently employs over 600 people, is less than half the industry average of 9-10%. The company has launched numerous initiatives for the welfare of its employees and has developed a mutually beneficial association with the workers' unions for higher productivity.

In and around mint farms in UP around Bareilly, the company is involved in many sustainable agro initiatives to improve the yield of mint and thereby improving farm incomes. Several other agro initiatives taken up for the promotion of crops like Chillies, Rosemary, Ginger, Turmeric, Lemongrass and Tuberose are done with IT enabled services. The key focus of the Agriculture Business division is to assist farmers to adopt Good Agricultural Practices (GAP) with a special focus on Sustainability and Traceability, thereby improving their social, environmental and economic conditions. Over the years, Kancor has launched many Corporate Social Responsibility (CSR) programmes, which include lighting of villages, clean drinking water plants, unique initiatives for supporting farmers' families, health and sanitation, special education and employment enhancing vocational skills especially among children, women, elderly persons and differently abled persons.

About Kancor Ingredients Ltd. Kancor Ingredients Limited, whose roots in the spice trade can be traced back to 1857 at the spice capital of the world, Kochi, is a pioneer in the field of Spice Extracts and now is diversified into Natural solutions. Kancor Ingredients is headquartered in Kerala, India and has been a subsidiary of leading French Flavour and Fragrance house, Mane since December 2014.

www.kancor.com

OSSID HIRES NEW REGIONAL SALES MANAGER FOR WESTERN TERRITORY

Ossid Continues to Grow its Sales Team to Better Serve our Customer Base

Ossid, a ProMach brand, recently appointed Ty Threedy as the company's Western Regional Sales Manager. His primary role is to focus on Ossid's existing customer base in the region covering – British Columbia, Washington, Idaho, Oregon, Nevada, and Northern California, and to increase new business for the company's ever-growing product line. Ossid designs and manufactures packaging equipment for the food and medical device industries, as well as for consumer goods.

"As Ossid continues to grow, we understand the importance of continuing to expand the Ossid team in order to give them more time to spend with each customer. We focus on learning our customers' needs and working on better solutions for their facilities," said Jason Angel, Vice President of Sales and Marketing, Ossid. "Ty brings with him extensive experience in the packaging industry, and we look forward to his help solving our customers' packaging equipment needs."

Most recently, Threedy served as Account Manager for Silgan Containers, a metal packaging solutions provider, in California. Throughout his career, his focus has been in sales roles supporting customers across a broad range of industries, including food and medical. He graduated from California State University with his Masters in Executive Management.

www.ossid.com

NEW RELEASE

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BRAND NEW: WENTOPLEX® ULTRA - FOR OPTIMUM PRODUCT PROTECTION, PLASTIC CONTENT REDUCTION AND IMPROVED RECYCLING

Wentoplex® Ultra is an innovative film solution from Wentus Kunststoff GmbH Höxter, Germany. The recently developed film combines optimum product protection with enhanced visual appeal. It is produced using significantly less plastic material and has excellent recycling properties.

Wentus – Innovation as a Solution to Packaging Challenges

Greater resource conservation, a reduction of plastic waste, and increased recycling - these are the goals set out by the EU Commission in its European Strategy for Plastics in a Circular Economy. By 2030, all plastic packaging in the EU market should be recyclable. The publication of this strategy set in motion a series of research and development efforts within the industry, focusing on alternative packaging solutions and improved separation of the individual components of materials. Wentus Kunststoff GmbH in Höxter, Germany, produces and distributes sustainable material solutions for modern packaging requirements. The company's extensive range of films includes products that offer increased shelf life and are aligned with the growing ecological awareness of retailers and consumers. With the launch of Wentoplex® Ultra, a new innovative solution is now available.

Motiv 2 WENTUS Wentoplex Ultra

Wentoplex® Ultra - Up to 35% Less Material

Wentoplex® Ultra is a high-performance film that guarantees maximum product protection and long-lasting freshness thanks to an excellent oxygen barrier. It is therefore suitable for a wide range of products - from red meat to vegan produce. In addition, this innovative film boasts excellent antifog properties to further enhance its attractive optics. One of the major advantages is its sustainability. Wentoplex® Ultra is made entirely from polyolefins that enable better recycling than composite materials using PET or polyamide. Material use can be reduced by up to 35% compared to heavier conventional structure. This not only conserves resources, but also reduces costs through lower waste disposal fees. Wentoplex® Ultra can be used in the tray-sealing process as it seals to all common materials such as APET / PE, PP / PE, PS / PE or PVC / PE and delivers high seal integrity. Alternatively, this high-performance film could also be used to produce HFFS (& VFFS) flow-wrap packs, e.g. minced meat packs. Compared to conventional lidding film, Wentoplex® Ultra significantly reduces the amount of plastic material used. Material costs as well as pack weight and shelf space are reduced accordingly - especially in the case of this bulk protein product.

Motiv 1 WENTUS Wentoplex Ultra

Wentoplex® Range - High-Quality Laminates

The Wentoplex® Range from Wentus indicates laminates that meet the highest demands and standards in the production of food and non-food packaging. They provide exceptional optics as well as excellent barrier properties, thus delivering optimum product freshness. All laminates can be printed with up to 10-colour flexo printing and, as required, gravure printing can also be used.

www.wentus.de

AUTOMATION INCREASES FOOD SAFETY IN LABOR-SAVING LINES

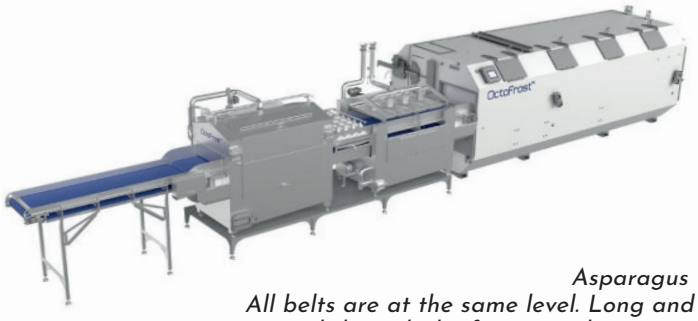
Following the COVID-19 pandemic, the frozen food retail market has witnessed a substantial increase in sales that is expected to maintain at a high level.

Food Safety has become even more crucial. New inquiries require "no hand touch" operation of processing lines. During stockpiling stage, freezer gondolas often were empty, and new deliveries were sold out fast.

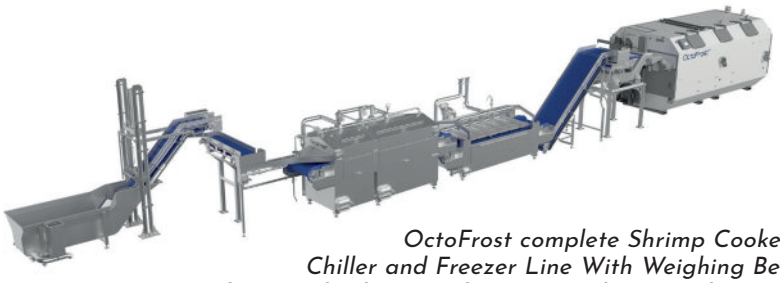
It is easy to understand as convenience is unbeatable, always at home, and to pick up and thaw what you need.

Even if the pandemic will finish in a month like in China and South Korea, it is not very qualified to guess that we will have a future increase in retail in the time to come. North European processors discuss investing in new IQF line already for next season due to expected growth in retail. We live in a different world today compared to how it was three months ago.

Universal Vegetable Line
For most vegetables including herbs and spinach.



Asparagus Line
All belts are at the same level. Long and thin asparagus are transported through the freezer without any drop.



OctoFrost complete Shrimp Cooker, Chiller and Freezer Line With Weighing Belt for even feeding Key feature is to have total control over temperatures to avoid overcooking and loss of proteins.

If the Cold Chain is unbroken and modern equipment is used, quality is close to fresh (you can never compete with products direct picked from the garden but often compete with products bought at the fresh market as they often have day or days transportation time. Out of season, there is only frozen to choose.

Clearly, a winner in food safety is frozen food.

OctoFrost IQF Processing Lines

Green vegetables, many fruits, raw seafood are either fully blanched (+73Cto 85C where water or steam always is well over +73C) or flash blanched with hot water to kill surface bacterias. The heat treatment is followed by a swift chilling to capture texture and color on products. Water temperature in our rainfall chillers is 1-3 C, which is safe under the critical +6C you have in the fridge.

Nearly all products can be randomly fed to the line and are spread with a shaker or water flumes, or tedder for leafy products. This also means significant labor-saving. A complete line only needs 2-3 operators.

OctoFrost IQF Processing Lines offer new challenging food safety business opportunities. The lines are designed for "no hand touch" after heat treatment.

The company designs the complete processing line and have the control that there shall be no need for manual intervention.

www.octofrost.com

HANDTMANN FILLING AND FORMING SYSTEMS FOR MEAT AND MEAT-LIKE PRODUCTS

The range of Handtmann forming systems is characterised in particular by its flexible use in various fields of application and its variety of shapes. The systems are also designed for use in the new field of meat-like products or substitutes and alternatives like meat-like balls or meat-like nuggets. The production of called for trend products is possible thanks to countless forming options, such as round, square, longish, 3D shapes, etc. Another positive asset is the first-class product appearance thanks to gentle processing and product shape retention. Furthermore, the excellent portioning accuracy per product provides for cost savings.

The FS 520 forming system is suitable for the 6 to 8-lane, fully automatic production of a wide variety of 3D product shapes with hole plate systems onto belt or rack. An example of this is the production of balls, alternatively with flattening belt or structuring roller. The FS 522 forming system with hole plate system is suitable for the 2-lane production of formed products into water/oil bath systems, laminating systems, or onto subsequent conveyor belts.

VF 800 with FS 510 forming system

VF 800 with FS 522 forming system

The production of balls using a vat application is a classic example of this. In both systems, the vacuum filler feeds the filling product to the flow divider. The servo-driven flow divider ensures precise rotor speed in the flow divider. The result is a continuous product flow without pressure fluctuations, and thus accurate final weights. The flow divider ejects the filling product in multi-lane filling flows via mould components. The rotating hole plate system forms the products into the required 3D shape. The vacuum filler's control system allows easy visualisation of the product shape and calculation of the process parameters. The shape can be changed quickly by exchanging a few mould components. A wide variety of trend products can be produced with the FS 510 forming system with flow divider of up to 24 lanes. The method is the same as with the FS 520 and FS 522, however, the desired product shape is created using forming tubes positioned at the outlet. Separating is performed directly at the outlet, either with a wire or with a blade; it is uninterrupted and linear to the product speed. Production can be onto racks as well as onto a conveyor belt.

www.handtmann.de

Formed products by Handtmann technology

meat-like/substitute formed products by Handtmann

CREATE NUMEROUS BURGER TYPES IN ONE SMALL, FLEXIBLE MACHINE

Marel's innovative PremiumFormer gives you a unique way of producing various burger types using just one small, highly flexible machine. It lets you change quickly and easily between forming different types of fresh burgers while ensuring quality and consistency in texture, shape and weight.

Perfectly Formed Burgers Every Time

The PremiumFormer has interchangeable molds, making it possible to produce burgers of different shapes and weight. It uses ultra-low pressure to retain the structure and preserve the texture of the meat mass. This ensures every burger has a high-quality appearance and shrinkage is kept to a minimum when the burger is cooked.

Texture Makes the Taste Experience

Appearance is not the only thing that defines a burger. Another main differentiator is texture. It is a determining factor in the overall taste experience.

The PremiumFormer can easily create burgers with different kinds of texture. The standard burger is typically pressed and without a clear fiber orientation. The home-style and tender-fresh burgers have fibers, which are oriented vertically. In the butcher burger, fibers are interlaced, which creates angel hair burgers.

Simple Integration and Operation

Due to its compact footprint, the PremiumFormer will fit seamlessly into practically any production facility. It is also simple to operate and changeovers are quick and easy.

Whatever type of burger you need to produce and whatever the volume, Marel has the solution. Read more at marel.com/burgers.

www.marel.com

SMOOTH OPERATION IN THE MEAT PROCESSING INDUSTRY

Quantum X1500 Trimmer® From Bettcher – Flexible, Durable, High Performing.

High-performance cutting tools for the meat and fish processing industry. Bettcher Industries Inc., headquartered in Ohio, USA and in Europe, the company is represented by Bettcher GmbH, based in Dierikon, Switzerland.

Bettcher Industries Quantum Flex Trimmer X1500 is the perfect application for defatting pork. The unique, patented trimmer makes defatting more precise for increased yields. Additionally, an optional adjustable depth gauge allows for flexibility and precision.

Quantum Flex X1500 perfect for defatting pork loins
(Picture: Bettcher GmbH)

The trimmers are designed to improve yields and productivity and enables workers to trim the meat more precisely and efficiently with less effort. The lightweight ergonomic design enables accurate work that often cannot be performed efficiently with other tools. Common meat applications for trimmers include defatting bone-in loins, skin patching pork bellies as well as defatting pork shoulders and hams.

Versatile: attachable to any motor - The trimmer range is designed

for maximum flexibility and ease of use. The Quantum Flex Trimmer can be attached to any Bettcher motor - the Quantum S® motor, Series II UltraDrive® motor, UN-84 motor and Whizard Quantum® motor. The tool and motor work together to form the perfect unit.

Motors - The Quantum Flex fits any Bettcher motor installation - no need to replace existing motor
(Picture: Bettcher GmbH)

Ergonomic and vibration-absorbing Handles - The interchangeable handles in different sizes are made of vibration-absorbing material to provide additional comfort and keep hands warmer than metal handles. Bi-directional grip design improves tool handling by adding "traction" to the operator's hand.

"The user-friendliness and the ergonomics of our trimmers have always been a particular focus of our product development," explains Russ Stroner Vice President of Global sales Bettcher Industries Inc. "For example, Bettcher trimmers use inclined blades, which ensure a gentle posture for users when trimming, since the wrist is held in a neutral position and the forearm is less stressed." Stroner added "Bettcher is particularly proud of the development of the micro-break hand strap: the stable carrying strap allows the user to relieve the fingers between the individual handles while at the same time maintaining full

Russ Stroner Vice President of global Sales Bettcher Industries Inc
(Picture: Bettcher GmbH)

control over the tool. This saves energy and also prevents signs of fatigue."

Bettcher develops tools that enable simple, clean and ergonomic work on meat and fish production lines. This increases meat yield and leads to more profit in a highly competitive market.

www.bettcher.com

REX TECHNOLOGIE – VACUUM FILLER & PORTIONING SYSTEMS

UFM 300-6
The universal shaping wizard

The UFM 300-6 is the universal solution for hamburger and dumpling production in combination with the REX filling machine. The modular structure enables a wide variety of products to be processed and shaped in a simple and economical way.

The new hamburger shaper is the optimal machine-based solution for producing hamburgers using the low-pressure process. The pneumatic form cutter cuts the portions. The portions are then pressed into perfect "home-made" burgers via the form belt with optimal dimensional stability. The water spraying unit prevents the product sticking to the blade or conveyor belts. An optional imprint roller can be mounted to the end of the conveyor belt to structure the burger surface.

By converting the form cutter for dumpling production, the form roller is able to shape single rows of beautifully round dumplings. The form rollers are available in various diameters for a range of dumpling sizes. Beautifully round dumplings can be created from meat, potato, bread and various other food products.

Optional UV sterilisation for the FB 300 conveyor belt guarantees the highest possible level of bacterial eradication thus enhancing hygiene standards, giving machine suitability in high risk environments.

www.rex-technologie.com

EXCLUSIVE TEXTURATES WITH STRUCTURE SIMILAR TO MUSCLE TISSUE

Cooperation With All Organic Treasures Makes Possible New Concepts for Meat Alternatives

Plant-based alternatives to meat and sausage remain in high demand by consumers, and this interest and the trend to this product category have scarcely been affected by the current corona crisis. On the contrary, awareness of the importance of sustainable and balanced nutrition is rising, worldwide. Industry experts expect to see continuous growth in plant-based alternative products in the coming years. "Whether for ethical or environmental reasons, reduced meat consumption is the future of the food industry. This is even more important in view of the need to supply a growing world population with sustainably sourced, protein-rich meat alternatives," explains Dr. Matthias Moser, Managing Director Hydrosol.

This specialist for stabilising and texturing systems is now working in close collaboration with raw materials supplier All Organic Treasures (AOT). The goal of the cooperation is to combine the expertise of both companies and offer customers in the plant-based meat alternative space a wider range of products with individualised and exclusive solutions. The focus is on allergen- and GMO-free protein sources with a positive image, like sunflower. According to Fabian Breisinger, Managing Director AOT, "Our own Sunflower Family brand is already successful in food retail with the SonnenblumenHACK® product. We have built a special reputation and capabilities in the area of sunflower protein-based vegan products, like burger ready mixes. Our plant-based proteins, especially Heliaflor®, are derived through the partial de-oiling of high-quality raw materials. During production we take special care to protect their beneficial properties. As a result, our products retain their native protein structure and content of important nutrients like B vitamins, secondary plant substances and minerals. This distinguishes them from conventional protein products. The functional properties, especially those of our sunflower protein, are further significantly affected only by the production process."

Hydrosol AOT Sunflowers

The proteins are a by-product of sunflower oil manufacture, so there are clear advantages in terms of sustainability. Hydrosol uses three different texturates for the production of meat and sausage alternatives – a dry texturate for plant-based mince like burger patties, a dry texturate with fibrous texture for foods like nuggets, and a wet texturate with a structure similar to muscle tissue for plant-based filet strips. "Plant-based muscle tissue alternatives remain a big challenge for the industry," notes Hydrosol Product Manager Florian Bark. "Their authentic meatlike structure gives wet texturates from plant protein great potential. With the expertise of AOT as manufacturer of these sunflower protein wet texturates, and our knowledge of stabilisation and texturing of plant-based meat alternatives, we can develop a broad spectrum of individual product solutions that give our customers unique selling propositions on the market." Another plus point is that the texturates are available in conventional as well as organic versions.

Hydrosol AOT Filet Stripes

There remains the challenge of getting the colour and flavour of the sunflower texturates just right, for example to avoid unpleasant aftertastes. "Sunflower texturates are naturally dark. For sausages, burgers and other ground meat alternatives that's not a problem, in fact it's a benefit. But for nuggets or filet strips that are supposed to be like chicken, a light colour is naturally preferable. We can adjust for this very well through combination with other protein concentrates. In our Plant Based

Competence Center we have already been getting very good results in a range of application tests," reports Florian Bark.

The foundation for the collaboration by AOT and Hydrosol was laid last year. At the IFFA, Hydrosol presented burger patties based on a sunflower texturate from AOT for the first time. Hydrosol is the exclusive sales partner for this burger patty in the food retail convenience products category and the food service and catering segment. With the future blending

Hydrosol AOT Vegan Bolognese Noodles

of the knowledge of both companies, Hydrosol will go a step further and work closely with AOT right from the development of texturates. "This way we can create exactly the texturates that our industry customers need for their final products. This exclusivity is of immense benefit to all concerned," reports Florian Bark. Dr. Moser adds, "At a time when meatless products are steadily gaining importance, we want to use German and European raw materials to bring to market sustainable products that are free of soy and wheat. The collaboration with a company like AOT, with its extensive expertise in the sustainable manufacture of plant-based proteins, is thus a logical step for our future portfolio growth."

www.hydrosol.de

PERFECT PAIRING FOR VEGAN BRATWURST

In cooperation with Viscofan, Loryma has developed a wheat-based concept for meat-free sausages with outstanding sensory appeal

As an expert in raw materials made from wheat, Loryma has developed a special recipe for vegan sausage products that are authentic in both bite and taste, and meet the increasing demand for meatless barbecue products. This is perfectly complemented by vegan sausage casing supplied by manufacturer Viscofan.

The trend of vegan meat alternatives continues apace, with consumer demand rising in anticipation of the start of the barbecue season. Manufacturers are faced with the challenge of developing products that are not only easy to process, but also convincing in terms of sensory properties and preparation. In order to target vegan, vegetarian or flexitarian consumers, Loryma has developed a perfectly balanced recipe for fried sausages based on wheat ingredients. For this, the company combines textured wheat proteins Lory® Tex Granules and binding system Lory® Bind with a tasty seasoning mix. Viscofan, a global manufacturer of sausage skins, provides the crunchy Viscofan Vegan Casing. The result is a vegetarian bratwurst that is both firm and juicy, with authentic mouthfeel, and ideal for grilling on the barbecue or in a pan.

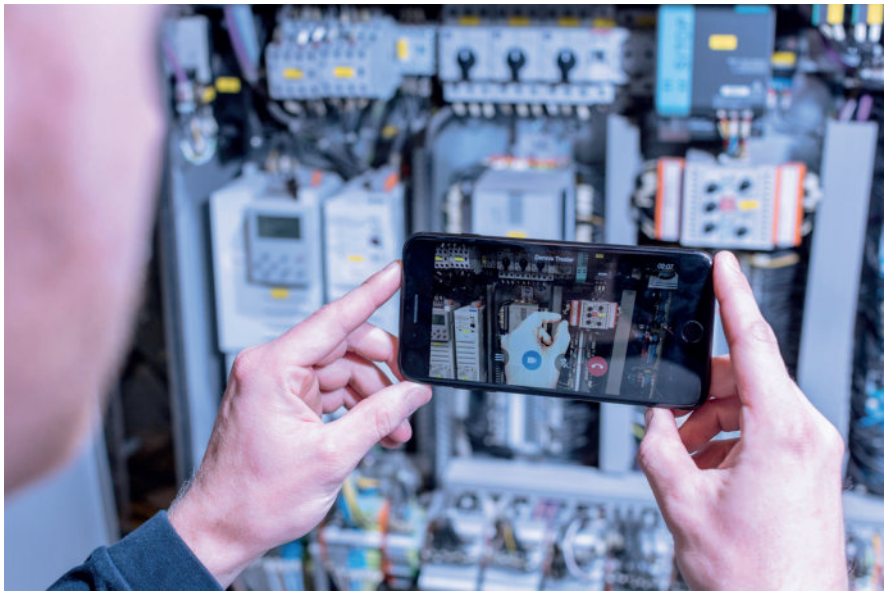
The textured wheat protein Lory® Tex optimises the consistency and nutritional value of meat-free sausages, and many other applications. Thanks to the tasteless binding system Lory® Bind, food manufacturers can vary the colour, taste and texture of vegan sausages. In addition to the classic bratwurst, there are numerous other possibilities for meat-free end products, including white sausages, curry sausages, fine Nuremberger and coarse grilled sausages. The artificial Viscofan Vegan Casing is the perfect finishing touch, as it is easy to fill and simple to handle. It is 100% vegetable-based and, therefore, the perfect choice for both vegetarian and vegan end products.

Henrik Hetzer, Managing Director of Loryma, explains: "We focus on high quality, regional, wheat-based raw materials that can satisfy demand for vegan end products, while guaranteeing the best possible nutritional values. With Viscofan, we have found a perfect partner for the manufacture of synthetic casings. As a result, we are able to offer 100% vegetable sausage components that can be adapted as required by manufacturers, without compromising on taste or bite."

www.loryma.de/en

MIREMOTE: THE AR SERVICE TOOL THAT OVERCOMES ALL BORDERS

Special measures are required in difficult times. With an innovative service tool, Minebea Intec shows that its customers can always rely on the company: miRemote, based on augmented reality technology, enables an immediate online connection between customers and Minebea Intec, thus avoiding waiting times for technicians and unnecessary production downtimes: Smaller problems can often be solved with a little support - as if the service technician himself were live on site. Especially in times when travelling, access to production facilities and personal contact is difficult or even impossible, miRemote proves to be exactly the right service solution.



The failure of a production machine often not only costs time to repair, but usually has a negative financial impact on the overall production. Sometimes a small defect can be repaired with a few simple steps, even by remote maintenance. With the augmented reality service app miRemote, the service technician shows the user how it works. The service tool establishes a direct video connection between the user's smartphone or tablet and the expert from Minebea Intec. The service accesses the camera of the device to get a live video feed of the problem. Through various interaction possibilities, the technician can give the user precise instructions and is at his side during the problem solving process.

When On-Site Service is Impossible: Miremote Offers Direct First Aid - Completely Independent of Location

"Personal contacts are difficult at present: it is not always possible for a technician to be directly on site: Access restrictions or lengthy approval processes are a problem when it comes to providing rapid assistance. With miRemote, service staff can get a quick and immediate picture of the situation, simply by looking at the camera function of the device in use, without having to invest in additional hardware or software - all it takes is a link and a click, and the live connection is established," says Michael Tappe, Global Service Manager at Minebea Intec.

Thanks to the secure app connection, the connected service employee sees exactly what the user is currently seeing - as if he were directly on site. By fading in gestures, sending helpful documents or direct instructions via the audio track, the user can be intuitively told what to do. Thanks to the assistance via app, the service is not tied to any particular location - for the user this means that any waiting times, necessary travel documents or costs for the journey of a service employee are eliminated. If the problem cannot be solved via app assistance, the service department knows exactly which assistance is necessary due to the personal view of the situation - which is not always the case with remote diagnosis.

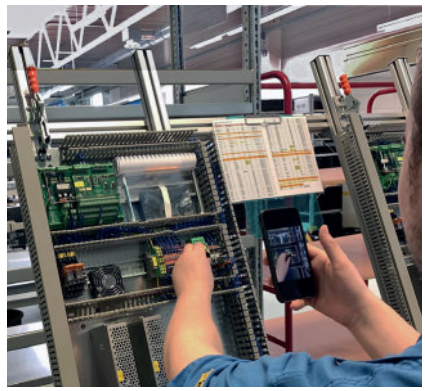
Service on Demand: Miremote Closes the Gap Between Maintenance and Repairs

The service tool miRemote closes the gap between preventive service measures and corrective maintenance. Country borders and time zones are effortlessly crossed. "The miRemote service tool is based on Augmented Reality technology," explains

Michael Tappe, "this has enabled us to make our service usable and visible worldwide and at any time. The intuitive tool helps to avoid and reduce malfunctions while at the same time increasing the technical availability of systems and equipment. It thus becomes part of a consistent prevention strategy. From his location, the service technician can accompany process steps and provide assistance, for example by pointing a finger or by visualizing "motion sequences".

Access All Areas: How miRemote Helps With Difficult Access Conditions

miRemote also helps the user where direct support is not possible: For example, access to the production site is often difficult due to long distances or technicians are not allowed to enter the production site for security reasons. Especially in the current situation with the Corona Pandemic and the worldwide restrictions, this is an extreme challenge for producers and suppliers. With miRemote, on the other hand, service staff can obtain a detailed picture and initiate necessary measures in a time- and cost-saving manner.



miRemote is available in two versions: Either as a WEB link, which the service sends to the user directly on demand, or alternatively as a full license, where the customer can also provide additional assistance within his own organization. No matter which variant the user chooses: Included in both cost models is the many years of experience with which the company's service is available to the user. This means that even in difficult times, users can rely on products and services from Minebea Intec - as if the service technician were live on site.

www.minebea-Intec.com.

INTELLIGENT TECHNOLOGY FOR MODERN ANALYTICS

Low-noise, oil-free vacuum solutions, energy efficiency and optimized data evaluation are the requirements in analytics and the associated research and laboratory environments, such as mass spectrometry. Vacuum technology functions almost as a heart in most systems, as it enables processes to run. Often however, little attention is paid to the correct choice of vacuum components, which is nevertheless an essential factor for the efficiency of analytical or even manufacturing processes.

Fore Vacuum – Innovative Technology Supports the Environment

ECODRYplus - Copyright Leybold

Oil-free vacuum is the method of choice here. With the ECODRY series, Leybold offers a clean, silent, compact and low-maintenance pump for use in analytical or research laboratories. This pump class lies exactly in the transition area between small laboratory devices and large machines. However, the most significant innovation is undoubtedly the reduction of the noise level: "The pump is compact, low-vibration, powerful, easy to operate and very quiet in its design", states Product Manager Alexander Kaiser.

The ECODRY plus was developed exactly in line with the requirements of systems such as mass spectrometers and electron microscopes. It is therefore also suitable for use in large accelerators, because there is no contamination by dust or oil. It offers users a high degree of comfort, pumping speed performance and flexibility.

Equipped with two flexible interfaces, the pump can also be remote-controlled. When used in commercial analysis systems, it is often integrated into the plant control system and can be started, stopped, varied in speed and also monitored as required.

High Vacuum – Plug & Play Pump Systems

TURBOLAB - Copyright Leybold

The devices of the TURBOLAB series are plug-and-play high vacuum pump systems and offer a wide range of variants: They are compact, fully assembled and can be put into operation immediately. Different configurations cover the vacuum requirements of applications in the R & D markets and analytical applications. The unique oil-free hybrid bearing of the TURBOVAC i/iX turbopumps and the choice of different dry-compressing fore vacuum pumps allows hydrocarbon-free operation. These compact pump systems are delivered fully assembled and ready for operation.

They include a turbomolecular pump, a backing pump and an innovative TPU display unit. Both compact tabletop and mobile cart versions are available and offer flexible and convenient operation. Installation kits for variable mounting of the turbopump away from the pumping station frame can also be obtained.

A wide range of accessories, such as sealing gas and / or venting valve, backing vacuum safety valve, cooling unit, heating tape, etc. facilitates the adaptation to individual requirements.

Today, data and its correct interpretation are essential factors in machine-based research and development, but also in manufacturing. Therefore, the measurement technology associated with vacuum technology is crucial for the evaluation of processes from basic research to industrial manufacturing. Leybold therefore offers a wide range of measuring instruments, sensors and components.

Measure - Analyze - Optimize

TURBOLAB systems can be equipped with THERMOVAC TTR fore vacuum gauges and PENNINGVAC PTR high vacuum sensors. Connected sensors are detected and pressure readings are automatically shown on the display.

All critical parameters and operating conditions such as errors, warnings, frequency, temperature etc. are automatically recorded in an internal memory based on a standard time interval and can be adjusted by the user directly on site. An integrated web server allows remote control, monitoring and configuration of the TURBOLAB devices from the mobile device or from the computer via browser.

The controllers of the Graphix and Display series complete the range of accessories.

A full portfolio of sensors and controllers makes the measurement and control of processes easy. Leybold offers real innovations with its sensors for vacuum measurement in numerous applications in the pressure range of 2000 to 10-12 mbar.

These measuring devices offer higher precision, an extended measuring range, improved reproducibility and process stability. They complement the portfolio with novel interfaces and additional areas for use in lock chambers.

Leybold offers sensors of various designs with their own characteristic measuring ranges. A distinction is made between direct and indirect pressure measurements.

These gas type independent vacuum sensors cover measurements directly and mechanically:

- capacitive CERAVAC measuring devices and
- capacitive DI/DU and piezo pressure sensors

The indirect, gas type dependent pressure measurement is possible with the sensors

- THERMOVAC, a thermal conductivity vacuum gauge according to Pirani
- PENNINGVAC cold cathode ionization vacuum gauges based on the principle of the reversed magnetron.
- IONIVAC hot cathode ionization vacuum gauges according to Bayard-Alpert

www.leybold.com

CORONA-PANDEMIC: SYSTEMATIC HAND HYGIENE PROTECTS WORKERS AND CUSTOMERS

Manotizer Type 23704

Currently the meat industry plays a key role in guaranteeing the food supply of the population. The extremely high hygiene requirements pose new challenges for the companies, as there is barely any other branch that is as hygiene-sensitive as the meat and food industry. Moreover, since the beginning of the corona pandemic, the precautionary measures have been signifi-cantly above the already strict quality and hygiene guidelines.

Regardless of whether you are slaughtering, cutting or processing, all production steps require absolute hygiene, as the health of both consumers and employees has the highest priority. Therefore, employers must take immediate steps to provide a safe and healthy workplace. Hygiene concepts must be revised and adapted to the current situation. Thereby innovative hygiene technology helps to keep workers healthy, production clean and maintain consumer confidence.

The correct hand cleaning and disinfection is one of the most important measures. How im-portant this is, has become clear to us at the latest since experts pointed out the importance of regular and extensive hand washing to contain the pandemic. But what can the practical im-plementation of safe hand hygiene in your company look like?

Washing and Disinfecting Hands Several Times a Day is an Obligation

Mistakes are made again and again when washing hands and rubbing hand disinfectant into them. To make sure that everything runs smoothly when it comes to hand hygiene, the com-pany Frontmatec Hygiene offers instructions for hand cleaning and hand disinfection, com-plimentary to download on their website www.itec-hygiene.com/en/news. It is best to print out these instructions and place them clearly visible next to your disinfectant dispensers or in your washrooms.

Hand Cleaning Systems Help to Keep Safe Procedures

In order to safeguard employees and customers from viruses, bacteria or unwanted germs, there are professional hand cleaning systems that define the hand hygiene process. These ensure that the required hygiene standards are maintained. The ITEC brand offers an exten-sive range of professional hand cleaning systems and individual solutions - depending on the size of the company and the number of users. The range extends from manual disinfectant dispensers to hand cleaning basins with automatic soap and disinfectant dispensers and mod-ern hot-air dryers, including germ filtration. ITEC also offers secure access systems: These special hand washing and disinfection systems, combined with motorized tripod barriers, pre-vent uncontrolled access to certain areas and thus ensure increased hygiene safety.

Source of Hazard: Taps of Soap and Disinfectant Dispensers

Taps are a common carrier of viruses or bacteria. A contactless dosing unit for soap and dis-infectants eliminates the need for touching and increases the protection of the user. Fully au-tomatic solutions such as the ITEC Manotizer Type 23704 hand disinfectant dispenser are particularly advantageous. It is made entirely of stainless steel and is easy to clean due to its hygienic design. By using a 5 liter canister for the disinfectant, the handling effort is minimal, and it is ideal for highly frequented areas. The canister is locked inside the device to protect against theft. The fill level of the canister can be read at any time through an inspection win-dow on the front of the device. The amount of disinfectant dispensed is adjustable and can be adapted to the specific use. Particularly practical: A quick-closing diaphragm pump prevents dripping and thus wasting disinfectant. Due to the potential-free contact, doors, turnstiles, swing doors etc. can be controlled with this device.

www.itec-hygiene.com

COVID-19 IS JUST THE LATEST ZOONOTIC DISEASE STEMMING FROM THE MEAT INDUSTRY

Although the exact origin story of the COVID-19 outbreak is still uncertain, it is highly likely that the virus began as a zoonotic disease, i.e. an infectious disease caused by a pathogen that jumped from animals to humans. A dominant theory is that the new coronavirus was initially a disease affecting bats, before transiting to humans, possibly via an intermediary species such as the pangolin. Given the location of the initial outbreak, it is likely that the virus made the jump to humans at a wet market in the Chinese city of Wuhan, where wild animals including bats and pangolins are traded illegally. The biology of COVID-19 and the technologies used for diagnosis are explored in the recent IDTechEx report, "COVID-19 Diagnostics".

This is not the first time that live animal wet markets have been linked with zoonotic diseases. A 2004 Lancet paper linked wet markets with several disease outbreaks, including the SARS outbreak in China and the H5N1 bird flu virus that transmitted to and killed 6 of 18 people in Hong Kong in 1997.

The problem of wet markets and zoonoses is just part of the wider issue of zoonotic disease outbreaks linked with the global meat industry. Any system involving an extremely high density of animals in contact with human will lead to risks of disease transmission. This is particularly problematic in intensive animal farming systems, where there is often very little genetic diversity between animals, meaning a disease can rapidly spread without meeting any resistance from genetic variants.

A prominent example of this is influenza, a disease with a high potential to cause pandemics. There is a clear link between the emergence of avian influenza viruses and intensified poultry production systems. A 2018 research article reviewed 39 historical "conversion events", the conversion of a low pathogenic into a highly pathogenic avian flu virus, finding that all but two of them were reported in commercial poultry systems, with most taking place in high-income countries.

Unfortunately, in the coming years, zoonotic disease outbreaks are likely to become increasingly common. This will stem from animal agriculture intensifying as the world struggles to feed its burgeoning population and growing wealth in low income countries leads to increasing demand for meat.

So, what is the solution? Although a significant reduction in global meat demand would probably be extremely helpful in stemming the tide of zoonotic disease outbreaks, it may be difficult to achieve. Meat is involved in many cultural and religious practices and eating meat is an important part of many peoples' identities, acting as a symbol of food security and societal value around the world. As such, there is a large opportunity for any company that can create a completely realistic substitute for meat products.

Intensive farming practices have been linked with several disease outbreaks

Plant-based meat has become a common site in fast food restaurants. When KFC trialled Beyond Meat's fried chicken analogue in Altanta in 2019, it sold out in less than 5 hours (Image source: KFC).

Any substitute would need to be almost indistinguishable from conventional meat, have at least price parity with corresponding meat products, and be widely available. Two particularly promising industries have grown at a rapid pace over the past few years: plant-based and cultured meat. The recent IDTechEx report, "Plant-based and Cultured Meat 2020-2030", explores the technology and markets behind these rapidly emerging industries, forecasting whether either area could help reduce the world's reliance on the problematic animal agriculture industry.

In addition to often being more sustainable than meat, plant-based foods are much less likely to lead to disease outbreaks. Due to the much larger genetic differences between plants and humans than animals and humans, transmission of infectious diseases from plants to humans is much less likely. Plant-based meat substitutes have been around for a while, but have taken off in recent years, with companies such as Impossible Foods and Beyond Meat raising hundreds of million dollars in funding and experiencing a surge in sales.

The explosion in plant-based meat products is considered in more detail in "Plant-based and Cultured Meat 2020-2030", but can be broadly attributed to three factors.

The first, and arguably most important factor is quality. Rather than just targeting vegetarians, plant-based analogue producer like Beyond Meat and Impossible Foods are targeting the 95% of consumers who eat meat. These consumers are less likely to compromise on quality for ethical reasons than vegetarians. As such, there is a serious R&D focus on product quality and exact replication of meat, something not present in previous generations of meat substitutes. The second factor is in the increasing availability of plant-based meat products, with plant-based products becoming an increasingly common sight in fast food chains. Finally, consumer perceptions of plant-based meat are an important factor. Plant-based meats are viewed as healthy alternatives to meat products, letting consumers continue to enjoy their favourite foods guilt-free. There is a megatrend towards conscious consumption – consumers are increasingly demanding products be sustainable and ethical.

A step beyond plant-based meat is the idea that animal cells can be cultured in a lab, allowing scientists to produce products completely indistinguishable from conventional meat, without requiring animal slaughter. Cultured meat, or "cultivated meat", has captured the world's imagination in recent years, with start-ups across the world racing to be the first to bring a cultured meat product to market.

In theory, cultured meat could solve many of the problems associated with the global meat industry. Growing cells in controlled facilities could significantly reduce the chances of disease transmission from meat production compared with the traditional animal agriculture industry, alongside various environmental and ethical benefits.

However, the industry is still in its infancy and there are many unanswered questions around cultured meat. Consumers are notoriously sceptical of

Chicken nuggets made from cultured chicken cells. (Image source: Memphis Meats)

biotechnology in food and the concept of lab-grown meat could be unnatural and unappealing. Additionally, although the technology for large scale is already established, it is currently extremely expensive, meaning a cultured burger could be hundreds of times more expensive than one obtained from a real cow. Finally, there is the issue of regulations. No regulatory regime in the world has yet approved a cultured meat product, and the approval process is likely to be arduous. Nevertheless, the industry is extremely optimistic that cell culture could soon replace animal slaughter as the world's main source of meat products.

Preventing further zoonotic outbreaks will be difficult and there is no single solution. However, both plant-based and cultured meat could be part of this overall solution, helping to reduce global demand for conventional meat products. Will either meat replacement capture significant market share from the meat industry in the next decade?

www.IDTechEx.com

INCREASING SANITATION AND REDUCING PLANT DOWNTIME AT FOOD PROCESSING PLANTS

High-Efficient Washdown Motors More Critical Than Ever

By John Calloway

As the world grapples with the effects of COVID-19, the food processing industry is under more pressure than ever to maintain sanitary conditions to keep workers healthy and food safe from potential contamination. In the United States, food delivery and processing plants have been deemed essential, and state and federal authorities are working to keep supply lines intact.

The World Health Organization weighed in on this important topic and issued a recent report, COVID-19 and food safety: guidance for food businesses, stating "The food industry should have Food Safety Management Systems (FSMS) based on the Hazard Analysis and Critical Control Point (HACCP) principles in place to manage food safety risks and prevent food contamination. Food industry FSMS are underpinned by prerequisite programs that include good hygiene practices, cleaning and sanitation...all the basic conditions and activities necessary to maintain a hygienic food processing environment[1].

Food processing equipment poses unique challenges for maintenance personnel. Wet operating conditions and wash-down requirements can require specially-designed equipment to help ensure mandated sanitation compliance. This results in increasing pressure for manufacturers to design food-processing equipment that

1 https://apps.who.int/iris/bitstream/handle/10665/331705/WHO-2019-nCoV-Food_Safety-2020.1-eng.pdf (accessed May 1, 2020).
2 https://www.wipfli.com/insights/blogs/manufacturing-tomorrow-blog/170628---the-real-cost-of-unplanned-downtime (accessed January 16, 2020).

is easier to clean and maintain, and that reduces downtime.

Millions of dollars are invested each year in capital improvements to facilities and equipment to increase product safety, protect employees and reduce costs. Equipment in a typical food processing plant may run 16 to 20 hours a day, every day. Often, equipment failure is the most common cause for downtime. The longer it takes plant personnel to respond and repair equipment, the more damaging the interruption. What's more, systems that are not at full speed create a domino effect that can result in missed deadlines, lost revenues and disappointed customers. Unplanned downtime can cost a food processing facility an astounding $30,000 per hour[2].

However, downtime can cost a company more than just money – it can be a logistical nightmare. The expenses and ramifications are simply too high for plants to risk equipment failures, particularly now.

The most vulnerable people around the world already face food crises. If food processing plants are forced to close due to equipment failures or contamination, the availability of food decreases, presenting even more challenges. These supply chains are vast and well-organized, but nevertheless vulnerable to disruption from storms, wars, droughts, and other systemic shocks—pandemics included[3].

Increasing Sanitation

While manufacturers are wiping down surfaces and increasing sanitation efforts, they also are realizing the value in adopting new strategies, such as the benefits of washdown motors. Food processing plants are a very difficult environment for motors due to the daily cleaning and sanitizing of equipment. Harsh chemicals like sodium hydroxide and other caustics are used to clean equipment and can be extremely corrosive. In addition to caustic chemicals, high pressure spray is used, sometimes up to 1000 psi with the nozzle held just a few inches away from the motor. While this ensures all contaminants are removed from the equipment, water enters these motors and does extensive damage.

Washdown Motors Reduce Downtime and Energy Costs

With rising costs for energy and labor, the need is greater than ever to optimize equipment reliability to maximize uptime and productivity. According to a 2018 McKinsey & Company report, McKinsey on Food Processing & Handling: Ripe for disruption?, "Customers are demanding machines that improve operational efficiency, cut costs, and increase uptimes…"

Food processing companies can help reduce food borne illnesses and operating costs through the use of encapsulated stainless-steel food safety motors. Unfortunately, because electric motors are often out-of-sight and out-of-mind until production is down due to a burnout this improvement is often not thought about. However, being proactive can have a dramatic effect

3 https://www.thenation.com/article/society/coronavirus-global-food-crisis/ (accessed May 1, 2020).

on the bottom line – and now more than ever, ensuring the continued and safe production of food.

A stainless steel washdown motor is suitable where motors are commonly exposed to moisture, humidity and specific chemicals that cause corrosion. With the use of washdown motors, flexibility and durability are enhanced, which can yield to minimal operating expenses while increasing uptime. Hygienic equipment design not only mitigates the potential areas prone to harbor bacteria, but it also facilitates post-sanitation evaluation by ensuring accessibility during visual verification and environmental monitoring.

Specially engineered stainless-steel motors also don't have a need for paint that could flake into the food, hold in moisture and hide corrosion. They are of "Totally Enclosed, Not Ventilated" (TENV) design, which means that they do not have a fan and fan cover, which are both difficult to clean and could be the breeding space for bacteria. For example, replacing all painted, standard motors on a plant's conveyor belts – particularly in the processing area – with 2 HP stainless encapsulated motors allows for far greater reliability, particularly in these extreme conditions [of a food processing plant].

According to IndustryWeek, while electricity is the largest energy cost for most food and beverage plants, it also offers the greatest opportunities for savings and can deliver the fastest payback. Electric motors used in production facilities with conveyors are almost always on, driving the energy bill higher. The typical industrial plant can reduce its electricity use by around five to 15 percent by simply improving the efficiency of its motor-driven systems[4]. Committing to running a more energy efficient food manufacturing plant takes work, but the payoffs are well worth the energy, time and money that are put into it.

Manufacturing facilities in the U.S. spend $200 billion annually to power facilities yet, by not implementing good energy management processes, the same companies waste nearly 30 percent of that energy[5]. High-efficiency washdown motors reduce energy costs, improve plant efficiency and load factor, and lessen maintenance costs.

Conclusion

The Food and Drug Administration's Deputy Commissioner for Food Policy and Response, Frank Yiannas, recently assured Americans that "the U.S. food supply remains safe for both people and animals. There is NO evidence of food or food packaging being associated with transmission of COVID-19[6]. While this is incredibly reassuring, it is critical that plants do not shut down due to contamination from machinery that is not properly cleaned.

Food processors play an essential world-wide role in helping to ensure short- and long-term food security during these unprecedented times. Through the installation of energy-efficient washdown motors, food processing plants can move from reactive to a more controlled, predictive maintenance approach and help improve sanitation and extend machine life.

About the author:

John Calloway

Product Manager for the Commercial Distribution business segment and leads the team responsible for Regal's portfolio of small motors. Regal Beloit Corporation (NYSE: RBC), based in Beloit, Wisconsin (USA), is a global leader in innovative solutions that convert power into motion for customers in industrial, commercial and consumer markets around the world. The company is comprised of three business segments: Climate Solutions, Commercial and Industrial Systems and Power Transmission Solutions.

4 https://www.grainger.com/know-how/industry/food-and-beverage/kh-seven-ways-food-and-beverage-companies-can-conserve-energy-and-save-money (accessed January 19, 2020).
5 Ibid
6 https://www.fda.gov/food/conversations-experts-food-topics/fdas-perspective-food-safety-and-availability-during-and-beyond-covid-19

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SULTAN ET AND SEALPAC JOIN FORCES IN TURKEY TO LAUNCH MODIFIED ATMOSPHERE PACKAGING FOR FRESH RED MEAT

Mustafa Bilikçi, CEO at Sultan Et Predicts strong growth in MAP, based on his experience as Chairman of the Turkish Red Meat Association.

Leading manufacturer Sultan Et (www.sultanet.com), located on the outskirts of the city of Ankara in Turkey, has been producing high-quality meat for almost 50 years. In 2017, the company introduced a new range of fresh red meat products in trays under modified atmosphere. We spoke with Mustafa Bilikçi, Managing Director at Sultan Et, about the challenges and benefits of this recent project, for which he joined forces with SEALPAC and its Turkish distributor Feyzi AS (www.feyzi.com.tr).

Still a Family Company

Sultan Et was founded by Mr. Ahmet Bilikçi, together with his brother and two aunts, in 1973. At the very start, their production area measured just 500 m² and focus was on producing a small selection of delicacies, such as sucuk (typical dried sausages from Turkey) and pastrami, primarily for the Ankara region. This was done with 40 people in total, who were producing approximately 75 tons per month. At that time, prepackaging of meat was not so much relevant in Turkey yet.

In the year 2000, the second generation entered the company. Mr. Mustafa Bilikçi, son of the founder, took up the position of CEO. Since he was 10 years old already, he had been working in the company as a 'trainee' under the care of his father. With the impulse of the new generation, the company grew quickly and its activities spread across Turkey. Investments in new equipment were made, while its product range was extended with salami, sausages, hams, roasts and smoked meats. As consumer behaviour in Turkey had changed, those products all had to be pre-packaged for sufficient shelf life, so several new deboning and packaging lines were acquired. Furthermore, offices and warehouses were opened in for example Istanbul, Antalya and Izmir.

Successful by Nature

Nowadays, the company has approximately 230 employees, most of which work in the meat factory in Elmadağ. In 2019, a second office in Istanbul was opened, bringing the total to six. As such, Sultan Et expects to grow to 300 employees soon. Mustafa Bilikçi: "Where there used to be 600 different meat manufacturers in the Ankara region several decades ago, today there is really only one leader: Sultan Et. Why? Because my father, based on his 40 years of experience, taught us to be honest, to focus on our core business, to reinvest any money earned into the company, and to provide the highest meat quality possible by using the best technology available. That is our family culture. It makes us one of the top 1,000 industrial companies in Turkey!"

The Sultan Et factory: Two complete line solutions for modified atmosphere packaging of fresh red meat.

Sultan Et applies a strict quality assurance system according to FSSC 22000 in its production. The company controls each step in the process, from acquiring carcasses to delivering finished products at retail. Its red meat is selected from domestic cattle breeds that are raised in well-chosen parts of Central and Eastern Anatolia plateaus. As the company's website states: 'We are manufacturing products that everybody can consume safely and share with loved ones.' These days, Sultan Et is producing a wide variety of processed and fresh meat products, such as pastrami, sausages (including sucuk), döner, salami and various types of sliced meat. Primary focus is on beef, veal, lamb and poultry, including offal, which are sold under the brand names Sultan, Serdar and Anadolu.

Teaming up with Feyzi and SEALPAC

Main business of the company is fresh meat, although a small part is also frozen product. The latter concerns the Antalya region, where Sultan Et is supplying around 300 first-class hotels with large meat cuts. In fresh meat, the company is producing approximately 1,100 tons per month, divided in vacuum packaging and MAP. This second packaging system was introduced only recently. As Production Manager Murat Byikli explains: "In the year 2012, we started investigating the possibility for applying modified atmosphere packaging to our fresh meat.

Fresh red meat cubes Packaged with a mixture of CO^2 and O^2 for optimal shelf life.

For this project, we teamed up with Feyzi. Finally in 2017, based on their advice, we invested in a new line for packaging minced meat and fresh red meat cubes under MAP."

With 53 people, including 18 technicians across the country, and being a proud representative of major brands in food manufacturing, such as SEALPAC, Feyzi has been at the service of its clients with slaughtering, deboning, cutting, further processing and packaging lines for over half a century. It offers a full-service package, including consultation,

Murat Byikli,
Production Manager at Sultan Et Proudly showing red meat cubes in MAP trays at the SEALPAC A7.

design, installation, training, spare parts, maintenance and repair with regard to the equipment it supplies.

Confidence to Invest

Mustafa Bilikçi: "In the poultry industry in Turkey, SEALPAC is the market leader in terms of tray-sealing equipment. We knew that from our contacts with well-known companies such as Beypi and Erpilic. For some reason, it had not been able to enter the red meat segment just yet. However, our company highly values equipment manufactured in Germany. Within our factory, we have approximately 80 different brands of equipment, but 95% of them are made in Germany. This is why we involved SEALPAC in the decision process. We visited their factory in Oldenburg, as well as a reference customer. This in the end led us to invest in the new line with a SEALPAC A7 traysealer in 2017. "

SEALPAC A7 traysealer
Provides flexibility, yet achieves high outputs.

Mustafa Bilikçi continues: "Feyzi played a central role in the project. Our contact person, Mr. Serkan Atay, has a personal style that matches our company culture. He knows the market extremely well and is different from other suppliers. Where they tend to only emphasize their advantages, Serkan carefully compared the advantages and disadvantages of all the equipment offered. This gave us the necessary confidence to make the investment."

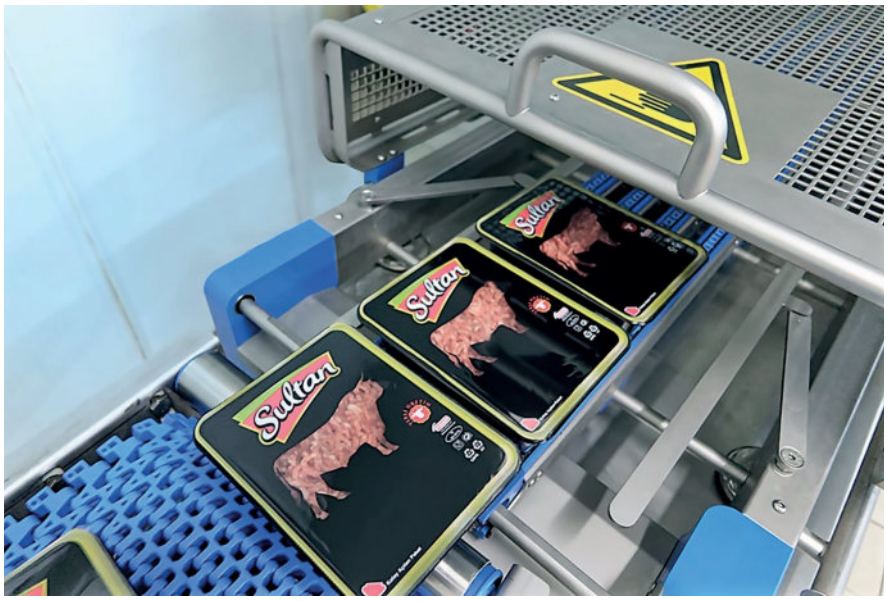
Serkan Atay, Sales Director at Feyzi, with Mustafa Bilikçi, CEO at Sultan Et
Proudly showing minced meat in MAP trays at the packaging line.

Flexible, Yet High Outputs

After running the line for approximately one year, and seeing the success of the MAP products, a second line with SEALPAC A7 traysealer was installed by the end of 2018. Both lines consist of processing equipment (e.g. mixing and portioning), a denester, check-weigher, metal detector, labeller and printer. Murat Byikli: "Feyzi helped us

by designing the lines in such a way that they would fit in our limited production space, and by achieving optimal synchronization of all the steps in the production process. Another important issue for us is maintenance. Here, we knew Feyzi would be able to offer us excellent service, whilst SEALPAC equipment is known for its low spare parts usage."

The A7 traysealers and their unique tooling quick exchange system provide Sultan Et with the required flexibility to run different batch sizes with minimum changeover times, yet still achieve high outputs. Both machines in the factory are equipped with servo technology, hence requiring less maintenance and reducing air consumption by up to 90%. Stainless steel doors and covers allow for optimal hygiene and easy cleaning. Murat Byikli adds: "And most important, the SEALPAC traysealers are extremely operator-friendly."



InsideCut sealing
For a highly attractive presentation at retail.

Growing the Market

Sultan Et currently runs two different tray sizes (190 x 144 and 275 x 175 mm) on the MAP lines. Each tray is sealed with InsideCut technology for an excellent appearance at retail and has a peel tab for easy opening by the consumer. By applying a gas mixture of CO^2 and O^2, the shelf life of the products is between 8 to 10 days. Products are primarily sold at retailer BIM, which has almost 7,000 stores across Turkey. Around 170 own refrigerated trucks deliver Sultan Et's fresh meat across the country on a daily basis. With the second MAP line installed by the end of 2018, production volume has now doubled, hence opening up possibilities for supplying more customers.

Some years ago, Mustafa Bilikçi was chosen as the youngest president of the Turkish Red Meat Association (www.etbir.org) at the age of 35. This organization represents the Turkish red meat industry, for example with regard to political decisions and regulations. After serving for two years, he was re-elected for another two years, only to step down on January 1st 2019. He was also the Chairman of the National Red Meat Council (www.ukon.org.tr), a joint venture of meat manufacturers, farmers, universities and consumers, for two years. One of its priorities is establishing sustainable food production in Turkey. Based on his extensive market knowledge, Mustafa Bilikçi predicts a strong growth in modified atmosphere packaging in the coming years: "In 2017, red meat consumption in Turkey was around 1,3 million tons per year, off which only 1,000 tons per month in MAP. We expect the annual red meat consumption to reach 1,5 million, with MAP making up at least 25%. Not only because Turkish consumers get more used to modified atmosphere packaging, but also because standardization and hygiene in Turkish meat production is improving. Therefore, we expect to see our MAP products on more and more retail shelves in the near future!"

www.sealpacinternational.com

A MULTI-PARAMETER SYSTEM ALLOWS FOOD PRODUCERS COMPREHENSIVE QUALITY CONTROL

NIRS Enables Simple Analyses

Within the framework of INNO-KOM and ZIM-funding projects, the foundations were laid for the application of modern measuring methods - e.g. based on near-infrared spectroscopy (NIRS). On this technological basis and a systematic development in the field of bioanalytics, the fzmb - Research Center for Medical Technology and Biotechnology - from Bad Langensalza was able to launch a novel NIR spectrometer system on the market, in which the most modern components of microsystems technology were consistently used.

By Alexander Mücke

Topics such as food safety, digitization and networking of operational data, simplified processes and increased user-friendliness are in the focus of public interest. More effective routine controls are aimed at documentation and data availability. Innovative product ideas are in demand. One of these is the mylab, a small device based on near-infrared spectroscopy (Fig. 1). It represents a whole series of results from research projects, which are often processed at the fzmb inquired from industry.

The fzmb has a wide range of activities and focuses on spectroscopy, bioaffine application systems, tissue engineering and point-of-care test systems. The building complex includes a veterinary clinic for horses and cattle as well as a small animal practice. Chemical and microbiological analyses of food with animal and plant origin as well as drinking water are edited in the in-house accredited laboratory.

Characteristics and Properties

The mylab is encased in a splash-proof housing and has only one button for user-friendly handling.

Fig. 1

The table-top NIR analyzer is pre-calibrated for analysis in the meat processing industry. The real-time results are immediately documented with high accuracy. The values can be exported as Excel or PDF files. A further advantage is that no chemicals are required and the measurement is non-destructive.

The software used on the device is constantly evolving. Products and product groups can be created in the program item Administration. The TeamViewer also enables remote access. Due to the extended user administration it is even possible to assign rights via the user profiles. The export of measurement results and remote maintenance can be done via USB, LAN or Team Viewer. What is unique for the user is that the software can be extended by other product groups in addition to the actual basic calibration in order to meet future quality requirements. It is also possible to switch to other product groups at any time. On request, corresponding feasibility studies are planned and executed directly with the potential user.

Special technical parameters are the compact size and the low weight. The scope of delivery includes sufficient petri dishes made of special glass for solid and liquid samples. The large measuring field diameter (55 mm) is well suited to compensate the partially inhomogeneous sample compositions even without the use of a sample rotator.

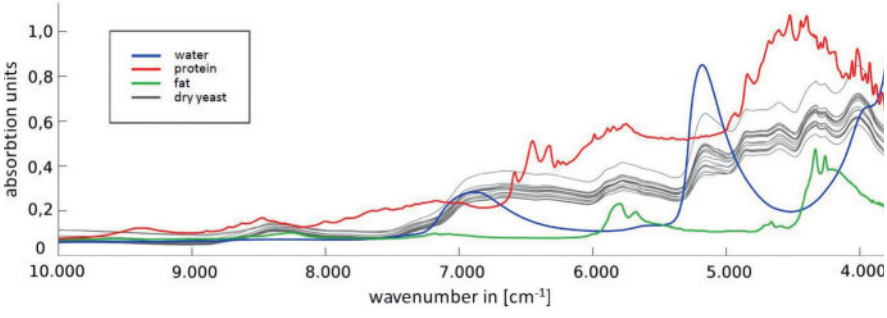
Petri Dish Variant A

Petri Dish Variant B

Complex System

But how does the device work? The core piece is the spectrometer module. Light is electromagnetic radiation. If this hits a medium, scattering and absorption occurs inside. The diffuse reflection or transmission can be measured using appropriate detectors. Sought is the proportion of light measured after the interaction. The energy is absorbed by the substance to be examined and stimulates the molecules to vibrate. The energy deposition happens for each material via characteristic spectral absorption bands, so that their absorbance can be used as a measure of the analyte concentrations. The specific absorbance of the sample thus characterises the chemical composition and physical properties. The mylab measures the reflected intensity with an InGaAs diode array at wavelengths of 950 to 1900 nm and a resolution of less than 8 nm. Since the spectra can hardly be distinguished with the naked eye, the system calibration is very time-consuming. The solution is the so-called chemometric modelling. The qualitative evaluation is done by the position of the spectral bands (analytic identification) and the quantitative evaluation by their amplitude and shape (statement about the concentration). The basis for modelling is the spectral data and the chemical analysis (laboratory results) of a large number of samples of a wide variety of meat and sausage products. For pre-processing, the spectra must be made distinguishable and adjusted for non-relevant influencing factors. This is done by standardization and various signal processing steps. Wavelength ranges carrying information are selected, outliers are eliminated. Then the step-by-step signal analysis can begin.

Fig. 2



An interpretation of the relationship between the spectral properties and the concentrations of the target parameters is sought (Fig. 2). Despite expert knowledge and sensory capabilities, reference values from laboratory tests reveal statistically verifiable errors. It is particularly important to select a sample pool that is representative of the corresponding production as the basis for modelling. In doing so, attention should be paid to a sufficient variance of the target parameters within the calibration data set. The reference investigations should always be performed with great care, if possible as a double determination, in order to be able to identify potential outliers

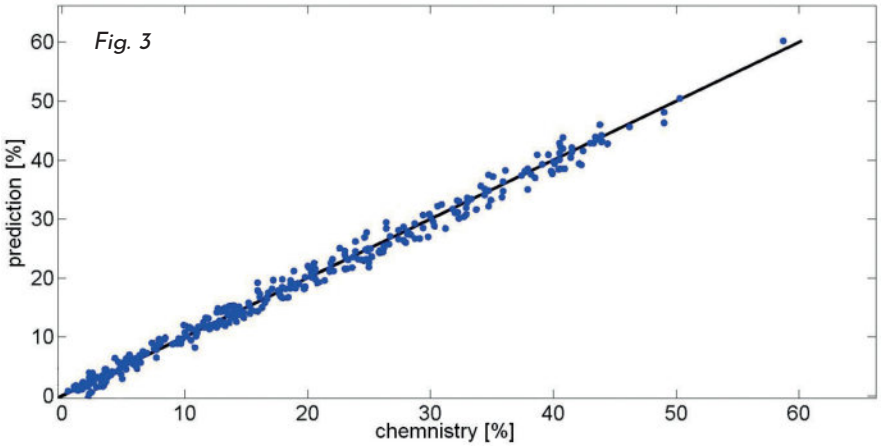


Fig. 3

already before the modelling and to obtain reference values with maximum possible analysis accuracy.

A regression coefficient is required. It converts the spectra into the desired analyte concentrations. Complex multidimensional data sets are evaluated, which is very time-consuming. The challenge in the evaluation is that large ranges of values within the target parameters often have non-linear relationships to the spectral properties of the sample. This can result in problems during the modeling process. The use of artificial intelligence in the form of neural networks represents a technical innovation and clarification for this problem. Artificial neural networks are information processing systems. Via the activation of "cells", information is transmitted via weighted connections. Certain learning processes take place by adjusting the weighting. The aim is to adapt the weighted connection for a good approximation of the relationship between spectra and reference values (iterative training with an error function). One advantage is that regression models can be trained automatically, which leads to a significant reduction of effort and software support. Looking at the regression plot (Fig. 3), which shows the quality of a model at first glance, all deviations should be nearly zero.

Individual Analytes

With the calibration model created by the fzmb experts, the individual instrument software for each user and for each of his products is then individually extended or

Measuring Procedure

adapted. On the result screen, all analytes (21 for meat and sausage) that have been calibrated or calculated from calibrated analytes will appear. The more homogeneous the sample, the more meaningful the analysis result will be. This is necessary because naturally grown batches of meat have significantly different proportions of meat protein,

Calibrated and Calulated Parameters

connective tissue and fatty tissue. Thanks to the already mentioned measuring field diameter of 55 mm, it is nevertheless possible to achieve good results even with macroscopically still easily recognizable meat components.

Suitable for Meat and Sausage Products

The calibration model "Basic calibration of meat and sausage products" is used for the evaluation of samples. Since the spectra can be easily categorized on the basis of different characteristics (expression of the absorption bands of different functional groups in the near infrared), mylab has been switched to a self-organizing neuronal network to make allocations according to the spectral properties of the analyte in demand. Then the appropriate group-specific modelling occurs. The homogeneous distribution of the data within the analyte value ranges improves the measures of quality (RMSECP-Root Mean Square Error of Prediction, R^2 as the declared proportion of variance). For some parameters, even the complete calibration data set with the maximum value range is used. This multivariate method also makes it easier to analyze new products without fine calibration. The fzmb only accepts very high correlations for all parameters. By considering a recommended measuring procedure, a measuring accuracy in the field of chemical analysis can be achieved. The near infrared measurement with the mylab and the chemical analysis of the calibration samples should be performed simultaneously. The chemical analysis is performed with accredited methods, great care and if possible as a multiple determination. The sample temperatures should be kept constant during measurement and the composition of the calibration samples should cover the entire variation range within the product to be calibrated.

Product Aging and Germ Count Determination

In the food processing industry there is great demand for rapid microbiological analyses to estimate the shelf life and possible uses of individual raw materials. Therefore, the fzmb supervised and edits a bachelor thesis on "Analysis of the total bacterial count in heterogeneous sample matrices using near-infrared spectroscopy - a feasibility study" for the food safety course. The results of this work were honored by the Junior Researcher Award 2018. Minced meat samples of beef, pork and turkey from different marketers were examined. The results of these initial investigations suggest that it is possible to determine the total germ count in food using NIR spectroscopy. Further investigations will validate the results and characterise the influence of different sample matrices.

About the autor:

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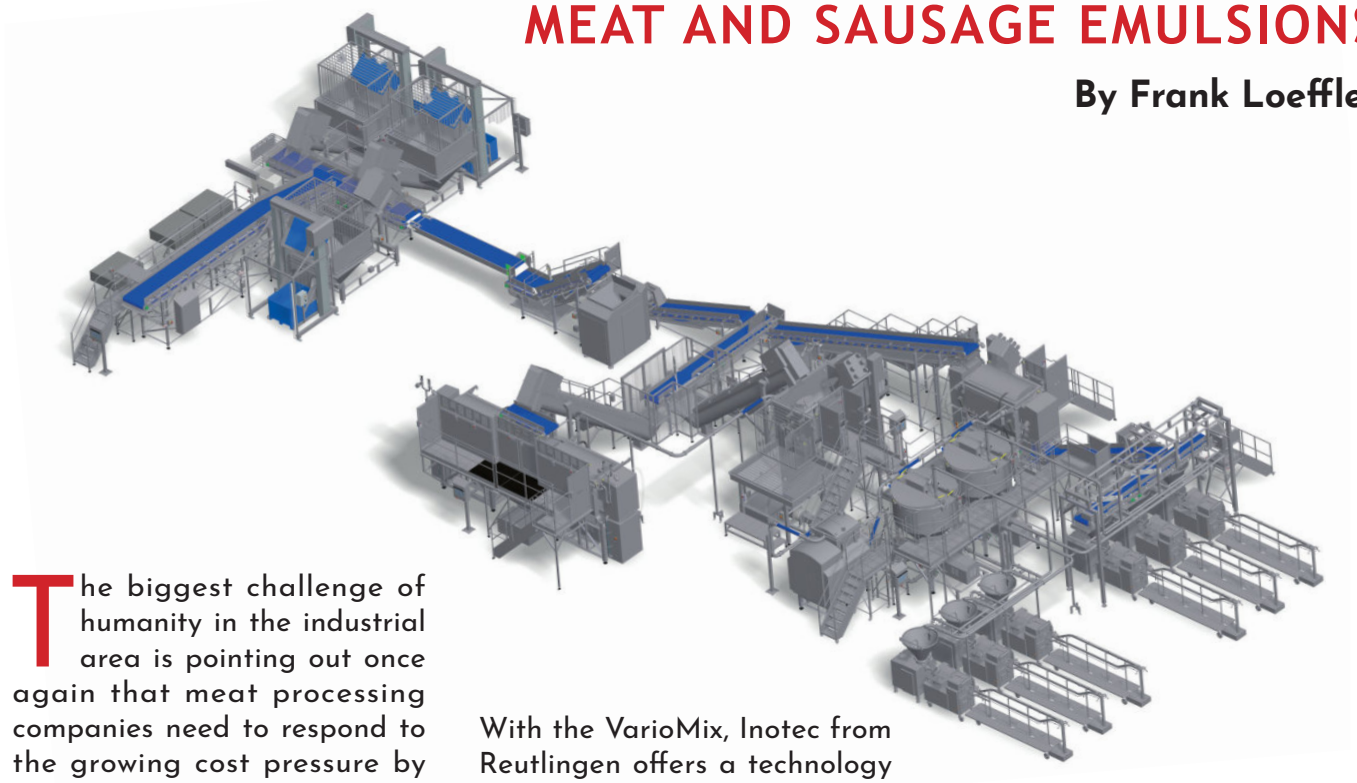
Dipl.-Ing., studied at the Institute for Biomedical Engineering and Computer Science at the TU Ilmenau. After working as a medical physicist at the Südharzklinikum Nordhausen, he moved to the Research Centre in Bad Langensalza in 2019. As a research assistant in the Department of Bioinstruments and Device Development, he is currently working on spectrometric methods for solving measurement problems in the fields of food analysis, pharmacy, medicine and analytics.

MODERN PRODUCTION OF FINE MEAT AND SAUSAGE EMULSIONS

By Frank Loeffler



The biggest challenge of humanity in the industrial area is pointing out once again that meat processing companies need to respond to the growing cost pressure by opting for efficient mixing and emulsifying solutions. For the processing of frozen and/or fresh raw materials, the finished fine sausage meat is obtained in a cost-effective way. In order to achieve a continuous production flow, several components can be combined to form a continuous line.

The production process begins with the reception of the raw material, which in the case of frozen blocks is manually unpacked on a table and then often previously size reduced. Then, this hard material is chopped or pre-ground. Cooled fresh meat is usually soft enough to be fed directly to the mincer via a lifting and tilting device or a conveyor belt.

Mixing Ensures Uniformity

The raw material preparation is followed by mixing. In this step, ground raw material is fed directly to the mixer by a screw conveyor or indirectly via a container. With the VarioMix, Inotec from Reutlingen offers a technology that at the time of its introduction set new standards in terms of speed, homogeneity and mixing quality. The dry ingredients are fed by powder dosing devices or containers and ingredients such as water or liquid seasoning are added to the mixture by means of liquid dosing devices. Ice or hot water may be used to adjust the temperature of the pre-blend sausage meat. For pre-blend sausage meat, vertically offset and intermeshing paddles have proven to be an effective and economical detail of the mixer's design. If the shafts are configured in this way, mixing takes place over the entire length of the mixer vessel. Narrow and long mixers also have a positive effect on effectiveness (short mixing time to produce a homogeneous mixture), because the paddles are located close to the shaft and no dead spaces are created by long paddle arms. A novel, special outlet design and the paddle geometry remedies the weak point of this mixer geometry, i.e. "discharging of relatively stiff and viscous masses".

Two Mixers Ensure a Continuous Workflow

In order for the subsequent emulsifier to work continuously, two mixers should be used. One mixer is fed or emptied while a second mixer processes the pre-blend sausage meat. The alternative is a large buffer tank equipped with a feed pump downstream of the mixer. This allows the mixer to be emptied quickly and made available for a new batch. As a result, processing and filling can also be spatially separated. The pump conveys the pre-blend sausage meat via pipes to an emulsifier located in the filling plant close to the filling machines where it is finally processed and delivered to the fillers.

In order to produce cost-effectively and continuously, Inotec emulsifiers are used in a production line. For fine sausage meat, these emulsifiers can be equipped with a hopper on the inlet side. They can also be used below existing bowl cutters, because this version is designed with a low overall height. Inline cutters are often also used in automated production lines. The product to be cut is hygienically fed to the emulsifier via a pump in a closed pipe system. In this system, the feed pressure and the product outlet temperature are controlled by the speed of the upstream pump.

Vacuum emulsifiers operate with an adjustable process vacuum, are also fed by a feed pump and comprise a mixer and a feed system that forwards the product to the automatic cutting set. In terms of binding, bite and machine performance, systems with four cutting stages that work with rotating blade heads (with three or six blades) and graded perforated discs (from coarse to fine) have proven to be particularly suitable for emulsifiers. Since IFFA 2019, all Inotec emulsifiers have been operating at a variable speed, i.e. "VarioSpeed". The most important functions of the new "I225iT-V" vacuum emulsifiers presented at the leading trade fair for the meat industry are to ensure compactness, texture and bite of the finished product. When slicing, it is also important that the cross cut section is free of air bubbles. Compact sausages are better suited for the slicing process because they are very homogeneous and therefore do not show any differences in firmness. With the new perforated discs of the type "Advanced", unprecedented results can be achieved in terms of wear and product safety. A special alloy of tool steel developed by Inotec does not react to common additives and has an extraordinarily high degree of stability. As their wear behavior is extremely even, the operating life time of these blades is also significantly longer than that of standard blades. The perforated plates of the type Advanced, are compatible with all of the company's types of emulsifiers and Inotec's stainless steel blades are the best choice to ensure economical operation and high product safety.

A Line is More Than the Sum of its Components

Last but not least, it should be mentioned that a production line is not just a series of individual machines. Only an integrated higher-level control system featuring recipe management, flexible process steps and data storage options for batch traceability guarantees that a meat processing company can make the best possible use of its chosen level of automation.

A growing number of food processors include vegetarian and vegan products in their range. Due to the small batches that are usually produced in this area, compact yet powerful machines and systems are required that also enable product changes in the shortest possible time. To meet these requirements, production and the equipment must be flexible.

The new VarioMix with tilting vessel type "IKVM500VAC" is the ideal choice for gentle and universal processing of meat and vegan or vegetarian foods in small batch sizes. Mixing is carried out with the patented VarioMix technology, which is equipped with two interacting, separately driven spirals. These spirals can be used in counter-rotating or synchronous directions, allowing the mixer to operate within a range varying from aggressive to extremely gentle. A precisely adjustable vacuum and the Process Sequence Control also make it possible to massage ham and

other cooked cured products. The tilting angle can be adjusted to different product viscosities. The vessel can be swiveled in a wide angle to ensure the best possible evacuation and easy cleaning after each batch. Since no hydraulics are used in the geared motors, there is no risk of contaminating the production area with hydraulic oil.

Integrated production units are the trend. Thanks to the modular design of the emulsifiers type "I175" and "I140", these universal machines can cover the entire production process of many products with one machine. They are therefore also suitable for the production of niche products (e.g. halal, kosher, vegan, etc.) in various food markets.

The compact systems offer cooking functions with direct steam injection, vacuum, mixing, cutting and conveying into the filling machine or into a silo. With process containers from 270 to 600 l, up to six batches can be produced per hour. These machines give the operator a great deal of freedom in terms of flexibility. The systems are suitable for smoothies made from vegetables or fruits, processed cheese products, spreads such as vegetable, meat and fish pastes, baby and hospital food.

Prospects

Against the background of industry 4.0, Inotec already offers a wide range of options and visions. Many of the machine components used help to utilize control technology in the best possible way and to optimally evaluate production parameters. This gives meat product manufacturers a high degree of user safety and future-proofness, even with changing product portfolios.

About the autor:

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Dipl.-Wirt.-Ing., is a commercial and technical employee at Inotec and is responsible for sales of food production machines.

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SOY PROTEIN AND THE ECOSYSTEM

By Henk Hoogenkamp

The upside of soy is that the crop contains the highest protein and oil content. The downside is that soy has only four main harvest regions - US, Brazil, Argentina, and Paraguay – mostly due to climate restrictions.

A vast area of virgin forest is lost to the unrelenting expansion of soy agriculture in environmentally sensitive areas. The forests cover about 30 percent of the planet's landmass –but they are disappearing at an alarming rate. For example: between 1990 and 2020, there has been approximately a 4 percent decline in forested land globally –that equates to 1.3 million square kilometers, or an area roughly the size of South Africa.

Increasing meat consumption is the main driver of soy farming expansion. Depending on geographic region, a staggering 75-95% of the world's soy crop goes into animal feed. Well over 90 percent of the soy imported into Europe is used for livestock feed. The ongoing heated GMO debate makes matters more complicated, though there are clear signs of a change of focus towards an ecological and sound sustainability. Increasingly, informed consumers blame, and now voice their frustration towards soy-related destruction of wildlife habitat. To be fair and balanced, it is also true that people generally care more about their personal health than wildlife destruction and greenhouse gas emissions.

Brazil, Argentina, and Paraguay together supply 73 percent of the EU's soybean. In 2018, some 24.8 million tons of soybeans were imported into the EU, but less than 3 million tons were produced within the EU borders. In other words, it is estimated that about 16 million hectares of land are required outside the EU to feed its livestock sector. This is equivalent to approximately 90 percent of Germany's entire agricultural area.

Transparency

Leading food retailers are increasingly pushing for soy traceability, sustainability, and transparency in their supply chain. Actually, the drive towards transparency for soy is only the beginning. The only way to accomplish sustainable sourcing is through legal binding contractual long-term supplier engagement. Traceability and regionalization of soybeans will be of key importance for premium branded foods such as Alpro's (Danone) soymilk and Impossible Foods, as well as for the rapidly growing popularity of plant-based meat alternatives.

To ease consumer concerns, it will be crucial to shorten the supply chain to limit the transport footprint, as well as avoid reputational risks and social media backlash by the millennial consumers. After all, GM soy issues, health concerns related to soy's genistein estrogen facts and fiction, and deforestation are topics premium branded food and beverage companies rather avoid publicly discussing. Instead, companies using soy proteins rather tout the green credentials to create positive marketing awareness. Speaking of which, the Impossible Burger is now formulated using genetically engineered extruded soy protein concentrate and a genetically-engineered yeast to manufacture its star 'leghemoglobin' ingredient used for coloring and flavoring.

European Soy Farming

Ideally, soy and other leguminous crops should not be grown in monocultures and a diversity of varieties should be part of the scheduled annual plant rotation, while avoiding or minimizing the use of artificial pesticides. Going forward, the EU will likely boost the amount of soy grown regionally in Central and Eastern Europe and

reduce the dependency of imports from South and North America.

There are positive signs that the EU is increasing domestic production of plant proteins, including soy. Yet, the reality is that the EU is only 5 percent self-sufficient with an annual production of 2.8 million metric tons of soybeans. As diets shift towards more flexitarian and vegetarian eating, food companies can now look towards sourcing regionally-harvested non-GMO soy to be used in the rapidly increasing portfolios of plant-based meat products. Unfortunately, as demand for European-grown soybeans grow exponentially, it remains a fact that there is simply not sufficient farmland available to meet the demand. Subsequently, companies insisting on using European-grown soy protein will have to pay a premium.

Public Relation Challenges

Increased public disclosure of soybean cultivating practices does not bode well for soy protein as consumers become aware that the soy protein supply chain is linked to climate change and deforestation-related risks. In relation to deforestation, it is estimated that -by leveraging drone and satellite technology- approximately 15 percent of carbon emissions (GHG) can be associated with the typical western-style diet.

Soy protein companies can no longer hide, now that environmentalists use new drone and satellite tracking technologies to prove deforestation in real time. This can cause reputational risks for global food companies such as Nestle, Unilever, Kellogg's, as well as the many emerging "plant meat" companies.

Another issue that continually bothers the soy plant protein industry is how to successfully separate public image and awareness of soy protein in formulated processed meat products and its upscale use in health food and nutraceuticals, as well as its use in premium plant-based meat alternatives. Even though the processed meat industry is by far the largest category user, US soy protein companies go to great lengths to de-emphasize their association with their biggest market. They specifically focus on high-profile applications of soy proteins in products like nutri-bars, diet formulas, soy-based beverages, and infant food. In truth, the processed meat industry is not only considered a marginal business but also viewed as a potential public relations risk. Obviously, the US soy industry does not want to be associated with another "meat scandal" that surfaces as Breaking News. To top it off, marketing the same ingredient at vastly different prices to different market segments in the Internet age creates more questions than answers.

It is clear that the traditional marketing communications, including public relation press releases, are losing their power to educate most of the supply chain, including the consumers. The rule of thumb is that the higher the price of a food or nutraceutical ingredient, the greater the risk and volatility of the external competitive threats. Specifically, companies with few ingredients in their portfolio are vulnerable to changing consumer perceptions and expectations.

Industry observers partly attribute negative messaging as to why North American meat processors have not fully embraced functional soy protein for use in hotdogs, burgers and cooked hams. There is some truth to that observation because, even with the impact of food/feed/fuel competition, lean meat is still an affordable premium protein source that consumers in affluent societies can afford.

Yet, in most developing countries with many formulated meat products, soy protein has become a marker for cheap, highly processed, artificial, and thus, unhealthy products. For applications in highly processed food and meat products, the collective soy protein industry must go back to the drawing board to design a new platform of consumer education and communication. The main mission is to improve its lackluster reputation and image. Modern consumers are truly confused by the barrage of touted soy health benefits, which has resulted in a public relations nightmare. It will take much effort to win back the trust of the consumer. The millennial consumers in particular, have spoken and championed the shift toward a new plant protein –one that has not been GMO-treated to withstand a barrage of herbicides.

Soy Legacy

Over the years, the soy plant protein industry bombarded its consumer base with too many conflicting health messages while loading up meat products with excessive amounts of soy protein inclusions in developing countries. For these applications, soy has never been really popular, particularly in the US, Canada and west-European countries. Also, the pressure on soy protein is increasing because people associate it with allergies, the Amazon destruction and GMO -the latter still a formidable barrier. The zeitgeist has caught up with the soy protein industry, and perhaps the answer is to look into the growing trend towards more natural food, and especially the huge growth of plant-based meat alternatives. Another interesting product category to watch is the introduction of so-called hybrid foods like blends of meat and plant protein that simulate traditional meat products such as chicken nuggets and burgers.

Presently, the amount of food information sent out on a daily basis is huge. It is unfortunate that so many negative soy protein news flashes get circulated, much of which has not been properly substantiated or scientifically validated. Quite a large share of the information is repetitive and often conflicting. As a result, a majority of the consumers are simply unable to sensibly internalize the content. They get confused when weighing the pros and cons, and subsequently cannot conclude what is true or false. It is a shame –and a curious thing- that the US-dominated soy protein industry has such a myopic view of its ingredient that it fails to communicate its advantage. This has a considerably negative effect on consumer perception and trust.

Soy Going Forward

Besides the health benefits of many protein ingredients, proteins are also greatly in demand for their ability to texturize, emulsify, gel, foam, stabilize, and provide structure. Protein ingredients are either of animal or plant origin like cultivated algae. Innovative protein ingredients, usually the result of separation and purification from their original native source, are often additionally treated with enzymes. This is done to influence or modify specific amino acid sequences to obtain certain organoleptic and performance characteristics. All proteins are composed of a sequence, or building blocks of amino acids, which determine a protein's physical properties like molecular size and charge, solubility, as well as isoelectric point. The specific protein's isoelectric point is the pH, at which the molecular charge is neutral and therefore no longer soluble in water-based solutions.

Soy protein is also associated with the use of high amounts of clean water, hexane, and some chemicals during the purifications

process. The popularity of natural foods will have some damaging effects on the use of traditional soy protein ingredients. Instead, in-kind competition by modern fractioning technology to separate the plants components, i.e. protein, carbohydrates, and fiber are making rapid headway. Fractioning is a dry system in which neither water nor chemicals are needed to separate the nutritional components. Besides addressing the preferences of the consumers looking for natural food products, dry fractioning requires significantly less investment and typically allows a protein concentration between 50 and 60%.

Soy Intrinsic Value

"Once you have seen one protein, it does not mean that you have seen them all." Not all proteins are alike - some are digested and absorbed more rapidly while others may favorably impact metabolism and glucose control. Also, organoleptic and application performances are often hugely different with each type possessing specific characteristics.

Protein, being complex and intriguing, will provide both challenges and solutions for innovative research and development. In formulated foods, proteins are usually part of a complex matrix of other macro-components such as fat, carbohydrates, fiber, and flavors. The interactions among these components ultimately deliver the desired product attributes. Different amino acids produce different results and, with all things being equal, can directly influence the desirable end product specifications.

The fact is that the main value of soy protein is related to its relative low-cost structure. This is not only when compared to meat, egg and dairy proteins, but also related to other forms of plant protein ingredients derived from pea, mungbean, fava, rice and wheat. The biggest advantage of the soybean is the significant presence of both protein and oil. This allows the soy industry to capture value from not one, but two important dietary components. For global food security and affordability, the low-cost advantage is the most important key benefit of soy protein, not its perceived health benefits.

About the author:

Henk Hoogenkamp

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PROCESSING WATER TREATMENT SOLUTIONS FOR THE POULTRY INDUSTRY

Reuse of Process Water Reduces Footprint of Food Processing

Given environmental requirements on the one hand and the scarcity of water in some parts of the world on the other, the treatment of wastewater has become a very important topic in the poultry industry. Wastewater treatment helps reduce the water footprint of poultry processing. Being a full-line supplier, Marel Poultry is able to supply made-to-measure water treatment solutions. These cost effective and energy efficient systems solve the many complex challenges posed by wastewater disposal.

Poultry processing plants use water to transport offal, to wash product and to clean machines and rooms. Every plant has to take care of its wastewater, which obviously cannot be released untreated into a sewer, into ground or surface water (ditches, rivers, ocean). Marel technologies have already succeeded in reducing considerably the use of water per processed product. The next sustainable step is to bring the water used back into the process, a task for Marel Water Treatment.

Fit for Reuse or Discharge

Waste process water from a poultry processing plant can contain elements such as proteins, fats, carbohydrates, blood, feathers, meat particles, residual acids, metals, and chemicals. Wastewater should be treated to remove of such pollutants (contaminants). By purifying, i.e. removing some or all of the contaminants, Marel Water Treatment makes the water fit for discharge to the sewer, to ground water, to surface water or to a purification installation to be upgraded into process water for re-use.

Laws and Regulations

Poultry processing companies across the globe need to meet discharge regulations that can vary from region to region. In addition, governmental directives keep changing with ever-tighter regulations on energy usage, use of chemicals and the recycling of process residues. "The main challenges our customers face at this moment include water supply issues, rising operational costs, higher concentrations of pollutants and the increasing cost of sludge offal disposal. All these issues require water treatment solutions and systems that comply with local laws and regulations. To ensure this, we focus on the production processes and size of each customer," says Maarten ter Woerds, Manager Sales Engineering Marel Water Treatment. "We know the customer's process and can adapt the design of the water treatment accordingly, creating solutions that manage effluent effectively. We also urge our clients to maintain an efficient process and be prepared for the future, as requirements can tighten and unforeseen issues arise."

Discharge to Sewers

Organizations are obliged to ensure that any wastewater they produce can be discharged to the sewer without adverse effects. Coarse particles and fats can clog sewers, affecting households and other businesses discharging into the same sewer. Measures to prevent clogged sewers range from filter baskets or an elementary static fat trap in the production process to coagulant and flocculent dosing systems removing between 60% and 80% of pollutants.

Discharge to Surface Water

In most countries, local legislation covers discharge to surface water. In almost all cases, a biological, anaerobic and/or aerobic treatment step is required. After the first decontamination steps, which "mechanically" purify the waste water of coarse particles, greases and emulsions, biological purification takes over. The correct population of bacteria in the water basin 'eats' the contamination and decomposes dissolved organic substances. Marel offers systems such as BioFlot®, Voltaflow®, Voltaflot® and Voltamix®.

Re-use

The efficient use of water is of paramount importance when processing food. In places where water is short, water re-use is most definitely the way to go. Purified water can be recycled for use in cooling towers, in the cleaning of factory areas and trucks, in toilets and in other secondary systems where there is no direct contact with the end product. A practical example of Marel's developments in water re-use is the BioBrane ® system. It re-uses biologically treated wastewater and purifies it to process water quality. BioBrane® comprises the following basic processing steps: advanced pre-treatment, biological treatment, MBR sludge water separation followed by reverse osmosis technology and final disinfection.

"Marel has all the water reatment knowledge and systems."

Waste Water Experience

Marel's worldwide presence offers many opportunities for this branch of its activities. Armed with decades of experience, the Marel Water Treatment team has designed and supplied treatment facilities around the world; from Russia to Argentina and from Canada to Australia. Marel Water Treatment offers food processing companies the solutions to treat their wastewater in compliance with local and international discharge requirements. Clean water is becoming an increasingly scarce and valuable resource. Being able to treat wastewater so that it can be reused in processing operations, rather than simply discharging it, is a key component in environmental sustainability.

Expert Consultations

Marel offers systems able to purify water to any desired degree of purification using different methodology and solutions, each with their own characteristics. This includes systems for pretreatment, biological treatment, advanced purification and sludge treatment for a variety of applications. "As a supplier of total solutions, Marel delivers not just water treatment systems; we also provide expert consultations, which are a core part of our activities," says Maarten ter Woerds. "We approach all projects by examining the production processes to see where the company can save on water usage, treatment and disposal. At the same time we create systems that are environmentally friendly, cost effective and energy-efficient."

Single Point of Contact

Every customer with a processing plant of a certain size needs a waste water system and a Marel Water Treatment installation sits well with Marel poultry processing systems. Having a single point of contact, poultry processors are freed from all worries. From beginning to end of the process, every possible issue is tackled. As we speak, Marel is building extensive wastewater treatment installations in the UK, Qatar and Malaysia for Marel Poultry customers. "Marel has all the water treatment knowledge and systems."

www.marel.com

BEST RESULTS GUARANTEED: THE MOLITOR BUTCHERY DEPENDS UPON CUTTERS AND GRINDERS FROM K+G WETTER

Equipped for the future:
Master butchers Stefan Schmidt and Matthias Molitor together with head of the Bergisches Land Guild of Butchers, Werner Molitor (l to r).

With a small family-oriented team that includes spouse Rita, daughter Marion, son Matthias and son-in-law Stefan Schmidt, the Werner Molitor master butcher's shop—now already in its second generation—continues to produce new sausage-based culinary creations in the tranquil Dürscheid area of Kürten (Rheinisch-Bergischer District). The range offered by the family-run company, which employs a staff of eighteen, encompasses over ninety different types of sausage. These are supplemented with seasonal specialities such as wild game sausages from the family's own hunts. "We take particular pleasure in surprising our customers' taste buds with ever-changing seasoning combinations or by creating original reinterpretations of proven classics such as our Mettwurst rings", comments Werner Molitor, head of the Bergisches Land Guild of Butchers and senior partner in the business, delightedly. "We only process meat of the very highest quality and purposefully avoid long transport distances. Aside from the basic materials—of course—a good sausage also needs careful processing that allows the meat's natural characteristics to develop fully, in combination with the seasonings."

Completely Customised for the Workflow

Together with son Matthias and son-in-law Stefan, the senior partner in the business had therefore already been searching for an appropriate solution to complement the firm's own machine fleet for some time. "For us, investing in new machines is a question of safeguarding our livelihood", concludes Matthias Molitor. "In many areas our profession requires a great deal of physical strength,

Master butcher Matthias Molitor appreciates the fact that the cutter automatically reduces the RPM when he opens the lid to add seasonings to the sausage meat

so the easiest possible handling and good ergonomic characteristics are among the decisive factors. The machine must adapt to the person – not the other way around." For producing in-house specialities it is intended to invest in a bowl cutter and an automatic grinder. In order to gain a good overview of potential production aids the Molitors first visited a wide range of trade fairs. "The machines are naturally thrust into the spotlight there and exhibited to best possible effect," grins Werner Molitor. "However, this still doesn't allow me to form an initial picture of their true characteristics in ongoing production." For this reason the family went a step further and visited several friendly businesses that were already operating machines from K+G Wetter. "Of course we exchange our experiences within the industry", explains son-in-law

Over 90 types of sausage, supplemented with seasonal specialities such as wild game sausages from the family's own hunts, delight customers each day anew.

Stefan Schmidt, "the opinion of an expert colleague carries more weight for me than statements made by the seller." Following these visits it was clear that the machines would not only simplify the workflow, but also that they are designed with special attention placed on exceptional cleaning and hygienic properties.

Designed by Experts for Specialists

"In our daily workflow every detail aimed at achieving efficient and high-quality production is important to us. With the machines from K+G Wetter it became immediately clear that these had been developed by experts who understand the challenges facing us", postulated Werner Molitor. "Ninety different types of sausage also means the machines must undergo frequent cleaning runs between the individual batches. It is crucial that absolutely everything is just right in order to ensure we don't lose any production time, while still being able to manufacture the best-tasting sausages for our customers."

"The decision to install new machines brings with it particular consequences for a small family-run company like ours", explains Werner's wife Rita. "The investments must pay off and ultimately secure the future of our company."

Initial positive effects had already become apparent at the butcher's shop in Kürten shortly after procuring the machines. The bowl cutter, with a capacity of 70 litres, was not only more efficient in operation, but also impressed with some clever details. "During production we must, of course, constantly add ingredients. When the lid is opened the CM 70

The five apprentices at the Molitor butcher's shop in the Dürscheid area of Kürten also benefit from the investments in modern machinery during their day-to-day work (pictured is Tom Grimberg, 1st apprenticeship year).

automatically reduces the knife shaft RPM. It is also possible for the operator to very easily set the RPM himself. This significantly reduces noise exposure, thereby facilitating communication between the workers", reports Matthias Molitor.

Even during the first production runs with the automatic grinder it became clear that the decision to purchase the machines was the right one: "We are now able to add all of the materials for a batch at once and the feeder worm means that the need to fill the machine is completely eliminated", Marion Schmidt is pleased to report. "While the grinder is operating we are able to move around freely and can continue processing the ground meat without interruption."

Thanks to the feeder worm, the need to fill the automatic grinder D 114 from K+G Wetter is completely eliminated.

Reliable Partner on the Same Wavelength

The work of a master butcher is characterised by tradition, regional patriotism and knowing just how important the trade—and its future—is. Werner Molitor's team also expects these same high standards from its business partners. The service concept is a priority for the whole team: Being a reliable partner for customers is important to the Molitors.

Examples of this include the extensive party service and the "Hot counter": The range of products offers enjoyment to perfection. Whether rustic home cooking or gourmet buffets, the service is always tailored to individual requirements. "We are here for our customers and give our best to provide them with exactly what they want", explains master butcher Stefan Schmidt.

"We have rediscovered precisely this approach in all of our communications with K+G Wetter. We always had a direct and personal contact partner who professionally and quickly answered our questions. The experts at K+G Wetter were competent partners and were always available. And this level of service didn't end with the purchase of the machines. Our philosophy simply matches that of K+G Wetter. We have found a partner on the same wavelength", sums up Werner Molitor.

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EDITORIAL CALENDAR 2020

1 FEBRUARY

Ordering Deadline: 10 February, 2020
Publication Date: 25 February, 2020

- Humane Stunning and Slaughtering
- Skinning, Deboning & Trimming, Portioning, Grinding, Separating, Sorting Meat, Poultry & Fish Focus
- Conveyors and Belting
- Skin and Whole Muscle Packaging Trends

2 APRIL

Ordering Deadline: 14 April, 2020
Publication Date: 22 April, 2020

- INTERPACK Review
- Mincing, Blending, Mixing, Filling, Forming Technology
- Burger Patties and Meat Snacks
- Disposal and Wastewater Treatment, Energy Efficiency, Processing of Left Over Parts
- Energy Efficient Packaging Equipment Trends and Solutions

3 JUNE

Ordering Deadline: 15 June, 2020
Publication Date: 22 June, 2020

- Dicing, Strip, Cutting, Slicing
- Smoking, Cooking, Coating, Frying
- BBQ Trends, Snacks& Sides, Natural Ingredients Trends
- Marinades, Clean Label, Meat-Free Alternatives
- Sustainable Packaging Trends

4 SEPTEMBER

Ordering Deadline: 14 September, 2020
Publication Date: 22 September, 2020

- **NEW: Agroprodmash Special Supplement (In Russian)**
- Sausage, Bacon and Ham Production
- Casing, Netting, Clipping, Labelling
- Process Control, Weighing, IT Solutions, Software, Automation and Robotics Industry 4.0
- Vacuum and Skin Packaging Trends

5 OCTOBER

Ordering Deadline: 12 October, 2020
Publication Date: 27 October, 2020

- Extracting and Processing of Poultry Meat
- Vacuum Pumps
- Food Safety, Hygiene, Disinfection
- Production and Packaging of Convenience Food

6 DECEMBER

Ordering Deadline: 7 December, 2020
Publication Date: 21 December, 2020

- **IPPE Preview**
- Turkey and Duck Processing
- Thermal Processing
- Chilling and Freezing Equipment, Ice machines, IQF Products
- Shelf - Life Extension of Packed Meat, Poultry and Seafood

Fish International	Bremen, Germany	9 Feb - 11 Feb, 2020
Eurocarne	Verona, Italy	29 Jan - 1 Feb, 2020
Process Expo	Chicago, USA	12 Feb - 13 Feb, 2020
Gulfood	Dubai, UAE	16 Feb - 20 Feb, 2020
Grill & BBQ	Sindelfingen, Germany	28 Feb - 1 Mar, 2020
SMAK	Oslo, Norway	3 Mar - 5 Mar, 2020
Seafood Expo	North America, Boston	15 Mar - 17 Mar, 2020
SIAL	CANADA, Montreal	15 Apr - 17 Apr, 2020
Japan Meat	Tokyo, Japan	15 Apr - 17 Apr, 2020
Worldfood	Warsaw, Poland	21 Apr - 23 Apr, 2020
Interfood	Krasnodar, Russia	23 Apr - 25 Apr, 2020
VIV RUSSIA	Russia	26 Apr - 28 Apr, 2020
easyFAIRS EMPACK	Dortmund,Germany	19 May - 20 May, 2020
VIV RUSSIA	Russia	26 May - 28 May, 2020
CFIA	Rennes, France	26 May - 28 May, 2020
Propak Asia	Bangkok, Thailand	17 Jun - 20 Jun, 2020
IFT	Chicago, USA	12 Jul - 15 Jul, 2020
VIV MEA	Abu Dhabi	31 Aug- 2 Sep, 2020
Alimentaria	Barcelona, Spain	14 Sep - 17 sep, 2020
Foodtech	Herning, Denmark	29 Sep - 1 Oct, 2020
Agroprodmash,	Moscow, Russia	5 Oct - 9 Oct, 2020
Alimentaria Foodtech	Barcelona, Spain	6 Oct - 9 Oct, 2020
Conxemar	Vigo, Spain	6 Oct - 9 Oct, 2020
SIAL	Paris, France	18 Oct - 21 Oct, 2020
MEAT & GRILL DAYS	Athens, Greece	7 Nov - 9 Nov, 2020
SUFFA	Stuttgart, Germany	7 Nov - 9 Nov, 2020
Pack Expo International	Chicaco, USA	8 Nov - 11 Nov, 2020
ALL4PACK	Paris, France	23 Nov - 26 Nov, 2020
Indagra Food	Bucharest,Romania	Nov, 2020
Gulfood Manufacturing	Dubai, UAE	Nov , 2020
HI Europe	Frankfurt, Germany	1 dec - 3 dec, 2020
IPPE	Atlanta, Georgia, USA	Jan, 2021

We reserve the right to make any necessary changes.

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VIV WORLDWIDE **FULL EVENTS CALENDAR** 2020-2022

VIV **MEA** 2020	Abu Dhabi, August 31-September 2
VIV **QINGDAO** 2020	Qingdao China, September 17-19
POULTRY **AFRICA** 2020	Nairobi, October 14-15
VIV **ASIA** 2021	Bangkok, March 10-12
VICTAM AND ANIMAL HEALTH AND NUTRITION **ASIA** 2022 BY VICTAM & VIV	Bangkok, January 18-20
VIV **EUROPE** 2022	Utrecht, Amsterdam 30 min, May 31-June 2

PARTNER EVENTS SUPPORTED BY VIV WORLDWIDE

MEAT & POULTRY INDUSTRY **RUSSIA** 2020	Moscow, October
ILDEX **VIETNAM** 2020	Ho Chi Minh, December 9-11
VIV **TURKEY** 2021	Istanbul, June 10-12
ILDEX **INDONESIA** 2021	Jakarta, September 15-17

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