International

Food & Meat Topics

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Improving the global safety and quality of food & meat

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The right market strategy for plant-based protein

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Cutting producers' costs and improving hygiene

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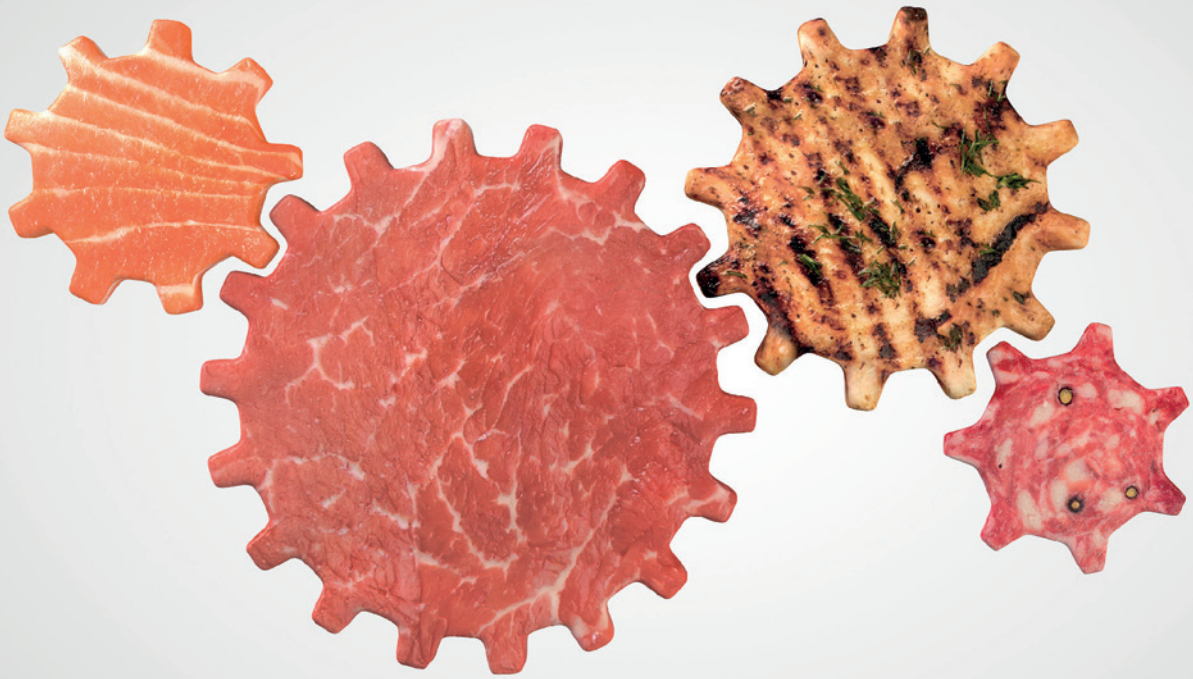

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food for thought

Climate change is likely to have a huge impact on food safety and the risks to public health in the future.

As our climate changes, so does our relationship with water. Increasing periods of flood and drought can dramatically impact ecosystems, endanger communities and put food production at risk.

The World Health Organisation say that these impacts will affect the persistence and occurrence of bacteria, viruses, parasites, harmful algae and fungi, the patterns of their corresponding foodborne diseases and the risk of toxic contamination.

While the impact of climate change is devastating, advances in tackling it are leading to cleaner air, restoring nature and economic growth. But scientists say we are not acting fast enough. So what is the solution?

Farming accounts for half of the world's habitable surface. Does agriculture have the potential to be the biggest nature-based solution to climate change?

Land holds the power to lock up carbon, restore important ecosystems, enhance biodiversity and provide protection to extreme weather and, at the same time, lay down foundations for sustainable, nutritious food.

Protecting and restoring habitats is an effective way to improve resilience to the impact of climate change.

The debate about the role of livestock and climate change has been reduced to animals versus plants. But are livestock part of the climate crises problem or can they be part of the solution?

Pasture-based livestock farming can work in harmony with nature and restore soil health and biodiversity, whilst producing nutrient-dense food.

Integrated with arable crops and agroforestry, grazing livestock can have a role in creating diverse mixed farming systems that will be more resilient to greater weather extremes that are caused by climate change.

So should we worry less about plant-based diets and more about sustainability in farming? Well we will leave you with this . . . on the menu at the COP26 conference in Glasgow a plant-based croissant was shown to have a bigger carbon footprint than a bacon roll!

Cover Picture:

Quality control is key
(Photo courtesy of Ishida Europe)

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worldfocus

An executive summary of key international issues

Africa

Gaps in food safety

Food safety analytics from across the African continent have highlighted critical gaps in food safety. New research has found that there is a continual lack of ISO certified food safety testing laboratories, gaps in laboratory training programmes and very little use of official analytical methods. The failings in the continent's food safety management could have a significant consequence for public health and economic growth. If improvements are not made soon, conformity assessment capacity in Africa will remain at a fraction of what it needs to be to ensure safe food for its ever-growing population as well as for international trade.

Brazil

Disputed in EU poultry imports

Brazil has requested consultations with the European Union at the World Trade Organisation (WTO) after disputes over EU measures that are having an impact on the import of salted chicken meat and turkey meat with pepper. Brazil believes that the EU are imposing discriminatory criteria that violate rules under the Agreements on Sanitary and Phytosanitary measures of the WTO. The criteria in question relates to the salmonella food safety criteria on fresh poultry meat and certain poultry meat preparations. Brazil is hoping that the consultation will resolve the issues that they believe are creating unwarranted barriers in international trade.

Russia

Import duties on red meat

Russia is considering putting a stop to import duties on pork and beef to help steady the price of the domestic red meat market. There have been preliminary plans put in place to allow duty-free import of 200,000 tonnes of beef and 100,000 tonnes of pork in 2022. The idea comes as a potential solution to stabilise the domestic meat prices by increasing the supply to meet the growing demand. In 2020 Russia had a similar duty-free import plan in place, but it was scrapped last year. As production in 2022 is likely to continue to grow by thousands of tonnes, with the inclusion of duty-free imports, it is hoped to push the domestic meat prices down.

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Finding the right market strategy for the transition into plant-based protein

When transitioning into plant-based products, it is vital to understand what drives people to choose vegan or vegetarian alternatives. According to a study carried out by Euromonitor, 23% of the consumers claim that they are trying to limit their meat intake.

by The Technical Team,
JBT, Sweden.
www.jbtc.com/foodtech

Health is the primary motivator, and 37% say that they eat meat alternatives to feel healthier. Environmental concern is also a key factor, and 21% cite this as a reason for consuming plant-based protein.

The critical consumer of plant-based food is the younger generation. Three out of four 15-29 year-olds say that they eat meat alternatives, compared to half of those aged 60+.

The reason behind not eating plant-based products is often a matter of price and taste. In the packaged food space, plant-based products are significantly more expensive than their animal-based counterparts. The taste and textures are also an issue, and many customers claim that plant-based products lack flavour and look unappealing.

Take advantage of expert knowledge when transitioning into plant-based food

For a producer, it is essential to have a viable strategy to make a successful transition. Initially, you must secure that the plant-based product is healthy, tastes good, and looks and feels appetising. But you must also decide on how to go to market and find a technological partner that can develop and adapt to your consumers' demands.

What are your options for adding value, creating a unique position, and meeting consumer demand? JBT have worked together with many pioneers within plant-based products and accumulated a lot of knowledge about how to develop a successful product and find the right process depending on your strategy.

New products with alternative protein

The flexitarian trend does not seem to end, and the demand for plant-based food keeps increasing. Even though numerous plant-based products already exist on the market, there is still room for more. The trend has been to produce plant-based products which look similar to meat alternatives, like plant-based variants of hamburgers, sausages, and chicken fillets.

An innovative strategy to stand out and break new ground could be to make something entirely different. A way to be even more front edge could also be to explore new kinds of alternative proteins. Soy is today the most common protein, followed by pea, but many products also now feature a soy-free claim.

It is replaced by protein from insects, eggs, hemp, wheat, fava beans, and mushroom. In December 2020, the world's first laboratory-grown meat went on sale in Singapore, and creating protein out of 'thin air' is predicted to be the next big thing.

Established brands lie ahead

Before it became trendy, large established food brands like Nestlé and Monde Nissin started selling meat substitutes. The products have been on the market for quite some time and are now sold in several countries worldwide with good results.

To launch plant-based products via an already established brand seems to be a success factor. The brands communicate to the growing group of flexitarians, selling both meat and plant-based products. By collecting both options under the same brand, they make the customers feel comfortable.

Clever marketing through partnerships

Establishing a new brand and launching a new product on the market can seem challenging with the competition of large companies, but there are ways to break through.

One good example is the company Impossible Foods, that after launching their meat substitute, teamed up with the worldwide hamburger chain Burger King.

Continued on page 8

Continued from page 7

The chain simply named their new plant-based burger Impossible Whopper and the brand got great PR.

Another excellent example of co-branding was presented in January 2021. The plant-based meat substitute producer Beyond Meat, and the second biggest packed company in the world, Pepsi, came together in a PLANeT partnership set up to create and market snacks and drink made from plant-based protein.

This partnership is a way for Beyond Meat to move away from its exclusive positioning in meat substitutes to potentially become a market leader across all plant-based products.

Products for everybody

When discussing good marketing strategies for plant-based companies, the Swedish company Oatly stands out, which produces alternative dairy products from oats. The company has made its vegan milk alternative attractive to a wide breadth of consumers.

It proudly states that it is '100% vegan' but points out that it is 'totally cool for both vegans and non-vegans.'

This strategy has created a strong brand personality and has been very successful; in 2020, it reached a 9.2% share in milk alternatives in Western Europe.

Inexpensive production with third-party-supplied

Price is often listed as one of the top reasons why customers reject plant-based food.

Producing vegan products is regularly more costly than meat and usually requires new machines and equipment. The result is a pricey product that is hard to sell.

One way to avoid the high cost and new equipment is to co-operate with other companies.

Today, many plant-based products are made using third-party-supplied protein structure mixed with the company's spices – a smart strategy to save time and money.

Hybrid products attract flexitarians

Even though many customers seek fully vegan or vegetarian alternatives, some are fine with products that contain a mix of meat and plant-based ingredients. In the USA, several restaurants serve hybrid burgers containing minced meat and vegetables.

Perdue takes a similar approach with their products, chicken plus, mixing poultry with pea protein isolate and textured wheat protein, while highlighting the added chickpea and cauliflower as an easy way to eat more vegetables. ■

References are available from the author on request

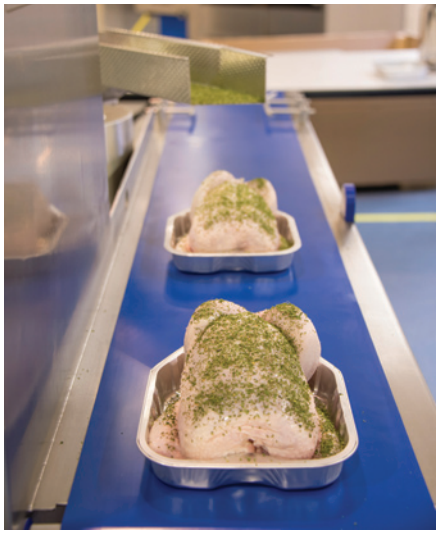
Plucky poultry company trims seasoning weight waste

When one of the leading British chicken, turkey and duck suppliers discovered it was wasting over half of the dry seasonings manually scattered on its oven-ready birds, it needed an automated solution fast. In stepped Sparc Systems, introducing the poultry company to Hera, the checkweighing specialist's flagship loss-in-weight depositer.

by Charlie Graham,
European Sales Manager, Sparc Systems.
www.fortresstechnology.com/en-uk/products/sparc-systems/

Perfectly seasoning more than 250,000 poultry birds a week – 50 per minute – the supermarket and restaurant supplier now maintains a consistent and even 1g herb and spice dispensing rate. Starting with just one Hera system in 2018, the company was so impressed by the presentation improvements and waste reductions, it has since introduced three more machines. Including several on its ready meal production lines dispensing individually quick frozen (IQF) vegetables, herbs and grated cheese into dishes.

A British poultry supplier more than halved seasoning waste on its lines using Hera.



Providing layers of taste and texture to a variety of products, Hera scatters and weighs dry inclusions with accuracy and precision. From a consumer perspective, Hera ensures the best products, featuring exciting flavours and textures, are consistently presented to shoppers and restaurateurs.

Guaranteed to deliver an accurate spread, as each conveyorised product passes in front of the Hera sensor, the depositor feeder tray vibrates gently scattering the dry ingredients, for instance parsley or peri-peri spices, along the entire width of the product. Rather than a continuous stream, the dispensing slows and stops until a new product tray passes in front of the Hera sensor. This prevents high waste levels and addresses the issue of powder accumulating in and around the machinery and conveyor system.

Optimal waste management

This controlled dispensing is very important. We have regularly observed that sieving inclusions onto products manually or even the waterfall technique results in the majority ending up on the floor or conveyor. It is especially prevalent with fine powders like spices and dried herbs, which also becomes a health and safety issue for co-workers. Naturally, this wasted product cannot be reworked due to cross contamination and hygiene practices.

For many years, the poultry specialist performed the task manually. Seasoning 250,000 birds each week required a lot of labour. An issue further compounded by shortages in seasonal workers.

Looking back, every chicken used approximately 11g of herbs, yet only around 5g actually ended up on the chicken. Introducing Hera onto the company's poultry line instantly reduced the weight of herbs scattered on each chicken to 0.9g. Roughly equating to a saving of 225kg in spices and herbs every week.

Improving product throughput and optimising quality control using state of the art technology was also a key driver.

Eliminating labour intensive manual tasks like this plays a big role in workforce satisfaction. The consistency of presentation with Hera means that fewer product trays are spoiled and each line is more productive. An additional benefit of automating processes like this is it opens up more opportunities for skilled roles too.

A twin Hera system weighs and dispenses cheese and herbs onto ready meals at the production site.

Satisfying demands for new flavours and fusions

As consumers seek more adventurous flavours, the food industry is increasingly turning towards inclusions to add new tastes and textures to products. Forecast to be worth US$ 14.73 billion by 2026, Sparc's Hera loss-in-weight depositor streamlines the process and controls the concentration when adding dry ingredients to prepared foods.

Capable of programming and storing up to 500 different product codes, Hera calculates the weight dispensed to the exact milligram. Digital data of the volumetric deposits is captured and stored by the management control system.

Many of our customers are keen to streamline processes and cut down on unnecessary waste which can arise at all stages of the production process.

As is often the case, waste and giveaway can easily be avoided if a more diligent approach to prevention planning and checkweighing is taken. Intelligent automated systems like Hera tackle this drain on resources and profitability and transforms efficiency. ■

Efficient packaging with the latest Vacuum 4.0 technology

Vinzenz Murr GmbH has been producing meat and sausage products for almost 120 years. Company founder Vinzenz Murr opened his first butcher shop in Munich in 1902.

Today, the company is not only one of the largest producing butcheries in Munich and southern Bavaria, but with over 2,000 employees is also one of the largest employers in the industry.

Since 1970, Vinzenz Murr GmbH has been producing its meat and sausage products in the Munich district of Obersendling. Products are sold almost exclusively through the 270 branches in Bavaria.

by The Technical Team,
Busch Vacuum Solutions.
www.buschvacuum.com

Modern vacuum technology with the latest PLUS Master Control unit from Busch Vacuum Solutions offers efficient central vacuum supply according to actual demand.

Since 2004, the company has been using a central vacuum system from Busch Vacuum Solutions to supply vacuum to all the packaging machines in the butchery plant in Obersendling.

This central vacuum supply consisted of a vacuum system with three R5 rotary vane vacuum pumps and a total of three vacuum boosters. The vacuum system was operated using a cascade control unit.

This means that only as many vacuum pumps were in operation as were necessary for the current demand. This involved pumps being switched on or off as required.

A vacuum chamber with a volume of two cubic metres served as a buffer so that the necessary vacuum level was immediately available in the respective packaging chambers when needed. So far, four large thermoforming machines have been supplied with vacuum.

When moving the vacuum system to another room, Managing Director Alexander Brandl decided to swap the rotary vane vacuum pumps equipped with standard motors for frequency-controlled rotary vane vacuum pumps in order to be able to adjust the performance of the vacuum system more precisely to the actual demand. This is because the packaging machines are used to package products ranging from several kilos in weight to small portion packs for self-service counters.

This means that very different tools are used for packaging and therefore the volumes of the packaging chambers vary considerably. Due to relatively small quantities, the total volume of all packaging machines changes frequently and therefore also the vacuum system's power requirement.

Impressive ease of handling

Alexander decided on the latest generation of intelligent vacuum pumps: the R5 PLUS from Busch Vacuum Solutions. The reasons for this were obvious. Not only has he had good experiences with Busch products over many years, he was also impressed by the easy handling of such systems via touchscreen.

The new system has now been in operation since June 2020. Thanks to pressure control, each individual R5 PLUS can precisely maintain the specified vacuum level and compensate for changing pumping speeds via the rotational speed. The individual integrated primary control units in each R5 PLUS communicate with each other via a higher-level secondary control unit – the PLUS Master Control.

In this way, the overall performance of the vacuum system adapts precisely to the actual demand. The central vacuum system can be easily operated via the PLUS Master Control touchscreen.

After several months of operation, it became apparent in practice that the vacuum system's control unit responds much more finely than with the previous system, which also responded to changes in demand by simply switching individual vacuum pumps on and off, but in coarser steps.

Guaranteed compliance

The converted vacuum system can now guarantee compliance with cycle times and a precisely defined vacuum level in each individual package.

The new R5 PLUS rotary vane vacuum pumps are larger than the vacuum pumps previously used. This is because in the future, even more thermoforming machines will be connected to the central vacuum supply.

However, the proven old R5 rotary vane vacuum pumps are not to be abandoned in the future. One or more will be used on tumblers as a single unit. ■

Hard-to-handle fruit, veg and poultry waste proves easy pickings

A sophisticated chopping, pumping and waste removal solution from progressive cavity (PC) pump specialist Seepex UK is making light work of previously challenging by-products from whole chickens, potatoes and cabbages to peelings and fruit stones. The BTM range is not only cutting food producers' costs, it is also improving their standards of hygiene and health and safety.

by SEEPEX UK Ltd, www.seepex.com

Waste is an unavoidable part of the production process at fruit, vegetable and poultry processing facilities. Whether in the form of trimmings, wash residue and by-products, or as a result of off-specification batches, overproduction or expired goods, it must be handled within strict sanitary guidelines and quickly removed from production areas.

Not only does this free capacity so that primary processing operations can continue, but waste and by-products can also create an additional revenue stream as animal feed or compost, or to generate renewable energy.

This makes their efficient removal and swift onward transfer even more important to manufacturers' bottom lines.

However, some waste products are notoriously difficult to handle. Large, highly viscous or non-flowable foodstuffs can prove particularly challenging: for example, whole chickens; chicken frames, heads, feet and necks; whole cabbages or potatoes; and fruit stones, seeds and peels from vegetables and fruit.

As a result, some operators still rely on traditional methods to remove them from the production area.

It is not uncommon to find conveyor belts, compressed air systems, vacuums, water flumes, and manual handling via waste containers such as tote bins being used even at large food production factories. These methods can be inefficient, unsanitary and expensive.

Automated, all-in-one alternative

Fortunately, there are sophisticated, hygienic and cost-effective alternatives on the market. The Seepex BTM pump range is one such option. The patented chopping and pumping solution, featuring an enclosed pipework system, is already being used in waste handling applications at many fruit, vegetable and poultry processing factories throughout the UK and Europe.

Thanks to an integrated cutting unit that reduces particle size, the BTM effectively chops and pumps in a single operation, reducing the solids volume by up to 60%. This creates a pumpable consistency, without requiring the addition of water, enabling whole vegetables and even entire birds such as DOA or off-specification chickens to be hygienically and efficiently removed off-site.

Hygienic waste removal

The benefits to food manufacturers of switching from conventional waste removal methods to an enclosed, automated solution like the BTM are three-fold.

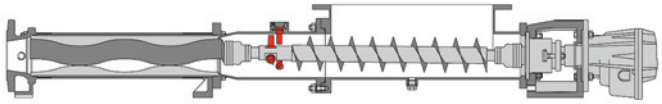
Firstly, it is more hygienic. Transferring waste products through a closed pipe system eliminates, for example, the need for dedicated cleaning of tote bins prior to re-entering high-care areas which prevents potential cross contamination.

Secondly, it is safer. Manual handling or conveying systems often result in waste product falling or being dropped onto the floor, presenting an immediate health and safety risk to operatives, who are in danger of slipping on it.

Furthermore, this fully automated solution requires only one staff member to load product into the hopper.

This leads to improved health and safety on the factory floor due to a reduction in traffic and hazards in high-risk areas – fewer forklift trucks, fewer operatives and fewer tote bins.

Finally, the BTM pump range is more efficient, generating significant cost savings. By chopping, pumping and transferring all-in-one, the BTM is able to create a pumpable consistency without requiring any additional water, resulting in savings from water usage.



SEEPEX BTM pumps chop and pump in a single operation.

This has the additional benefit of reducing the volume of waste by up to 60%, making it easier to transport and thereby cutting transport costs.

The operating and energy costs of the BTM are considerably lower than vacuum or compressed air systems, generating savings there.

By removing a manual element from the process and automating it, food producers are saving on labour costs, too, freeing employees for more lucrative, primary production roles.

Where high care production areas are chilled, removing waste via a simple pipeline rather than manually through doorways, will also assist in reducing energy costs as well as minimising potential contamination from external sources.

Bespoke options for most challenging waste streams

Where more challenging by-products need to be transported, customised solutions are available.

'Bridging' can be an issue with certain wastes, so the BTM pump range includes augers with a large pitch that enables the product to be conveyed into the cutting elements to ensure continuous pumping.

Horizontal and vertical grinders can also be integrated, as can stone and knife traps to prevent pump damage, while dewatering devices can help to reduce waste volume even further.

Finally, all BTM pump systems can be fitted with Smart Conveying Technology (SCT); an innovation from Seepex that enables rapid dismantling and cleaning, increasing pump stator life by up to 200% and reducing maintenance time by up to 85%.

Pumps fitted with SCT are also suitable for Clean-Out-of-Place (COP) or Cleaning-in-Place (CIP). ■

SEEPEX PC pumps are used in poultry processing and for the efficient and cost-effective removal of by-products and waste.

laboratorytesting

Morocco lab becomes the first to offer 24-hour salmonella testing

SGS have added rapid polymerase chain reaction (PCR) testing methods to the SGS-Laagrima laboratory in Morocco, becoming the first Moroccan laboratory to be awarded the ISO 17025 accreditation for PCR salmonella testing in food.

The company have developed rapid PCR methods to test for salmonella in food, delivering quick test results to food manufacturers. Their new ISO 17025 accreditation allows them to carry out salmonella testing across all types of food, and adds to their commitment to helping build better processes for local food producers from their Casablanca base.

Their PCR-based method offers significant advantages over typical salmonella testing, which takes five days for a result. That gives producers the choice of either releasing their product before the result is returned, or waiting until their result is returned before delivering the product to market.

The first option risks a costly and image-damaging recall or withdrawal, while withholding their product means losing five days of shelf-life and having to store five days' worth of production. Instead, with SGS's new 24-hour testing – unique in Morocco – producers can release their products much faster, reducing the amount of stock in storage and lengthening their products' shelf-life.

"As part of our commitment to enabling a better, safer and more interconnected world, SGS Morocco has developed rapid (PCR) methods to test for salmonella in food," Guy Escarfail, Managing Director of SGS Morocco and Maghreb and the Head of Digital and Innovation in Africa, told International Food & Meat Topics.

"We believe these methods can speed up our clients' supply chain flows, while guaranteeing a high level of food safety. At SGS in Morocco we are proud to be the first Moroccan laboratory to be awarded the ISO 17025 accreditation for these methods."

SGS expect their accreditation scope to be expanded to other pathogens soon, such as listeria and staphylococcus, adding to the wide range of services they provide to food producers.

sgs.com

Real-time PCR protocols and calculator tools

Hygiena, a leader in food safety testing, has introduced over 14 protocols for quantification applications (SalQuant and CampyQuant) using the BAX System Real-Time (RT) PCR Assays for salmonella and campylobacter.

In addition to knowing if the pathogen is present, these methods accurately quantify salmonella or campylobacter levels when used with the BAX System Q7 and shortened enrichment.

No additional kits or components are required, only the BAX System RT PCR Assay for salmonella (KIT2006) or the BAX System RT PCR Assay for Campylobacter jejuni/coli/lari (KIT2018).

As a result, this revolutionary change in determining pathogen levels (rather than presence/absence) earned Hygiena the 2021 IAFP Food Safety Innovation Award.

As a leading pioneer for RT-PCR quantification, ease of use for their customers continues to be front of mind; therefore, easily accessible and detailed protocols paired with calculators are now provided for all customers via their website.

In the case of salmonella, over 14 different matrix protocols can be analysed after shortened enrichment using the BAX System RT PCR Assay for salmonella on the BAX System Q7 instrument. For campylobacter, the shortest method previously available was an MPN-based method requiring long labour hours and many steps during sample prep.

Now, with the easy-to-use Hygiena CampyQuant for poultry rinsates, samples only need to be enriched for 20 hours before analysing with the BAX System RT PCR Assay for campylobacter. Additionally, each serotype can be individually quantified for additional detail for poultry processors.

hygiena.com

Support for the advancement of women in science

Eppendorf SE recently donated €20,000 to the European Molecular Biology Laboratory (EMBL) during an online presentation ceremony. The funds are for the EMBL project 'Advancement of Women in Science', which enables women scientists to begin managerial careers in scientific fields.

Edith Heard, the Director General of the EMBL, described the gift as an important signal for the qualification of women researchers. The managerial level in the scientific community is characterised by a clear gender-specific imbalance.

"To offset this disparity, the EMBL took action in 2020 and initiated a program called 'Leadership and Excellence for Aspiring Women Postdocs' (LEAP) that includes a one-year mentoring and coaching programme.

This generous donation from Eppendorf will enable 20 additional female postdocs to gain the qualifications they need for managerial careers. We hope that they go on to become group leaders, leading researchers and assistant professors in scientific fields," Edith told International Food & Meat Topics.

eppendorf.de

Science on the go for app users in India

On the Go mobile app is Thermo Fisher's first ever mobile commerce solution designed to enable science on the go for its users in India.

Empowered by data science, the app is designed to deliver an easy user experience. In addition, based on the user's behaviour patterns, industry selection, and workflows of interest, the app offers personalised recommendations on content, products and promotions that are tailored to the user's area of interest.

As a company they have been deeply involved in understanding the evolving needs and challenges of their customers. The introduction of the On the Go mobile app takes them closer to empowering users with access to a simplified platform to stay up-to-date on scientific advances. The applications make it easy to find products and get product recommendations from their extensive catalogues by navigating through more than 100 workflows across biotech, pharma, healthcare, food, forensics, industrial and applied sciences industries.

"The On the Go mobile app is another important step forward to significantly differentiate our customer experience by making the engagement more personalised. It is a testament of Thermo Fisher's proactive and sustained efforts to create more value for our customers," Amit Chopra, Managing Director, India and South Asia, Thermo Fisher Scientific, told International Food & Meat Topics.

Based on Progressive Web Application technology, the app is easily accessible even in poor network areas and is adaptable to diverse browsers. The intuitive app also enables support via a 24x7 virtual assistant made possible by an AI-driven chatbot.

thermofisher.com

Launch of gluten-free addendum audit programme

SGS, a long-standing approved Certification Body and trusted partner, has worked with the Association of European Coeliac Societies (AOECS) to develop a new Gluten-Free Addendum Audit Programme that can be delivered alongside any GFSI Benchmarked Food Safety Standard.

This programme is of particular benefit to food business operators aiming to access the market for pre-packaged gluten-free foods.

The AOECS Gluten-Free Addendum Audit Programme covers all requirements and expectations within the current AOECS Standard when delivered in combination with a GFSI Benchmarked Food Safety Standard (GFSI Benchmarking Requirements Version 2020). These include BRCGS, IFS, FSSC 22000 and SQF.

"The AOECS Standard, with its trusted Crossed Grain symbol, is an internationally recognised gluten-free certification scheme," Jeff McDonald, EVP at SGS, told International Food & Meat Topics.

"This new flexible option of having an audit that combines the AOECS Gluten-Free Addendum with any of the GFSI Benchmarked Food Safety Standards offers new opportunities to maximise efficiencies, whilst avoiding unnecessary duplication and costs. We are pleased that SGS has become the first globally approved independent Certification Body for the provision of the programme."

Veronica Rubio, AOECS Secretary General, added: "Audit fatigue is one of the major burdens food business operators face today. We are confident that this new AOECS Gluten-Free Addendum Audit Programme will help companies optimise resources and become license holders of our Crossed Grain Symbol, so that more people with gluten related conditions can pursue heathy diets with safe and well-controlled gluten-free prepackaged food products."

The Gluten-Free Addendum Audit Programme offers customers four primary benefits:

- Reduces time spent on site, thereby minimising operational disturbance.
- Saves time and costs.
- Ensures that all audits against AOECS Standard are delivered by skilled, qualified auditors.
- Allows companies with sites certified to different GFSI Standards to use a single gluten-free addendum programme across the board, improving operational efficiency.

sgs.com

Small high vacuum system for research and devlopment

With the Turbolab Core, vacuum specialist Leybold is launching a small plug-and-play high vacuum pumping system for research and laboratory and industrial applications.

Within the Turbolab series, the compact tabletop unit fills the gap for entry-level vacuum needs that require a clean, dry, stable high and ultra-high vacuum. The TURBOLAB series is now available in a total of five variants featuring TURBOVAC 90 i and 250 i backed by DIVAC 1.4 and now covers the complete application spectrum for R&D and analytical applications.

The ergonomic, cost-effective system is made up of proven Leybold components: including the oil- and maintenance-free TURBOVAC i turbomolecular pump, the DIVAC 1.4 dry diaphragm backing pump and a simple controller. This provides users with the benefit of easy serviceability.

The equipment of the robust, low-noise high-vacuum system is geared to the specific ambient conditions of laboratories and research facilities: This is one of the reasons why the compact pumping station frame stands on rubber feet. "With this foundation, we prevent the transmission of vibrations, for example when the TURBOLAB Core is placed close to a microscope", explains the responsible Leybold product manager, Petr Lastovicka.

Both the operation and the control of the TURBOLAB Core are intuitive and userfriendly - the controller also serves as a speed and pressure display. Optionally, the TURBOVAC i as well as the backing pump DIVAC can be started up with a time delay or pressure-dependent.

"The bottom line is that with the compact TURBOLAB Core model we are rounding off our portfolio with a perfectly tuned model downwards," he says. "It will convince users with excellent pumping performance, a good price-performance ratio as well as simple operation and ease of maintenance," sums up product manager Petr Lastovicka.

atlascopcogroup.com

Innovative product wins Flexible Plastic Pack of the Year

Alpha Laboratories Ltd and ShuttlePac Ltd are delighted that the unique and innovative ShuttlePouch has been awarded Flexible Plastic Pack of the Year in the 2021 UK Packaging Awards.

Developed by ShuttlePac, ShuttlePouch provides a compliant UN3373 sample packaging solution that protects users from exposure to biological samples during transit and on arrival at the laboratory. It addresses the needs of users, radically improving ease of use and reducing the cost of packing and shipping sample tubes, compared with using conventional methods.

In addition, ShuttlePouch contains up to 83% less plastic than other standard specimen pouches (an average of 73% reduction across the range of pouches available), making it the more environmentally friendly option.

The ShuttlePouch range of leak proof pouches is designed to carry individual 95kPa pressure differential certified blood or urine specimen tubes (or any similar sized specimen tube). They include absorbent material already inside the pouch for convenient compliance to UN3373 packaging requirements.

The pouches also feature a transparent front so the tube and label are clearly visible. An easy to open tear area facilitates processing when the samples arrive at the lab.

The ShuttlePouch range is exclusive to Alpha Laboratories in the UK and Ireland, and provides a powerful, cost effective solution to the clinical and diagnostic market.

Each leak-proof pouch is printed with easy-to-follow instructions showing how to pack and seal the specimen tube. Simply add a rigid outer packaging box for a complete and compliant UN3373 solution.

In addition, the 95kPa pressure differential compliant ShuttlePouch is certified for transport by air (IATA). With all the features described above, they can be used with any leak-free tube for transport by road or air.

alphalabs.co.uk

Optionsfor

Raising the food safety bar with new high performance x-ray

Food inspection specialist Fortress Technology Europe is paving the way for greater food safety and peace of mind for UK and European manufacturers, unveiling its new 'best value to performance' Raptor X-Ray.

fortresstechnology.com

Meeting retailer demands to increase detection of physical and harmful contaminants and mitigate costly brand recalls, the contaminant detection and checkweighing expert has engineered one of the most reliable, energy efficient, cost saving x-ray's on the market, reporting that the system has an unblemished 10-year 100% record of no x-ray tube failures.

Adding an unparalleled level of food safety to the industry, the Raptor X-Ray, available throughout Europe, integrates a number of innovative and unique high-spec technologies first developed by Sparc Systems, applying them to create an affordable, brand-protection food x-ray unit with a constant inspection throughout of 100ppm.

Reliably inspecting and rejecting packaged meat, cheese, chilled and confectionery products that present with metal, glass, wood, rubber, high density plastic, stone and calcified bones – a requirement imposed by most major food retailers today – the machine's advanced detection abilities adds a level of brand safety that was previously unattainable to most mainstay food manufacturers.

A single lane x-ray, available in two belt widths – 300mm and 400mm – one of the Raptor X-Ray's key features is its full 1.7m enclosure which maximises contaminant detection sensitivity and reliability by dissipating any heat created by the HMI and generator. This is all accomplished without using an energy-intensive air conditioning unit. Instead, the Raptor X-Ray pulls in fresh air and uses a more energy efficient fan generator to circulate air through the cabinet. This maintains a constant temperature that is no more than five above the ambient air temperature.

Even after 24 hours of continuously inspecting food packs, operatives can place an ungloved hand directly on the X-Ray generator and it is still cool to the touch.

With filaments in an x-ray tube running hotter when more current is demanded, the Raptor typically runs at half voltage – 80kV. This helps to prevent overheating, maintains a steady cabinet ambient temperature of 30 and helps to extend the service life of the tubes.

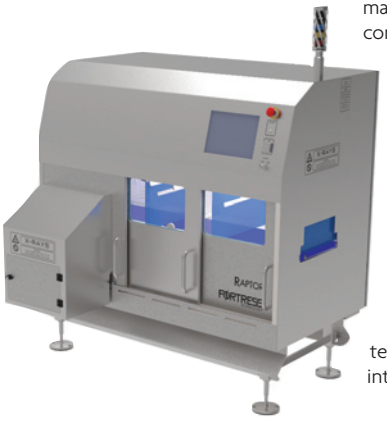
Performing tasks that the human eye would easily miss, including monitoring fill levels, identifying ingredient clumps, broken or missing product and spotting damaged packaging, the Raptor X-Ray ensures absolute quality of products coming off the line.

Reliable, easy to operate, at the best value to performance ratio in the food x-ray market, the Raptor X-Ray incorporates plenty of added features as standard to improve contaminant detection and traceability.

Collating live OEE data and reporting results directly to QA and technical personnel is increasingly imperative in fast-moving food production lines. The Raptor X-Ray's advanced software enables fast, reliable and easy product set up – increasing throughput and maximising detection of contaminants, while significantly reducing the number of false rejects. One product setting can adapt and inspect different sized and density product applications, without any human intervention. For example cheese blocks ranging from 100g to 1.5kg.

Uniquely, the Raptor X-Ray software also automatically incorporates every UK retailer COP that exists, integrating into a testing software preprogrammed into the machine menu.

Fortress Technology's Raptor X-Ray.



X-ray flexibility guarantees highest quality standards

Two Ishida IX-GA 4075 x-ray inspection systems are supporting Polarica – Scandinavia's largest supplier of reindeer, venison and elk meat – in its ability to meet the very highest food standards including ISO 22000 FSSC (Food Safety System Certification).

ishidaeurope.com

The IX-GA x-ray inspection systems incorporate Ishida's unique self-learning Genetic Algorithm (GA) technology that provides maximum detection sensitivity and reliability, and are more than capable of handling the varied speeds and pack sizes on the two packing lines at Polarica. The machines, which are in operation for eight-hour shifts, five days a week, are easy to use and extremely reliable. The fresh and frozen meat is weighed and packed into a wide variety of bag sizes from 30g to 2.5kg. As elks are hunted, a particular quality check requirement for the elk meat is to detect any shot remaining after cut up.

While a metal detector would also be suitable for this purpose, the Ishida x-ray systems provide a much higher level of sensitivity as well as the ability to detect a wider range of foreign bodies. In addition, unlike metal detectors, the X-ray systems are not affected by the water content in fresh meat.

A second Ishida IX-GA-4075 is inspecting sealed packs of sliced processed meat in pack sizes from 80-600g.

The latest in multi-energy x-ray detection technology capability

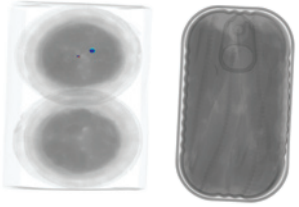
Advanced Inspection Services (AIS) has added the very latest multi-energy x-ray detection technology capability to its service offering. These advanced detectors provide the highest detection performance to find very small pieces of bone, seal fragments and similar non-metallic contaminants.

aisxray.co.uk

Following its introduction, AIS have inspected and successfully recovered thousands of food and meat products which otherwise would have had to be destroyed.

The multi-energy x-ray detection technology adds to their existing portfolio of sensor technology. Their sensor technology as high as 50-micron resolution (0.05mm) is ideal for detecting ultra-small contaminants plus they have x-ray technologies with 0.2mm and 0.4mm sensors for less challenging applications. Their on-site service includes x-ray systems with industry standard 0.8mm and 0.4mm sensors or now the highly sensitive 0.2mm.

AIS offer manufacturers, retailers and brand owners a free initial evaluation test service and can provide a result within a few hours of receiving the sample.



Advancing high performance setting with laser technology

Featuring new laser scanner technology, updated LED illumination, more powerful software driven by artificial intelligence (AI), a redesigned mechanical layout and more, Key Technology's VERYX 2.0 is advancing high performance sorting.

key.net/products/veryx

Key's new V2 laser scanner generates higher contrasts to better differentiate types of objects, which enables more precise foreign body (FM) and defect removal to optimise product quality while maximising yield by reducing product loss.

Updated LED illumination on VERYX 2.0 delivers higher intensity light with less scatter and less shadow, which improves the sorter's FM and defect detection.

Introducing components with up to twice the life expectancy of previous-generation LED lighting systems, Key's new V2 LED illumination reduces operating costs while improving sort performance.

VERYX 2.0 is available with Key's powerful Discovery suite of software solutions, which can turn the sorter into an IIoT-connected device that collects, analyses and shares data while sorting product. It harnesses data about the sort process and about every object flowing through the sorter to reveal patterns and trends that improve sorting and help control upstream and downstream processes. This provides actionable information that enables processors to optimise product quality, maximise yield, reduce downtime and minimise labour to increase profitability.

Using AI, Key has enhanced the functionality of its popular FM Alert software for VERYX 2.0. FM Alert is a monitoring tool that alerts operators in real time if a critical FM event occurs. Now, AI techniques assist FM Alert 2.0 in analysing captured images and accurately separating 'false FM' images from 'true FM' images to further improve the reliability of its record-keeping capability.

Key has also enhanced its intelligent Sort-to-Grade (STG) software with AI for VERYX 2.0. STG categorises every surface defect and/or the dimensions of every object and makes each accept/reject decision based on how it will impact the aggregate 'in the bag' grade as defined by the processor.

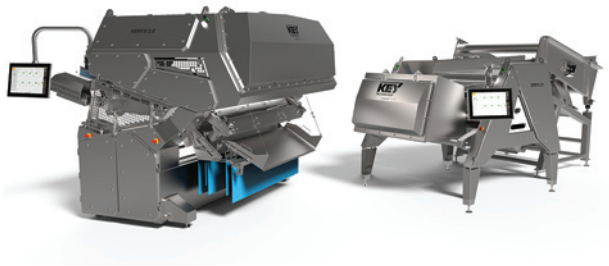
Now, STG 2.0 achieves more accurate digital length grading, especially on small products that tend to overlap, by using AI techniques to digitally separate clumps of products into distinct objects for the STG software to consider.

An STG-enabled sorter maintains the most complex final product specifications without operator intervention while increasing yields by 1-3% and enabling processors to eliminate mechanical length grading.

As the world's only sorter that achieves total in-air inspection on all platform configurations, every sensor on each VERYX sees the same object in the same place at the same time.

This enables Key's Global View software to combine data from multiple sensors and create whole-object views so the sorter can consider each object in its entirety, such as total surface area, when making classification and sort decisions.

Plus, this shared line-of-sight enables Key's unique Pixel Fusion technology to combine pixel-level input from multiple cameras and laser sensors, which produces higher contrasts to find even the most difficult-to-detect FM and defects.



Custom-built quality control, grading and sorting equipment

Lizotte Machine Vision develops and manufactures custom-built quality control, grading, and sorting equipment for the global food processing industry.

lizottemachinevision.com

Their system combines x-ray, colour inspection and other vision tools to sort out the defective product out of the processing line or grade them by colour, size, defect, and more. The automatic ejection process is capable of individually ejecting defective products without ejecting good products.

From product randomly placed on a belt to a product in a dedicated lane, their system is designed based on your criteria.

Since each system is custom-built based on customer needs, Lizotte Machine Vision combine the needed technology in order to reach your expectation.

Mitigate the risk of foreign matter contamination

Detectamet manufacture and distribute metal and x-ray detectable products to food, beverage and pharmaceutical manufacturers around the world.

With sites in the US, Canada, Australia and Germany and headquarters in Pocklington, UK, their global presence can provide global customer support 24 hours a day.

detectamet.global

Their products are made from an EU and FDA food-contact approved polymer, designed to mitigate the risk of foreign matter contamination within processing environments.

Their extensive range of detectable products includes stationery, storage solutions, safety knives, mixing and handling equipment, personal protective equipment, engineering products and test pieces – all manufactured to be detectable in a food and pharmaceutical manufacturing environment when passed through a metal or x-ray detector.

Working in partnership with BRCGS through their Partner Connection Programme, the vast majority of Detectamet's products are available with multiple colour options to allow for added colour coding and traceability within a production environment.

Additionally, and where practical, Detectamet manufacture reusable detectable products to reduce the amount of waste produced by their clients.

Their metal and x-ray detectable Elephant Pen is available in nine housing colours and four ink types, including with fully detectable refill.

Optionsfor

X-ray system delivers on ease of use and optimised detection

Food producers and packaging companies will benefit from high-speed detection of very small contaminants through investing in Mettler-Toledo Product Inspection's X34 x-ray inspection system.

mt.com/xray-X34

It is packed with sophisticated technology that sharpens detection capabilities for contaminants such as metal, glass, high-density plastic, mineral stone and calcified bone fragments. This technology includes a 100W 'Optimum Power' generator, advanced 0.4mm detector and ContamPlus software, which helps manufacturers to achieve a reduced False Reject Rate, reducing product waste and improving product safety.

Another key feature of the system is automated product set-up. With only minimal passes of the product through the X34, intuitive software automatically configures the contamination inspection tools, making it easier to use, with less operator training required, and fewer human errors that can affect detection performance.

The end result is better productivity and profitability, reduced Total Cost of Ownership and improved Overall Equipment Effectiveness (OEE) scores.

The X34 also has excellent ingress protection, with an IP65 rating (upgradeable to IP69). It can be equipped with Mettler-Toledo's ProdX data management software, which maximises production efficiency and quality control.

New processor technologies find bone fragments as small as 0.6mm

Any contaminant embedded in a food product gets in the way of quality and safety and causes headaches for manufacturers. In the poultry industry, minute bone fragments pose constant challenges and risks for recalls and even consumer injuries.

eaglepi.com

Such tiny pieces of calcified bone can be easily overlooked in chicken products bound for human consumption.

To help processors prevent such issues and protect their products and brands, Eagle Product Inspection has developed a next-generation detector technology, Performance X-Ray Technology (PXT), that captures more detailed data about a product than previously possible.

PXT can identify bone fragments down to 1mm in size in fresh, frozen and refrigerated poultry products as well as in bulk flow and retail poultry portions. When paired with the RMI 400 x-ray machine, the technology has been shown to detect bones as small as 0.6mm.

Speed is also a hallmark of the new technology.

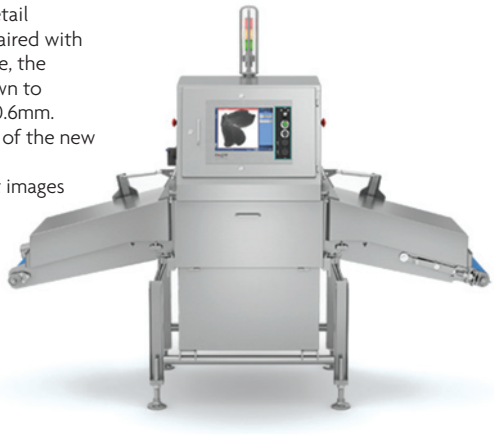
High-resolution product images are processed instantly through the use of Eagle's latest SimulTask PRO image analysis software.

One company that is using this new system to find more bone fragments, including low-calcification bones in young chickens, is Giannone Poultry. The processor recently deployed Eagle's RMI 400 with PXT machine in its 250,000ft^2 facility, after determining that a new deboning process was resulting in the inadvertent contamination of bone fragments in meat.

"The Eagle x-ray machine has resulted in a dramatic reduction of bones in our boneless products – basically down to zero.

"By purchasing a dual-lane system, we are able to double our output, or run different products at the same time," Bruno Giannone, vice president and chief executive officer at Giannone Poultry, told International Food & Meat Topics.

In addition to helping solve problems in the poultry industry, Eagle's PXT detector technologies are now available in several Eagle x-ray machines for general food applications.



Playing a key role in food safety across the UK

Metal is one of the most commonly found contaminants in food processing because of its widespread use in machinery, handling equipment and utensil manufacture.

rocol.com

Product manufacturers such as Rocol have a key role to play in supporting the health and safety of food manufacturing facilities. The introduction of Detex metal detectable caps and actuators on all Rocol aerosol spray cans and grease cartridges across the popular Foodlube product range eight years ago marked a significant step forward in the quest for safer food production sites.

Unlike traditional packaging, all caps and actuators on Foodlube aerosols and grease cartridges can be identified using standard metal detection equipment should they become loose in food and drink processing areas.

Used in conjunction with Rocol Foodlube products, which all carry the NSF H1 registration reflecting an independent assessment that has deemed them safe for use in the production of food and drink for human consumption, the range is playing a key role in food safety across the UK.

Belts for high-end foreign body detection in food

In order to guarantee stringent quality demands in food production and processing, sensitive products must contain no foreign bodies. In addition to meeting hygiene standards, detecting contaminants in food is another important factor.

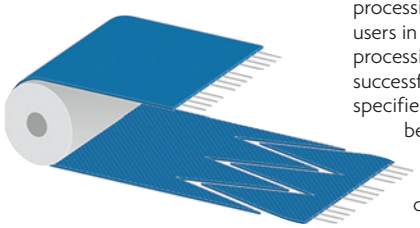
forbo-siegling.com

Foreign bodies can enter the production chain in all sorts of ways. In isolated cases, for example due to delamination, or rupture, particles of the conveyor belt used during production can also get into the food. This is why identifying potential foreign bodies is important for compliance with HACCP concepts.

Forbo Movement Systems has developed the new Transilon E 4/H U8/U8 MT/MT-NA MD blue FDA (art. no. 906825) belt type for this purpose. The special belt design combines the low elongation of conventional Siegling Transilon fabric designs with the easy-to-clean design of homogeneous conveyor belts. In addition to a metal-detectable, highly incision-resistant urethane coating, the new belt type has a matt surface on both sides with very good release properties, making the belt very easy to clean.

The patent-protected fabric design with longitudinal filaments in groups is a special feature.

Cutting the belt to length between the warp-thread groups within the specified widths produces a sealed belt edge. This prevents bacteria and liquids from penetrating the carcase and the edges of the fabric from fraying. The special fabric design also makes it an ideal troughed conveyor belt with a small end diameter of 40mm. Some OEMs for the dough-processing industry and many end users in the dough- and couscous-processing industry have already successfully tested the new belt and specified it as the standard belt to be used. Further applications are in the dairy, meat and poultry, baked goods and confectionery industries.



Low maintenance, yet high accuracy x-ray solutions

For x-ray inspection, Loma offer their low maintenance, high accuracy X5C Compact and the X5 Space Saver x-ray solutions. Designed with packed convenience food, ready meals and small packaged goods in mind, the X5C is Loma's smallest x-ray system available.

loma.com

Providing a machine length of 1000mm and offering excellent Critical Control Point (CCP) protection in the smallest footprint possible, the X5C is manufactured under Loma's Designed to Survive philosophy to deliver one of the toughest systems on the market. The bigger X5 Space Saver can be integrated in line with optional free standing reject and is available in 300mm and 500mm belt width models.

Perfect for products with a height of up to 180mm, the system incorporates an integrated higher power X-ray generator and offers good detection levels on a wide range of hard and soft contaminants including all metals, bone, glass, dense plastics, within most packaging types, including foil trays or metallised film. Loma's x-ray systems can simultaneously inspect for the integrity of the product, which includes missing items, excess products (by volume count), and x-weighing.

LOMA's IQ3+E Pipeline is a robust metal detection system designed to inspect pumped products such as soups, sauces, slurries, jams or dairy.

Providing Sterile in Place (SIP) and easy strip down cleaning depending on the application, IQ3+E Pipeline complies to EN1672-2 hygiene standards, offering IP69K protection suitable for both high-care and low-care environments.

Furthermore, Loma's IQ3+E Metal Detector Conveyor system can be configured to suit various factory and product requirements. Two models feature different reject options, including a Stop on Detect conveyor and a pusher system. Both models are ideally suited for packaged product.

To complete the line-up, their CW3 Checkweigher is designed to be integrated into the production process to ensure product weight meets legislation. It is perfect for products such as convenience foods, sachets and ready meals.

The fast and accurate system can cope with a wide variety of flexible and rigid packs over a broad range of weight up to 60kg and has many options to meet all application needs, with options such as reject confirmation, bin full sensors and infeed guides.

Loma's CW3 Checkweigher.

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High quality metal detection saves pork producer's bacon

Four Interceptor metal detectors from Fortress Technology has enabled a North American pork producer to meet its new fast-food customer's tough requirements for accurately and reliably inspecting high volumes of bacon.

by Jodie Curry,
European Commercial Manager,
Fortress Technology.
www.fortresstechnology.co.uk

Thanks to the Interceptor's increased sensitivity and simultaneous multi-frequency innovation, the producer has not only satisfied its client's stringent food safety specifications, it has also eliminated false rejects by isolating product effect.

Winning a major contract with a big fast-food chain, the pork producer's investment in a higher-quality metal detection system was crucial to meeting its new client's quality assurance and HACCP standards. The company's existing inspection equipment was struggling to cope with the notorious product effect common with meat products that are wet and highly conductive.

Salty products such as bacon can be especially challenging to inspect as it increases the conductivity of the wet product. This impacts a metal detector's ability to distinguish between any metal contaminants, including stainless steel, that may have been introduced during processing and the false signal given by the combination of product attributes. These different factors can lead to false readings and consequently higher product waste.

Product effect can make it difficult for standard detectors to tell the difference between the signal generated by the bacon itself and any signal given off by a metal contaminant. As well as resulting in a high volume of false rejects, there is greater potential for real contamination to be missed.

The North American pork producer installed four Interceptor machines to meet the exacting inspection demands of a new fast-food customer.

Single pass product learning and automatic calibration stops operatives constantly resetting and recalibrating the metal detector for different pack sizes.

Size sensitive in one pass

With the fast-food chain demanding more stringent sensitivity specifications, the bacon producer sought a solution to conquer product effect once and for all.

A longstanding and satisfied Fortress customer with over 50 of the company's metal detectors installed throughout its production facility, trust and familiarity with Fortress equipment was already firmly established. User friendly features that support quick set up are always highly valued by any busy production plants.

Inspecting retail and bulk packages of bacon ranging from 5-7kg, single pass product learning and automatic calibration means that operatives are not having to constantly reset and recalibrate the metal detector for the different pack sizes.

Automated technology features like these make the manufacturing process much simpler for production staff and significantly reduces the time spent introducing and checking operating protocols.

The Interceptor works by carrying out a real-time analysis of a low-frequency and a high-frequency output signal simultaneously. Although the size of metal contaminant that is detectable depends on the product size and temperature, as well as the aperture size, typically the Interceptor can improve detection levels for stainless steel by as much as 100% in contrast to standard metal detectors. The result is a more reliable and accurate reading regardless of size, shape and orientation of metal particles.

Additionally, a built-in noise immunity structure minimises external electrical disturbances, further lowering the occurrence of false rejects.

The enhanced sensitivity, accuracy and cost efficiencies have more than satisfied the producer's new clients' exacting demands. Having invested in four new Interceptor, the pork plant continues to retain its solid reputation for quality and food safety.

With the digitally advanced Interceptor, Fortress continues to safeguard some of the leading products and brands by challenging traditional detection expectations and ensuring product effect does not compromise inspection performance or operational efficiencies.

The combination of 100% increased metal detection sensitivity, elimination of false product rejects and easy to use automated features continues to offer reassurance and brand protection to the hundreds of customers the company support internationally. ■

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The 2021 Annual Meeting of the International Association for Food Protection (IAFP) took place in Phoenix, Arizona, USA from 18-21st July. International Food & Meat Topics takes a look at some of the current research being undertaken.

Each year the IAFP hosts a meeting which provides attendees with information on current and emerging food safety issues, the latest science, innovative solutions to new and recurring problems, and the opportunity to network with thousands of food safety professionals. Held in various locations throughout North America, this meeting has grown over the years to become the leading food safety conference worldwide.

Antimicrobial efficacy of photosensitiser curcumin on food contact surfaces in the cold-smoked fish industry

Karl Matthews, Rutgers, The State University of New Jersey, USA.

Listeria monocytogenes is the number one cause for recall of cold-smoked fish. In addition, 58% of foodborne illnesses are caused by norovirus closely followed by salmonella. These pathogens are transferred by infected individuals or through contact with contaminated products and surfaces. The aim of the study was to evaluate the antimicrobial efficiency of water-soluble photosensitiser curcumin (PSC) against Listeria monocytogenes (six strains), salmonella (three strains), and MS2 (surrogate for norovirus) on food-contact surfaces typical of the smoked seafood industry.

The absorption maximum of photosensitiser curcumin was found to be 414.98nm. A LED light source of wavelength 430nm was constructed and was found to have a wavelength of 111W/m^2. The salmonella strains had a 3-log reduction at 200ppm when it was incubated in curcumin for five minutes and exposed to light at an intensity of 66.6KJ/m^2.

Further studies are being done to determine the best combination of incubation time versus light exposure. Photosensitiser curcumin has shown to be a strong antimicrobial agent.

Furthermore, it is a naturally occurring compound making it an attractive method of sanitation. ■

Impact of antimicrobial application sequence on destruction of salmonella and campylobacter in raw poultry

Robert Ames and Garrett McCoy, Corbion.

Despite numerous interventions throughout processing, Salmonella spp. and Campylobacter spp. continue to proliferate in raw poultry products, leading to illnesses and recalls. New application methodologies may alleviate this challenge.

The purpose of this study was to determine reductions of Salmonella enterica or Campylobacter spp. following sequential or individual dip application of common antimicrobials.

Chicken breasts were trimmed to 5cm^2 surface area with even thickness and inoculated with a cocktail containing Salmonella enterica subsp. enteritidis (ATCC 13076 and 31194), typhimurium (ATCC 13311 and 14028), and heidelberg (ATCC 8326), or a cocktail containing Campylobacter jejuni (ATCC 33560) and Campylobacter coli (ATCC 43483) to achieve a starting population of ca. 5 log CFU/g.

Cells were permitted to attach for 30 minutes post-inoculation in a biosafety cabinet.

Post-attachment, samples were dipped (30 seconds dip with agitation by forceps) in one of the following treatments: 5% buffered lactic acid (BLA; pH 3.5) alone, 200ppm lauric arginate ethyl ester (LAE) alone, BLA followed by LAE, or LAE followed by BLA (15 seconds each application).

Samples were placed on a clean wire rack to dry in a biosafety cabinet for 10 minutes.

Samples were then transferred to sterile bags, diluted 1:1 in Dey-Engley neutralising buffer, and stomached (230 rpm; 30 seconds).

Dilutions were performed in Butterfield's buffer and plated on xylose-lysine-tergitol 4 agar (XLT-4; 35˚C for 24 hours) or Campy-Cefex agar (41˚C for 48 hours).

Samples were enumerated and reductions were compared to the control.

For salmonella and campylobacter, application order of BLA and LAE was not significant ($P>0.05$); however, the co-application of antimicrobials resulted in lower ($P<0.05$) counts than untreated control (average 1.3 and 2.3 log CFU/g reduction compared to control in salmonella and campylobacter, respectively).

Application sequence of two common antimicrobials may not impact destruction of salmonella and campylobacter. ■

Rapid quantification of enterobacteria in raw milk using real-time PCR methods

Matthias Giese, Florian Priller, Cordt Grönewald and Kornelia Berghof-Jäger, BIOTECON Diagnostics.

Raw milk can be contaminated with Enterobacteriaceae and these organisms are often used as microbial hygiene and quality indicators during the production of milk. Challenges for Entero-bacteriaceae quantification is ensuring reagents are free of any contaminating foreign DNA that can result in a high false-positive signal.

By developing a new method for decontaminating the reagents, it can significantly reduce this contamination while preserving quality, stability, and efficiency at the level more sensitive than traditional microbiology.

In this study DNA extraction and amplification was based on the foodproof StarPrep Three Kit and foodproof Enterobacteriaceae plus Salmonella Detection LyoKit.

Reagent D was used during extraction to bind extracellular DNA to discriminate live cells from dead cells.

They spiked matrices (for example growing up milk and BPW) with 10^6 cells/mL of Cronobacter to compare Cq values of untreated and reagent D treated samples and also spiked raw milk with live Escherichia coli (DSM 3008310) to test for sensitivity and recovery.

PCR mix had significantly more positive signals from extracellular DNA templates contaminating the reagents compared to treated and reduced detection of up to > 6 log (approx. ΔCq 20) dead cells.

The Limit of Detection (LOD 95) for Enterobacteriaceae in raw milk samples was 0.8 genome copies (GE) per reaction. ■

Efficacy of disinfectants against human norovirus on food contact surfaces

Clyde Manuel, James Arbogast and Rachel Leslie, GOJO Industries, Inc. Rebecca M. Goulter and Lee-Ann Jaykus, North Carolina State University, Department of Food, Bioprocessing and Nutrition Sciences, USA.

Human Norovirus (HuNoV) is particularly difficult to inactivate with commonly used disinfectants at concentrations appropriate for food contact surfaces. Recently, two new surface disinfectants, Purell Surface Sanitizer (PSS) and Sink & Surface Cleaner Sanitizer (S&S), have come to market with 30 second label claims for HuNoV based on using murine norovirus (MNV) or feline calicivirus (FCV) surrogates.

The purpose of this study was to characterise the viricidal efficacy of PSS (28.5% ethanol) and S&S (0.55 fl.oz/gal dilution, 0.06% dodecylbenzenesulphonic acid and 0.15% lactic acid), in comparison to 400ppm QAC and 200ppm hypochlorite, at 30 and 60 seconds using HuNoV GII.4 Sydney, and the cultivable HuNoV surrogate, Tulane Virus (TuV).

For GII.4 Sydney, PSS produced a 3.55 ± 0.72 and 4.03 ± 0.47 log reduction in genome equivalent copies (GEC), while S&S showed a 0.05 ± 0.14 and 0.23 ± 0.26 log reduction, after 30 and 60 seconds, respectively. In comparison 400ppm QAC produced a 0.22 ± 0.05 and 0.13 ± 0.12 log reduction in GEC, while 200ppm hypochlorite showed a 0.23 ± 0.06 and 0.31 ± 0.10 log reduction, after 30 and 60 seconds, respectively.

Similar inactivation patterns were observed using infectivity assay with TuV, with PSS performing at a level matching the label claim, while S&S showed only minimal log reduction. These data highlight the importance of using relevant surrogates and supplementing data with HuNoV studies to produce a more comprehensive picture of product efficacy in disinfection studies. ■

Salmonella spp. and Listeria monocytogenes behaviour with chitosan application on pig carcase samples

Maria Ciríaco and Rui Silva – Department of Veterinary Sciences, School of Agrarian and Veterinary Sciences (ECAV), University of Trás-os-Montes e Alto Douro (UTAD), Isabel Pinto, Seara, SA, Cristina Saraiva, and Alexandra Esteves, Veterinary and Animal Research Center (CECAV), University of Trás-os-Montes e Alto Douro (UTAD).

Contamination of pig carcases by pathogenic micro-organisms often occurs during the slaughter process. This study aimed to evaluate the behaviour of Salmonella spp. and Listeria monocytogenes by chitosan application as a decontaminant in pig carcase samples.

For Salmonella spp., significant differences were observed between control samples without and with chitosan for both suspensions and chitosan concentrations, particularly after 24 hours.

During the 48 hours, a bacteriostatic effect was observed for Salmonella spp. mix for chitosan 0.2%, and a bactericidal effect at 0.5%, decreasing approximately 0.49 and 1.46 log CFU/cm^2 for suspension A and B, respectively.

Listeria monocytogenes was able to grow at 0.2 and 0.5% chitosan.

However, compared with control samples, chitosan showed better results with significant differences observed during time. During 48 hours at 0.2%, counts were 0.94 and 2.23 log CFU/cm^2 lower for suspension C and D, respectively. At 0.5%, counts were 1.29 and 2.66 log CFU/cm^2 lower for suspension C and D, respectively.

Chitosan has good bioactive properties that can be used in the food industry.

The behaviour of Salmonella spp. and Listeria monocytogenes demonstrates the possibility of using this compound in meat preservation. ■

Effect of extended storage on the survivability and thermal resistance of Listeria monocytogenes in dry and hydrated milk powders

Amninder Singh Sekhon, Arshdeep Singh, Phoebe Unger, Monipel Babb and Minto Michael, Washington State University, USA.

Listeria monocytogenes (LM) has a unique ability to survive in low water activity (aw) conditions for prolonged time periods and can cause severe health concerns if post-pasteurisation contamination occurs in milk powders.

The purpose of this study was to determine survivability and thermal resistance of LM in dry and hydrated non-fat dry milk (NFDM) and whole milk powder (WMP) during storage of four months.

This study was designed as a two factorial (storage and powder type) randomised complete block design with three replications.

Milk powders were inoculated with a 3-strain cocktail of LM and dried back to original aw levels.

The D- and z-values study were conducted every 30th day, starting on day one for both dry and hydrated powders. Five (g or mL) respective samples were transferred into thermal-death-time (TDT) disks, sealed, and placed in the water baths set at 75, 80, and 85˚C for NFDM and WMP, and 54, 57, and 60˚C for hydrated NFDM and WMP. Samples were heat treated from 0 to 40 minutes and then taken out at predetermined time intervals and transferred immediately to an ice water bath.

Samples were enumerated using injury-recovery media, and D- and z-values were calculated. Two-way ANOVA at $P \leq 0.05$ was used for statistical analysis.

D-values of LM in NFDM for day one were 13.1, 6.0, and 4.0 minutes at 75, 80, and 85˚C, respectively, whereas D-values of LM in WMP for day one were 12.0, 6.3, and 3.3 minutes at 75, 80, and 85˚C, respectively.

There was no significant interaction of the main effects for D- and z-values of LM in dry and hydrated milk powders.

However, the main effect (storage-day) was significant for D-values at 75, 80 and 85˚C where it increased with time.

D- and z-values from this study provide basic information about the effect of storage time and milk powder type on heat resistance of LM in milk powders. ■

In plant validation study of peracetic acid intervention on whole beef carcases using Escherichia coli surrogates

Diego Casas, Alejandro Echeverry, Marcos X. Sanchez-Plata and Mark Miller, Texas Tech University, USA.

The efficacy of antimicrobials intervention during the slaughter process shall be finally validated under in plant conditions. The levels of natural Escherichia coli on beef carcases are very low in order to determine the real efficacy under commercial operation conditions.

The use of Escherichia coli surrogates opens a great opportunity to validate beef carcase interventions in commercial facilities.

The purpose of this study was to determine the antimicrobial efficacy of different levels of peracetic acid (PAA) on whole beef carcases using proven Escherichia coli surrogates in a commercial beef processing plant environment.

On each repetition, 21 carcases were railed off the processing line and sprayed on three different areas (100cm^2) of the shank with an E. coli surrogate cocktail (BAA-1427, 1428, 1429, 1430 and 1431) targeting 6 log CFU/cm^2 of attachment. Samples were taken using 25mL buffered peptone water (BPW) EZ-Reach swabs after 30 minutes for cell attachment, immediately after intervention, and 24 hours after intervention.

Treatments evaluated were PAA at 400, 600 and 800ppm.

Flow rate, pressure, concentration, and temperature were recorded for each treatment. TEMPO system was used for E. coli enumeration.

A total of three repetitions were conducted and a two-way ANOVA was performed using R (Version 4.0.3).

For all tested concentrations, interventions significantly reduced ($P<0.05$) Escherichia coli counts immediately after intervention and after 24 hours. For 400, 600, and 800ppm of PAA interventions, reductions were, on average, 4.62, 5.63, and 5.3 log CFU/cm^2 after intervention, respectively. There was no significant difference ($P>0.05$) of attachment level between PAA concentrations.

The use of E. coli surrogate strains can become an alternative for obtaining more precise results in the effect of interventions on validation studies in commercial beef processing facilities, as well to represent more accurately the behaviour of E. coli O157:H7 and salmonella. ■

Natural disinfectant to reduce Listeria monocytogenes contamination on food contact surfaces

Jaya Sundaram and Jasdeep Saini, WTI, Inc.

Listeria monocytogenes has been implicated in several outbreaks linked to consumption of ready-to-eat (RTE) sliced deli meats. Food contact surfaces like meat slicers in retail delis provide ideal conditions for the bacteria to colonise and grow.

Sliced meats can become contaminated with Listeria monocytogenes during slicing and may pose a serious public health concern.

Effective interventions are needed to control this pathogen and prevent cross-contamination on food contact surfaces.

The purpose of this study was to evaluate the effect of natural surface spray disinfectant at reducing Listeria monocytogenes population on food contact surfaces.

Combined vinegar and citrus extract emulsion was evaluated for its antimicrobial effect as natural disinfectant by direct exposure of surface inoculated stainless-steel coupons (n=30) with a five-strain L. monocytogenes cocktail at 6 log CFU/mL into the emulsion for 30 seconds.

Polyethylene surfaces (n=3) were inoculated with L. monocytogenes cocktail, with an attachment of 3-4.5 log CFU/cm^2 on the surfaces and treated with antimicrobial emulsion using spray method for 10 seconds, three minutes and 60 minutes of exposure time.

Stainless steel surfaces (n=5) were inoculated, treated and reinoculated for three times to mimic potential re-contamination at a deli slicer.

Pathogen enumeration was performed before and after treatments by dislodging attached cells from surfaces in a solution using sponge sampling method and plated using selective media.

Direct exposure of antimicrobial to inoculum showed efficacy at 30 seconds ($P<0.001$).

Treated, inoculated polyethylene surface showed the reduction of 1.21, 1.36 and 1.98 log CFU/ for 10 seconds, three minutes and 60 minutes of exposure time, respectively.

The effect of natural disinfectant on polyethylene surface was significant at 90% confidence level compared to control.

Stainless steel surfaces showed significant reduction at each level with $P<0.05$.

Natural surface spray disinfectant showed positive reduction of Listeria monocytogenes on selected surfaces under various simulated conditions. ■

A GREENERVIEW
waste reduction & management

Raisins South Africa

Raisins South Africa are working to provide direction on the environmental integrity dimension of sustainability, to advance the industry's sustainable performance levels for the future. As part of this strategy, non-for-profit organisation Raisins South Africa held a 'Healthy Soils for Healthy Vines' themed field day this year. The workshop was attended by 120 raisin growers and 50 pupils from the agricultural department at High School Martin Oosthuizen over the course of two days. The raisin industry believes that it is crucial that youth are involved in strategies such as these, to ensure that they are well informed on the relevance of soil health, to work towards higher levels of sustainability. The workshop highlighted the importance of healthy soil properties, through demonstrating how different soil preparation techniques can be applied to ensure optimum use of this natural resource.

raisinsa.co.za

Cranswick

In a combined pork and poultry industry-first, Cranswick plc has addressed the carbon impact of its animal feed by switching all its farm-to-fork sources to 100% certified deforestation-free soya. Certified soya is grown on land that is not associated with deforestation and land-use change and this switch has resulted in a 21% reduction in carbon compared to the previous system. Animal feed remains one of the big challenges for the meat industry and makes up around 80% of Scope 3 targets so switching to a different sourcing model is a substantial step forward. The business is moving from a book and claim system to a full mass balance system which allows for greater transparency in certified soya moving through the supply chain. The new soya sourcing model means that Cranswick plc is choosing to pay a higher price for feed but it puts the business in a positive position to meet its goal to halve Scope 3 emissions – the area which provides the greatest opportunity to reduce its carbon footprint – in nine years.

cranswick.plc.uk

Chr. Hansen

Pursuing a low-carbon future, Chr. Hansen's Science Based Targets form the core of the company's strategy to reduce its carbon footprint towards 2030. Under its newly launched programme 'Think Climate. Naturally.' the bioscience leader is decoupling its climate impact from economic growth. Two science-based climate targets will form the basis of the company's strategy to reduce its carbon footprint:

- 42% reduction of greenhouse gases across scopes 1 and 2 by 2030.
- 20% reduction of greenhouse gases from scope 3 by 2030.

Chr. Hansen's new climate targets have been validated by The Science Based Targets initiative (SBTi), a partnership between CDP, the United Nations Global Compact, World Resources Institute and the World Wide Fund for Nature.

chr-hansen.com

CleanSmoke Coalition

CleanSmoke can reduce fine dust emissions in smokehouses by 87% and emissions of volatile organic compounds (VOCs) by 64%. This was the result of analyses carried out as part of the European Eco-innovation Action Plan (EcoAP). When smoking with CleanSmoke, there is no open fire or embers, which is why no pollutants such as particulate matter, nitrogen oxides or carbon monoxide are produced. But it is not only particulate matter and nitrogen oxide that can be reduced by consistent use of the CleanSmoke technology: CO_2 emissions would also be significantly reduced compared to classic smoking methods – by around 80%, according to studies conducted as part of EcoAP. Specifically, according to the life cycle assessment of the German Institute of Food Technologies (DIL), around 50% of energy and – based on the current German energy mix – around 30 % of climate gas emissions can be saved compared to traditional smoking. In Germany alone, this would mean potential savings of around 600 million kilowatt hours (kWh) of energy and thus also around 72,000 metric tons of CO_2 equivalents per year.

clean-smoke-coalition.eu

internationalnews

The Institute of Food Science Technology has launched a new IFST Food Allergens Knowledge Hub to help consumers, food businesses and educators source the best practice advice about allergen risks and packaging. This library of resources signposts visitors to credible guidance food industry bodies and government agencies, alongside additional complementary IFST knowledge resources. It has been developed by an IFST Working Group, many of whose members have first-hand experience of allergies and their consequences. The hub has sections for small businesses and caterers, medium and large businesses and educators. IFST also provides specific guidance for consumers to help them understand the latest allergen legislation. Up to two million people suffer from a food allergy in the UK (affecting around 1-2% of adults and 5-8% of children). Consequently, the identification, control and communication regarding food allergens has always been a critical issue throughout the food supply chain. New allergen labelling requirements were introduced in October for prepacked for direct sale (PPDS) food products in England, Wales, and Northern Ireland. As the subject of allergens and the implications for food businesses has been brought into even sharper focus, the IFST online knowledge hub (which is free to access) provides reliable, up-to-date resources for all those needing clear and trusted, scientifically evidence-based information. The IFST working group continues to work closely with IFST member communities, other professional bodies and the government to equip everyone with the best advice to navigate the new allergen labelling changes.

ifst.org/food-allergens-knowledge-hub

Organic oxidation control solution

Kemin Industries, a global ingredient manufacturer that strives to sustainably transform the quality of life every day for 80% of the world with its products and services, recently expanded its FORTIUM R rosemary-extract-based product portfolio for colour and flavour protection to include FORTIUM R30 OR, an organic option for food manufacturers in the EMEA (Europe, Middle East, Africa) region.

Kemin Food Technologies – EMEA, a leading provider of shelf-life extension and food safety solutions for the food and beverage industries, developed the FORTIUM R product line as an alternative to traditionally used synthetic preservatives to provide food manufacturers with natural and organic ingredients to protect their food products from oxidative rancidity.

Consumers demand fresh foods with minimum processing, and they also have an increased desire to purchase organic foods containing recognisable kitchen ingredients, which equates to a clear and transparent label.

"We added Certisys-certified organic versions of FORTIUM R30 OR Liquid and Dry to our product portfolio in response to the growing European organic food market," Kelly De Vadder, Marketing Director, Kemin Food Technologies– EMEA, told International Food & Meat Topics. "The market is set to reach USD$42 billion by 2021, with a compound annual growth rate of close to 7%. Denmark, Switzerland, the UK and France account for the biggest growth rate and market share." Kemin's line of rosemary-extract-based products is designed for maximum effectiveness to optimise flavour, protect colour and extend shelf life in a variety of food products including meats and baked goods. The newest addition to this suite of products, FORTIUM R30 OR, is available in both dry and liquid variants.

kemin.com

Injecting value into seafood

Injecting brine into meat products such as cured bacon is crucial for consistency of distribution, quality and yields for food manufacturers. Now the seafood industry can also take advantage of this precise technique for locking in flavour and ensuring a longer shelf-life for seafood products.

Leading technology provider GEA Food Solutions has launched automated injection systems suitable for the hygienic handling of a variety of fish, including cod fillets, salmon and mackerel. Configuration of the needle pattern can be adapted according to species, whether injecting brine, marinating or flavouring products.

There are multiple reasons for injecting fish with brine, most important is the need to ensure product safety especially for ready-to-eat products. Brines include salts and additives that help to inhibit bacterial growth, such as listeria, and to extend the product's shelf life and flavour to make sure that it arrives with the consumer in perfect condition. If fish is dried and smoked, it will lose weight in the process. Adding brine before smoking ensures that the product remains succulent, with less protein loss, while it absorbs the characteristic smoked flavours.

GEA's 2mm injection concepts such as the MultiJector introduce brine in a high-density injection pattern, combined with the right injection pressure, avoiding injection points becoming saturated which can cause the brine to leak out.

A higher density of needles allows less brine per needle to be injected at a lower pressure. It also means reduced downtime spent cleaning the equipment and surrounding environment.

Senior product sales manager for GEA, Bjarne Lyngø, explains that a tight needle pattern, in combination with immediate post-injection handling such as shaking or vibration, helps close needle marks while the brine is more easily absorbed by the fish, improving the flavour.

"On a MultiJector, for example, there are 792 very fine hypodermic needles 2mm in diameter. With lower pump pressure the marks are not visible, and you have no separation in the meat. After injection we use high frequency shaking technology for better penetration of the ingredients and flavours being added to the fish. The protein and brine ingredients are activated which means there is less drip and less deterioration of the product," Bjarne told International Food & Meat Topics.

For good vibrating the GEA MultiShaker is the market leader. Shaking the fish with high-frequency vibrations achieves even better distribution of brine. To complete the line there is the cool GEA SuperChill. This accurate temperature-controlled brine chiller reduces both injection pick-up variation and post-injection purge enabling manufacturers to provide a better, more consistent product.

GEA injection, shaking and chilling technology is designed to work together with safety and accuracy built in through decades of experience and engineering excellence. As a result, product quality and consistency are significantly increased, and higher efficiency can be achieved.

Without a doubt the seafood industry benefits from GEA's unique brine injection technology. This is driven by an understanding of the process and the quality of the equipment deployed to carry out the tasks involved. This ensures that the benefits extend from the processor to the reseller and ultimately to the all-important end consumer.

gea.com

Celebrating first milk intake

GEA Group AG and Hochwald Foods GmbH have celebrated the first milk intake of a new, highly efficient dairy near Cologne, together with all employees of the large construction site. The new plant in the German town of Mechernich will be the most modern dairy in Europe and will start commercial production in January 2022.

GEA's highly efficient process technology lays the foundation for sustainable production of the new dairy. For example, the particularly short downtimes of the GEA plant ensure resource-saving operation. In addition, the sophisticated cleaning-in-place (CIP) concept saves water. Energy-efficient heat exchangers return the otherwise wasted waste heat from the process to an energy cycle for reuse elsewhere.

In the future, Hochwald Foods will process around 800 million litres of milk per year in the new plant into high quality dairy products.

gea.com

High hygiene in Vietnam

Charoen Pokphand Foods (CPF) is an industry leader living up to high food safety standards. The company is the world's largest producer of feed and shrimp and is a global top-three producer of poultry and pork. With operations in over 20 countries, it has become a well-known brand in many international markets.

As a Thailand-based company, CPF continues to invest in the booming Southeast Asian market, aiming to provide customers with high quality products that meet the highest hygiene standards.

System integrators, including Thai MecTech Co Ltd and MT Food System Co Ltd, have installed a set of conveying solutions for the CPF facility in Binh Phuoc, Vietnam, to help the company better respond to the challenges facing the food industry, with efficiency and hygiene at the core. As the key drive equipment, a total of 211 Interroll Drum Motors were installed, including the DM 0080, DM 0113, DM 0138, and more. When asked why Interroll Drum Motors were chosen, CPF Executive Vice President Anurat Suthamnirun said, "The most important for food industry practice is hygiene, and with Interroll Drum Motors we can reduce most hygiene problems on the conveyors. In addition, with Interroll's products, significantly less cleaning time is required which allows us to gain more production time and less cleaning costs."

Interroll Drum Motors have a number of unparalleled, industry-leading advantages, especially in terms of hygiene and safety. They have received the European Hygienic Engineering & Design Group (EHEDG) certification, featuring IP66/IP69K protection, which means they can provide the highest hygienic protection. In the past, food processing companies tended to use conventional gear motors as the drives for conveyors. However, because of their structure, dirt can accumulate. But with drum motors, the risk of product contamination in the food processing area is significantly reduced because most of the parts are located inside and the smooth, stainless steel surface helps reduce the possibility of dirt and microbial retention to a large extent. This also makes cleaning faster and easier.

In addition to their hygienic benefits, Interroll Drum Motors are also highly efficient. They reduce energy consumption by up to 30% in comparison to conventional solutions. Furthermore, Interroll Drum Motors can save companies lots of time and costs since there is no special need for maintenance during their service life. Interroll's modular platform strategy also makes the next-generation drum motors easy to install, ensuring short and reliable delivery time.

interroll.com

In a poultry processing plant, the Quality Control Manager is responsible for ensuring that every product leaving the plant meets all required food safety and quality standards. The tool to rely on for this accuracy is Innova's Quality Control software module. Quality checks are done in every process stage, from raw material inspections to product and box/pallet checks. They can include inspections for truck cleanliness, lighting in the lairage, sample collections of leucosis, equipment inspections, interventions for reducing pathogens, feet samples to check for lesions or samples of chicken core temperatures. Innova's Quality Control module gives paperless control of the QC process. Reliable information on the screen gives an accurate status of all quality issues. QC also plays a part in traceability as it links real-time quality data, obtained during the inspections, directly to production processes, raw material source or final product ingredients. Using the connection between quality control and traceability, the QC manager can place a lot, item, pack or pallet on hold because of a failed quality control inspection. This prevents it from entering production. Apart from routine inspections required by the central authorities, customised checks may be needed, for instance due to local legislation. Marel has put together a 'pre-built box of checks' which covers around 75% of the checks needed for quality control. This package will help meet requirements demanded by the major regulation authorities. The remaining 25% can be addressed with tailor-made solutions. The box of checks speeds up implementation of a quality control software package considerably.

marel.com

Improving fish welfare with AI

The iFarm project, a collaboration between Cermaq and BioSort which has been ongoing since January last year, is in its second phase.

An entire sea site in Vesterålen, Norway is now equipped with an iFarm setup in all the net pens, after the fish was stocked there this autumn. In this phase, the project will do a real full-scale testing of the concept and technology. The goal is to increase fish health and welfare with artificial intelligence and machine learning.

In the first phase, iFarm equipment was rigged in individual net pens at the Martnesvika site in Steigen. The main focus in Martnesvika has been to follow the fish's behaviour, and gain experience with the new equipment in the pens.

The experience gained so far has been used to adjust equipment and set up for phase 2 of the project. This means that the iFarm equipment that is put into sea in phase 2 at Langøyhovden is a little different than the equipment in phase 1 in Martnesvika.

"Among other things, we have seen that the design of the sensor housing and the openings the fish must swim through to get to the surface affect their swimming pattern," iFarm project manager Karl Fredrik Ottem, told International Food & Meat Topics. "We are dependent on the fish choosing to swim through the sensor house, so in this phase we are putting out six different sensor houses with different geometric designs, to test which houses the salmon prefer. Then we will also know which sensor houses we will use in phase 3, when we stock fish for the third time in the project. The six houses that have now been put into sea have been put together on land at Myre in Vesterålen, before they have been transported to the sea site and installed in the net pens, at a depth of 8m.

"We have many good cameras so that we can constantly monitor how the fish swim and ensure that they eat and thrive," added Karl.

"So far, it seems that the fish are getting used to new equipment in the net pen, at both Martnesvika and Langøyhovden."

cermaq.com

Emerging PEF technology

Campden BRI has begun research to identify and assess untapped practical applications of the emerging pulsed electric field (PEF) technology. The technology has already shown commercial benefits for a range of product types leading to increased throughput, reduced energy use and increased product yield.

The non-thermal PEF technology effectively uses short pulses of electricity that punch holes in cells. This modification to cells and structures offers a range of processing benefits including improved drying and freezing times, whilst maintaining better product quality, reducing blanching times, improved extraction and yields and microbial pasteurisation to name a few. The scientists at Campden BRI are looking at further applications that represent the industry's needs.

They are exploring surface inactivation on bigger pieces of food products with PEF using lower field strengths alone and in combination with other hurdles and are very interested to speak with companies who may benefit from this application.

"Academic research and current literature show PEF as one of the most promising emerging technologies available with a lot of untapped potential and possible applications," Andrew Bosman, a process engineer at Campden BRI who is leading the research, told International Food & Meat Topics.

"In addition to the research being undertaken we are also keen to work with manufacturers who are looking to exploit the benefits of the technology and realise applications with their products. Our extensive experience of working with new technologies and our ability to benchmark PEF against those we have on-site will ensure businesses will be able to gain an understanding of whether PEF truly meets their goals."

PEF rapidly disrupts either microbial or food cells (for preservation, extraction or functional benefits) without imparting significant heat. This renders it a non-thermal process and allows manufacturers to avoid, or greatly reduce, detrimental changes in the sensory and physical properties of their food products.

The scientists at Campden BRI can use their state-of-the-art pilot plant to trial a wide range of product types with the technology including any liquid, solid or pulp products – for example, fruit and vegetables in either their raw, cooked or juiced form.

This research could open up further application areas for PEF which has been showing great commercial benefits for a range of other products and applications.

The snacking sectors is one area where the technology can help manufacturers to be more sustainable by reducing water and oil use and the need for some processes saving total energy use.

campdenbri.co.uk

Digitalisation to new trends

2022 will be IFFA year and industry will be able to discuss innovations on the top themes of automation, digitalisation, food safety, sustainability, food trends and individualisation.

The requirements for the production of meat and meat alternatives are high: food safety, lack of skilled workers, cost efficiency, transparency in the supply chain, climate protection and a huge variety of products coupled with new customer needs are some of the major challenges of the coming years. The industry will be showing solutions to meet these challenges at IFFA – Technology for Meat and Alternative Proteins – in Frankfurt am Main from 14-19th May 2022.

Automation continues to be one of the top issues in the meat and protein industry: modern robotic solutions coupled with artificial intelligence play an important role in optimising processes and at the same time increasing yield, flexibility and food safety. Food safety is paramount and innovative solutions in hygienic design are therefore the focus of IFFA.

By recording and intelligently linking all data, production can be monitored in real time and possible malfunctions in the operation can be detected immediately.

Digitalisation, another top theme at IFFA 2022, offers new possibilities for transparency and traceability in the supply chain as well as quality management. The next step into the future is the Data-Driven Factory: the flow of data in both directions between production and the point of sale enables completely new product and marketing ideas.

High on the agenda of IFFA is climate-neutral production – a goal set by the EU in the Green Deal by 2050. What further developments are there to increase energy and resource efficiency? What concepts can be used to counter food waste? How can packaging material be reduced without reducing quality? The exhibitors and the offerings at IFFA 2022 will provide answers to all aspects of sustainability.

Consumer behaviour has changed and the variety of products is continuously increasing. Flexitarians are turning to products made from alternative proteins, in addition to meat, and do not want to give up familiar dietary patterns.

Industry and trade are reacting to this food trend with a variety of meat alternatives. IFFA 2022 will showcase both the process technology of meat and of alternative protein containing plant-based products or cultured meat.

The coronavirus pandemic also has an influence on consumer behaviour. This is where the trade can score with its high-quality food. Innovative butchers set themselves apart from the mass-produced goods with an individual and regional product range. With the individualisation of their range, also a top theme at IFFA, they are responding to customers' need for unmistakable taste and top quality.

iffa.messefrankfurt.com

Commitment to meet demand

As part of its commitment to meet increasing demand for protein Tyson Foods is investing $61 million at its poultry plant in Mississippi. The project is expected to create nearly 50 jobs and will increase production capacity of chicken products for foodservice customers such as restaurants and schools. It is expected to be complete by next summer.

Tyson Foods will also expand its facility in Texas, which will allow it to increase capacity to meet increasing demand for its chicken. This expansion project will represent a $58 million capital investment.

"We are excited about the project which is part of our commitment to meet increasing customer and consumer demand for Tyson chicken, while delivering on our strategy of accelerating long-term growth," David Bray, group president, poultry for Tyson Foods, told International Food & Meat Topics.

tysonfoods.com

JBT has introduced their new 800 SE waterjet portioning system delivering superior mist capture and 40% lower energy consumption. This new variant of the industry-leading DSI 800 S series waterjet portioning system is designed for the needs of European and Middle East region protein processors. The system's new and proprietary design removes the mist created by the waterjets to achieve challenging shelf-life performance targets for retail and food service products. JBT has added new labour-saving applications such as trimming of thigh meat for retail sale and continued to perfect applications such as weight + dimension-controlled products for QSR's. JBT's ability to improve yields by combining burgers, strips and nuggets with the shape that QSR's are looking for, all in a single pass system, is only available in a DSI Waterjet Portioner. This is not limited to poultry applications but includes red meat, pork and plant based applications as well. Lower energy consumption is achieved with a bespoke and exclusive servo pump design that has been ruggedised and sized for the DSI System to meet the needs of meat processing facilities. The servo drive system replaces hydraulics and reduces utility requirements which makes automation easier to implement as smaller facilities with lower-amp service availability move to automate their portioning processes. Customers new to automated systems with small maintenance teams having minimum automated systems experience have proven the servo pump system is easy to operate and maintain. The DSI 800 SE is available with 2, 4, 6 or 8 cutters and can be expanded in capacity over a weekend.

jbtc.com

Premixes for meat alternatives

Loryma has developed a new application concept for use by consumers wanting to prepare their own vegan meat alternatives at home. The specialist in functional ingredients from wheat has designed special premixes that form an authentic texture in the end product after the addition of water. They provide numerous opportunities for manufacturers to respond to the trend for vegan meat alternatives with quick and fail-safe convenience products. Both the textured wheat proteins of the LoryTex range and the functional wheat-based binding system LoryBind are odourless and tasteless. For manufacturers, this is the ideal premise for individual seasoning.

The premixes are the ideal starting point for the creation of numerous vegan applications, from plant-based burger patties to cevapcici, breaded cutlets and nuggets. Preparation is simple: the consumer only needs a bowl in order to combine the premix with water. The resulting mass can then be kneaded and shaped into the desired form. Fresh ingredients such as diced vegetables or herbs can also be added, if desired.

The vegan solutions have a short list of ingredients without E-numbers and a protein content comparable to the meat variants, but contain less fat and saturated fatty acids, and more dietary fibre.

The dry products have a longer shelf-life than ready-to-use meat analogues from the chilled counter, and take up less space in transit. As a result, they reduce food waste and cause fewer transport emissions.

crespeldeitersgroup.com

Tosca, a global leader in reusable packaging solutions, has added meat crates to its EMEA portfolio. With this addition, Tosca can reduce food waste, improve sustainability measures, and increase efficiencies for its partners in the meat industry. Made from polypropylene, Tosca's new crate is resistant to the extreme heat and cold temperatures required in the meat processing sector. The plastic material is also impervious to acids, fats, and odours, which are essential advantages when packing meat products. Moreover, with an unmatched global network density of more than 50 service centres for hygienic washing and inspection of its reusable crates, which now include meat crates, Tosca offers new and existing clients one of the most robust food safety programmes in the industry. As with its entire portfolio of reusable packaging solutions, which diverts single-use packaging from landfills, the meat crates uphold Tosca's emphasis on supply chain sustainability. In addition, when the meat crates are empty, they can be easily folded, taking up to 80% less space on trucks than rigid crates, reducing carbon emissions and transportation costs. Furthermore, the meat crate is fully recyclable at its end-of-life, supporting Tosca's customers' sustainability goals.

toscaltd.com

New strategic partner

In many regions of the world, the market for plant-based and cultivated meat is booming. To promote technological advancement and exchange between the meat and alternative protein industries, the Good Food Institute Europe and Messe Frankfurt are entering into a strategic cooperation for IFFA 2022.

IFFA is the international meeting place for the meat and alternative protein industries. The triennial event covers all the steps from ingredients to processing to packaging. As conventional, plant-based and cultivated meat use largely the same processing technologies, the leading equipment and ingredients suppliers will present their new developments for all these sectors from 14-19th May in Frankfurt am Main.

The Good Food Institute Europe (GFI Europe) is an international NGO working to build a sustainable, secure and just food system. The institute works with scientists, businesses and policymakers to advance plant-based and cultivated meat, eggs, dairy and seafood – making them delicious, affordable and accessible across Europae.

"We are very pleased to work with the globally renowned experts for alternative proteins at the Good Food Institute Europe. Together we have agreed that, in addition to its focus on the meat industry, we want to develop IFFA into a true accelerator for the efficient, large-scale production of plant-based and cultivated meat," Kerstin Horaczek, Vice President Technology Shows of Messe Frankfurt, told International Food & Meat Topics.

GFI Europe will present itself at IFFA 2022 as part of the IFFA Factory, the exhibition area where production processes are shown in live demonstrations.

gfi.org

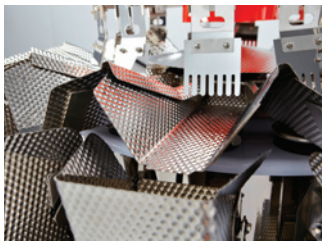
Stronger African presence

Ishida Europe is further strengthening its support for South Africa and the wider African region with the appointment of specialist packaging machinery company Vannpax as a distributor for Ishida multihead weighers.

The deal will enable food producers to benefit from the speed and accuracy of the Ishida weighers to help maximise production throughput and avoid unnecessary and costly giveaway and downtime. At the same time, Vannpax can offer design and installation of complete packing lines, together with ongoing service and support, complementing Ishida's own in-house service.

This allows food companies to have a single point of contact to ensure the effective long-term running and maintenance of lines, helping to support businesses' continued growth and expansion.

In particular, the availability of Ishida's entry-level multihead weigher range will enable start-up and smaller operations to also have access to advanced weighing technology that can help them meet their objectives and ambitions.



"Ishida sees tremendous potential in the African market, and we want to be able to ensure we match the best technology with the best service," the company's General Sales Manager RSA, Melika Seiderer, told International Food & Meat Topics.

"Vannpax is a young and dynamic company with extensive knowledge of the food industry, who understand customer needs and challenges and, most importantly, the specific requirements of the African market. Equally essential, the company has the same commitment to high quality customer service as Ishida. We therefore offer an ideal partnership to help customers make the most of their opportunities."

Established in 2013 and based in Paarl in the Western Cape, Vannpax provides custom-made support to the food packaging machinery industry in Southern Africa and abroad. The management team has a combined industry knowledge and experience of more than 23 years in the maintenance of packaging machines in the food and beverage, industries. Much of its own-designed equipment is manufactured locally, further supporting the South African economy.

ishidaeurope.com

APPOINTMENTS

JORGE YANEZ PENABAD
Multivac, Colombia
Managing Director
www.multivac.com

Diary

2022

International Production & Processing Expo (IPPE)
25-27th January
Atlanta, GA, USA
www.ippexpo.org

Food Safety Europe 2022
10th February
London, England
www.brcgs.com/product/food-safety-europe-2022

CFIA Rennes
8-10th March
Rennes, France
www.cfiaexpo.com

Meat & Poultry Industry Russia
15-17th March
Moscow, Russia
www.meatindustry.ru

GFSI Conference
29-31st March
Barcelona, Spain
www.mygfsi.com

Anuga FoodTec
26-29th April
Cologne, Germany
www.anugafoodtec.com

IAFP European Symposium
4-6th May
Munich, Germany
www.foodprotection.org/europeansymposium

IFFA
14-19th May
Frankfurt, Germany
www.iffa.messefrankfurt.com

VIV Europe
31st May - 2nd June
Utrecht, The Netherlands
www.viveurope.nl

IAFP
31st July - 3rd August
Pittsburgh, PA, USA
www.foodprotection.org

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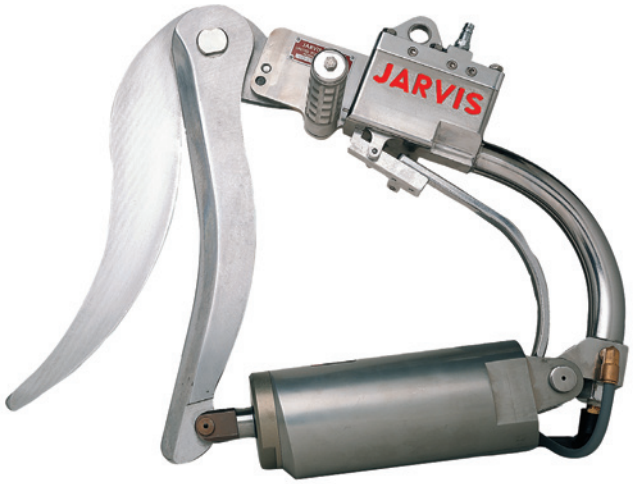
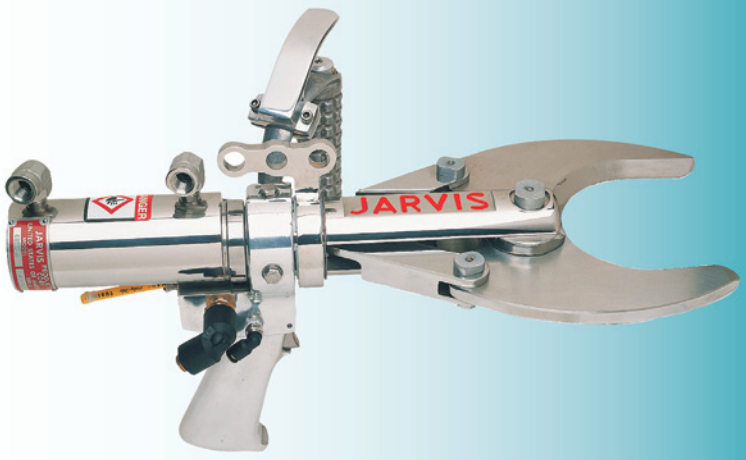


Model 423-17 Sheep Brisket Scissor

HYDRAULIC



Model 425-16 Sheep Hock Cutter

Model 1-C Head Only Stunner

Model 525-1 Sheep Hock & Tongue Bone Cutter

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