

INTERNATIONAL

11 / 2016

MEATINGPOINT

magazine

SUSTAINABLE TECHNOLOGY, PROCESSING & PACKAGING

SSMANN

**CONTINUOUS FLOW
PRODUCTION SHOWS
ADVANTAGES**

**IS SMOKING
A STAND-ALONE STRATEGY
TO MASK BOAR TAIN?**

**MEAT IN THE MIDDLE: HOW
FANUC COLLABORATIVE ROBOTS
CAN IMPROVE
WORKPLACE SAFETY?**

**NUTRITIOUS FOOD
REDUCES WASTE**



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Dear reader,

The aim to reduce process costs while at the same time raising quality is increasingly taking effect and becoming a strategic advantage in daily business of producers, claims Mr. Ulrich Fessmann, the managing director at Fessmann GmbH. Production process based on continuous flow methods creates the framework for this and it will be imperative in many cases in the future. Do not miss the cover story on pages 16-18, and find out how continuous production processes ensure safe and reliable production.



Tristan Bogaard

Consumer trends, robotics, smoking, and food waste reduction are major topics being addressed in our articles along with the news about the latest processing and packaging trends and more. As always we review some of the industry's most significant "Meating" Points. One of them is IPPE, the world's largest annual poultry, feed and meat industry trade show, which will be held January 31- February 2, 2017. We review some of the latest launches to be showcased at the show.

Our last issue for this year coincides with a bright holiday approaching fast and for sure everybody has already been indulging in the Christmas fever. That is undoubtedly one of our favourite periods of the year. It is not just the time for family and company gatherings accompanied by Christmas songs and festive food but it is also a time for giving. If your company is not yet engaged in some kind of charitable venture, this holiday season may be a good time to start. Giving and receiving are the two sides of the same coin. And for those companies that do actively encourage a robust culture of giving, the rewards of receiving are often commensurate – if not greater.

In addition, supporting a social cause at the corporate level offers lucrative business benefits such as enhanced customer loyalty, improved brand recognition, improved employees morale, and increased trust in the product or brand. Indeed, a recent poll of Millennials – the next generation of workers – found out that nearly two thirds of people between the ages of 18 and 34 were more likely to want to work for a company that gave to charity than one that did not. Support The Six-Second Project through corporate sponsorships, while reaping the benefits for your business. Recruit meat industry colleagues and employers to join the cause. The Six-Second Project is a nonprofit charitable organisation that partners exclusively with the global meat industry to develop and fund animal protein-based hunger solutions. Learn more at www.thesixsecondproject.com

**As Anne Frank said: "No one has ever become poor by giving."
Wishing you a Wonderful Christmas and a Happy New Year!**

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8A Cedar Avenue, Ruislip, HA46UH,
London, UK

TEL: +44 (0)20 8581 2341

FAX: +44 (0)20 8581 2341

E-mail: info@meatingpoint-mag.com

www.meatingpoint-mag.com

EDITORIAL BOARD:

Tristan Bogaard

editor@meatingpoint-mag.com

Ben Anthony

banthony@meatingpoint-mag.com

Steliyana Vasileva

svasileva@meatingpoint-mag.com

MARKETING TEAM:

Aylin Nedzhib

marketing@meatingpoint-mag.com

Meylin Kara

support@meatingpoint-mag.com

Zvezdelina Kehayova

subscribe@meatingpoint-mag.com

DESIGN:

Taner Kyuchuk

design@meatingpoint-mag.com

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Contents

11 / 2016

Volume 2

| | |
|--|-----------|
| EDITORIAL | 3 |
| INDUSTRY NEWS | 6 |
| CASE STUDY | 13 |
| Fast, Flexible, Accurate - Ishida's "Hungry Monster" | |
| COVER STORY | 16 |
| Continuous Flow Production Shows Advantages By Ulrich Fessmann | |
| SMOKING | 19 |
| Is Smoking a Stand-Alone Strategy to Mask Boar Taint? By Margit Dall Aaslyng and Anette Granly Koch | |
| WASTE REDUCTION | 21 |
| Making the Most of Food By Roel Molenaers | |
| CONSUMER TRENDS | 23 |
| Food Reflects a New Reality - Part 2 By Henk Hoogenkamp | |
| CONVENIENCE | 28 |
| Nutritious Food Reduces Waste By Robin J Birn | |
| ROBOTICS | 32 |
| Meat in the Middle: How Fanuc Collaborative Robots can Improve Workplace Safety By Andrew Armstrong | |
| SPOTLIGHT | 36 |
| Burger's that Matter By Henk Hoogenkamp | |
| IPPE PREVIEW | 39 |
| NEWS | 45 |
| "MEATING" POINTS | 48 |



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20



14



34



39

IN THE NEXT ISSUE:

- * Sustainable Meat Gaining
- * Humane Stunning and Slaughtering, Deboning, Grinding, Separating, Sorting,
- * Conveying Equipment
- * Tray Sealing and Skin Packaging

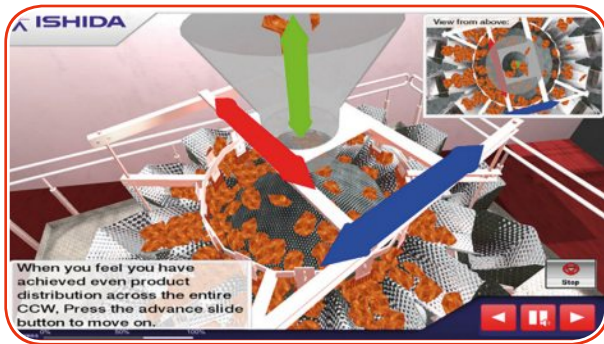
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INDEX OF ADVERTISERS:

| | |
|--|----|
| CFIA - GL events Exhibitions | 27 |
| Gulfood | 12 |
| IFE - The International Food & Drink Event | 35 |
| Industrial Auctions B.V. | 21 |
| Matrix Product Development | 15 |
| Micvac AB | 11 |
| Raps GmbH & Co.KG. | 7 |
| The Six - Second Project | 2 |
| US Poultry & Egg Association | 52 |

REMOTE LEARNING TOOL ENHANCES OPERATOR AND TECHNICIAN CAPABILITIES ON **ISHIDA** WEIGHERS



Ishida Europe has launched the first interactive computer-based training programme for multihead weighers.

Called Ishida Expert, the programme provides fully interactive learning that is delivered remotely on a customer's site to an unlimited number of users. The self-paced learning product offers best in class training for Ishida's range of multihead weighers, ensuring that the equipment is set up, operated and maintained to optimum performance levels at all times. This helps to maximise overall equipment effectiveness (OEE)

support to machine trouble shooting. It combines visual operating animations of Ishida CCW multihead weighers with simultaneous narration, supported by an in-depth learning booklet that serves as a permanent user reference. Users have to pass

a quiz at the end of each session to complete each level before being able to move on to the next learning module.

Ishida Expert complements Ishida's existing on-site training programmes provided by its specialist teams.

Because the Ishida Expert programme is delivered remotely, it can be easily offered to multiple staff and training can take place around individual shift patterns. The training can be implemented immediately with no waiting for trainers to become available.

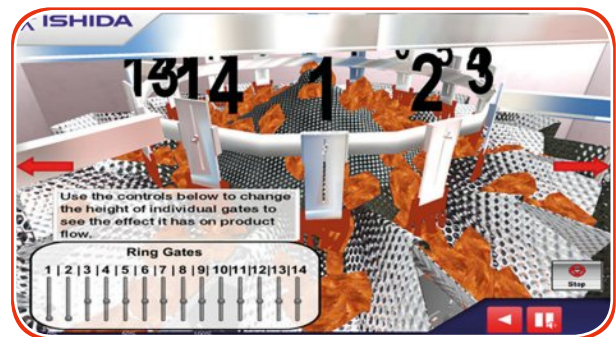
Equally important, the programme enables every participant to learn

and progress at their own pace, ensuring that each participant can get the most out of their training.

"We believe Ishida Expert is a unique

offering in our market which will help all types and sizes of businesses introduce company-wide best practice in the operation and maintenance of their weighers," explains Ian Atkinson, Ishida Europe's Business Manager for Multihead Weighers.

"This product offers so much more than the conventional basic introduction training – allowing customers to really push the boundaries of their machine and line performance. The programme



can assist all levels of learning – from introducing new employees to the machine to providing existing operators and engineers with enhanced knowledge and skills as well as enabling senior management to maximise operating efficiencies and to get the most from their investment."

Ian adds that initial customer workshops for Ishida Expert have proved successful with very positive feedback and high approval ratings from users.

Ishida Expert is currently available in English and additional languages are in development. Training programmes are also being prepared for other equipment in the Ishida range including checkweighers, tray sealers, bag makers and X-ray inspection systems.

www.ishidaeurope.com



and deliver a fast return on investment. The training programme comprises three levels – Foundation, Intermediate and Advanced – helping users develop skills from basic operation through technical

YOUNG'S SEAFOOD COLLABORATES WITH LINPAC TO LAUNCH INNOVATIVE NEWSPRINT FISH PACK

Young's Seafood has unveiled an innovative printed fish pack after collaborating with market leading fresh food packaging manufacturer, LINPAC.

The modified atmosphere pack (MAP), which holds two beer battered cod fillets, features a specially designed newspaper print on both the film lid and tray to create enhanced on-shelf appeal for retailers.

Tapping into the consumer trend for 'modern retro' food packaging, the nostalgic print emulates the newspaper sheets traditionally used to wrap takeaway fish and chips.

The newspaper graphic is laminated to transparent rPET sheet during the LINPAC tray thermoforming process. At the point of packing, an easy-peel, high barrier film lid with matching print is then heat sealed to the tray to create a robust, food-safe MAP pack. The result is a seamless print-wrapped pack effect with 360-degree visibility of the product inside.

LINPAC developed the innovative pack in close collaboration with the Young's Seafood packaging team. Several ideas and samples were produced by the company and presented to Young's in order to achieve a well-considered final design to be launched by leading retailer, ASDA.

Helen Nickells, head of packaging development at Young's Seafood Ltd, commented: "We're thrilled with the final result. The striking design really stands out on shelf and achieves a 'wrapped in print feel' that's unlike anything else on the market. By working in partnership with LINPAC we've achieved a high level of innovation that meets all the core standards we require of our packaging."

Andrew Wilkinson, account director at LINPAC, added: "This was certainly a fully collaborative process. It was important to create a seamless look and we managed this by working closely with our customer, Young's Seafood.

"As a complete pack solution, it was critical we worked as a cohesive team with our print partners, Parkside Flexibles, as well as our LINPAC film business colleagues in Pontivy, France. We're delighted to have delivered a solution that is reminiscent of classic newspaper print, along with the high-level of convenience that's required by today's consumer."

LINPAC's expertise in developing a total-pack solution, that balances innovation with impressive functionality and strong environmental credentials, was instrumental to the creative process. Notably, the new fish MAP pack tray is made from more than 90 per cent post-consumer recycle supercleaned in-house at LINPAC to meet European food safety regulations.



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AUTOMATED, HIGH-CAPACITY STORK THIGH FILLET SYSTEM

RETAIL QUALITY WITH INLINE EFFICIENCY

Consumers worldwide are increasingly appreciating boneless chicken thigh meat. Marel Poultry already foresaw this trend a while ago. That's why the company developed the Stork Thigh Fillet System, an inline solution which can keep up with the highest hourly throughputs while processing thighs with utmost precision and consistency.

At the moment deboned thigh meat is quickly gaining popularity worldwide. Consumers around the globe have begun rating chicken thigh fillets at an equal or even higher level than breast fillets, as a result of its succulent taste. Marel Poultry prepared itself for this trend and created the world's first inline high-capacity thigh filleting solution. With the highest efficiency and consistency, and without the need for manual trimming, thigh bone and knee cap are separated from the meat, in order to supply retail quality thigh fillets.

Labor-saving

The inline concept saves considerable labor. Manual shackling or rehangs is no longer necessary, and neither is manual skinning or knee cap removal. That's because

the automated process remains completely inline after the Stork ACM-NT cut-up process. Thanks to the stable, optimized maneuvers, an absolute minimum of operators are needed to check and trim.

How does it work?

The Stork system makes use of five carrousel modules to execute the entire

without any meat on it: the Thigh Fillet Harvester succeeds in efficiently scraping a maximum of meat from around the knee cap without putting undue stress on the drumstick. This valuable meat surrounding the knee cap is now harvested together with the A-grade thigh fillet. During the entire process the products are not subject to excessive forces, but they are gently handled, notwithstanding the high speeds.

Stable and delicious



The Stork Thigh Fillet System debones thigh meat industrially. The process stays fully inline without any human labor needed, but provides consistent high yield.



thigh filleting process.

From knee joint incision, via skinning and bone extraction to knee cap removal and fillet harvesting, every single task is meticulously performed. The techniques used are unique and ingenious, though simple. For example the system understands the art to remove the knee cap

The Stork Thigh Fillet System reproduces the work of a skilled manual operator in an industrial way, ensuring retail quality thigh meat. This consistent performance can be achieved for all products entering the system, irrespective of size or quality. It is more stable than manual deboning could ever be, and certainly much faster with highest yield. The final outcome of the inline thigh deboning process is a tasty thigh fillet, a completely finished end product, ready for retail sale and for delicious meals.

www.marel.com

LINPAC AND PARKSIDE

COLLABORATE TO ENHANCE SHELF APPEAL OF LINPAC VSP EVOLVE®

LINPAC has developed a variety of high-quality designs for its Rfresh Evolve® rigid VSP trays in collaboration with print partner, Parkside Flexibles, to enhance consumer appeal and shelf standout.

Brands and retailers can now choose from a range of bespoke designs including grass, kraft paper, wood or slate-look, which are printed by Parkside and laminated to the rPET tray during the thermoforming process.

The designs tap into the current trend for natural looking, premium packs, and add value to what has traditionally been a category with very little use of graphics.

Nikki Clark, group marketing manager at LINPAC, commented: "As well as being eye-catching the trays offer retailers flexibility in

differentiating and tiering fresh meat ranges. Evolve trays can be displayed horizontally, vertically, shingled or hung and are available in three application styles - normal, protruding and



super-protruding - to present meat products in the most attractive way possible."

Rigid VSP enables packers and retailers to benefit from extended shelf life, reduced food waste, supply chain efficiency and increased sales.

Ms Clark continued: "Partnering with Parkside on this project has allowed us to innovate one of our core products in order to improve its relevance to future market trends. We're extremely pleased with the result."

Manufactured from up to 95 per cent rPET, which has been supercleaned by LINPAC, the trays can be used on all suitably modified tray-sealing machines.

Rfresh Evolve trays are also compatible with all vacuum films, giving packers the flexibility of supply without being locked in to a material or machinery manufacturer.

Finally, the tight aspect of Rfresh Evolve results in fewer leakages and returns and has tamper evidence built-in. The barrier skin film whitens on peel, revealing whether a pack has been opened or not.

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VAESSEN-SCHOEMAKER INVESTS IN GROWTH AND INTERNATIONAL EXPANSION

Coen van Oorschot - Commercial Director at Vaessen-Schoemaker.
Joris Hermans - Director Business Development at Vaessen-Schoemaker.



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philosophy and ambition of Vaessen-Schoemaker to grow and develop new solutions and markets. Together with Erik Vlieg and Ad de Haas they will form the management team of Vaessen-Schoemaker.

has a strong technological focus and is committed to develop new functionalities and customized solutions; over 20% of the resources are invested in R&D. As a result Vaessen Schoemaker is able to develop clean label and cutting edge solutions tailored to customer requirements.

The successful approach leads to a rapidly expanding consumer and knowledge base.

www.vaessen-schoemaker.nl

With the recruitment of Coen van Oorschot and Joris Hermans Vaessen-Schoemaker invests in growth and international expansion. Their commercial experience, knowledge and drive fit the

Vaessen-Schoemaker has a legacy of more than 70 years in tumbling and injection solutions for meat, poultry and fish, and in savoury fillings for the baking and meat industry. VaessenSchoemaker

KOMET HAS RE-ENGINEERED AND EXTENDED ITS RANGE OF SOUS-VIDE COOKING DEVICES / THERMALIZERS

Today Sous-Vide has firmly established itself in the commercial as well as in the ambitious private kitchens, with caterers, in the food industry and in the butcher's trade and has been providing a variety of advantages such as unique taste, easy cooking to the point, hygiene, freshness and economy.

For many years, the company KOMET in Plochingen was one of the pioneers and innovators in this field. Currently, KOMET presents numerous novelties and innovations regarding the topic Sous-Vide cooking devices/thermalizers under the brand Domnick. This includes two absolute global novelties: "Malin" for very large quantities and numbers of pieces and "Sandra", the first built-in solution for kitchen worktops.

KOMET can offer a unique range of products of Sous-Vide cooking devices/thermalizers for any requirements: from the standalone solution over the solution for the "canteen kitchen" up to the optically and technically perfect built-in solution which is perfectly integrated into the kitchen.

"Malin" - the Sous-Vide cooking device/thermalizer for Sous - Vide of large quantities and numbers of pieces

Up to now the user was forced to buy several small machines in order to be able to prepare large quantities of food in the Sous-Vide process at the same time. With the new Sous-Vide cooking device/thermalizer "Malin", we are now offering a product which is suitable for very large pieces or large quantities of individually packaged food - depending on the needs with 400 and 600 litres of capacity and thus for a product weight of up to max. 150 kg or 220 kg. Other sizes from 200 to 1.500 litres are available upon request. "Malin" was developed in close coordination with

leading cooks and customers and therefore meets the requirements of the professional operation in every respect.

"Malin" is the high-end product for canteen kitchens, caterers, butcher shops and the



"Sandra" - the world's first built-in Sous-Vide cooking device/thermalizer

Today, in the kitchen planning and design besides design, shape and quality, in particular innovative kitchen techniques and preparation types are of importance. With "Sandra", KOMET offers the world's first Sous-Vide cooking device/thermalizer which can optically and technically perfectly be integrated into almost any kitchen worktop. The new "Sandra" fulfils the professional standard and can also be integrated subsequently, if it had not been directly taken into consideration during the planning of the kitchen.

Review of the range of product Sous-Vide cooking devices/thermalizers

By staying true to the motto "Making existing things even better", KOMET has reviewed its range of products of Sous-Vide cooking devices/thermalizers. The design became even more high-grade and noble. The stainless steel surface of the device is smoother and thus easier to clean. The new display is easier readable due to new large figures and is now equipped with additional status displays. With the same capacity the machines are more compact and thus more space-saving than they had been up to now. Last but not least, the machines will be available at a more cost-efficient price due to the compact dimensions and the material reduction resulting hereof.

www.vacuumpackaging.com
www.gourmet-thermalisierer.com



use in a few simple steps. Thanks to the stainless steel housing and pan, it is easy to clean and thus particularly hygienic. It is electrically heated and equipped with

CRISP SENSATION PRESENTS NEW CRUMB COATING STYLES

INNOVATIVE COATING TECHNOLOGY ALLOWS FOR FIVE DELICIOUS NEW CRUMB COATINGS

Full-service coated snacks technology provider Crisp Sensation is introducing five new variants of its breakthrough crumb coating. To meet customer demand in many regions of the world, snack manufacturers and large-scale caterers can now choose from a total of six premium crumb coatings, including a wholegrain option. Crisp Sensation enables innovative frozen or chilled crumb-coated foods to come to life, with excellent properties and outstanding crispiness that lasts for hours.

Alongside the classic Original Crisp Sensation crumb coating, the newly extended range of coating styles is now ready for market. Home Style, for example, is a mix of different crumb sizes that gives food a home-made feel. For health conscious consumers, the new Wholegrain crumb is perfect, as it combines convenience with improved nutritional value. Asian-style cuisine can be achieved with Tempura, a thin and light coating that gives snacks an exotic touch. The Southern Fried coating replicates the well-known US style that's famous for chicken drumsticks and nuggets, and for those who favour bigger and flatter crumbs, the Cornflakes coating is ideal. Adding even more choice and variety, Crisp Sensation's Home Style and Wholegrain crumbs are available in different grain sizes. This allows for tailor-made crumb coatings that make individual products stand out from the crowd.

What all Crisp Sensation crumb coatings have in common is their outstanding crispiness and crunch. They enable premium snacks to be prepared in all sorts of ways, without compromising on end results. Oven, microwave, grill, turbo-chef, deep fryer or frying pan – however they're prepared, they



crunch for up to 3 hours in regular holding units. And, depending on the formulation and preparation method, even reduced-fat products can be achieved.

Whichever coating style is used, Crisp Sensation coated foods are ideal not just for home snacking products, but also for restaurants, catering, convenience stores and food service

providers. Crisp Sensation coatings are suitable for all kinds of products, including meat and fish nuggets, mozzarella sticks, onion rings, vegetable bites and even sweet treats.

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FAST, FLEXIBLE, ACCURATE – ISHIDA'S 'HUNGRY MONSTER'

The success of the preferred supplier partnership between Ishida Europe and Tulip, one of the UK's leading food processing companies, is ideally demonstrated by the latest installation of Ishida equipment at Tulip's factory in Ruskington, Lincolnshire, where a bespoke line is handling 2.7 tonnes of frozen cocktail sausages every hour. With each cocktail sausage weighing approximately 10g, this equates to an impressive 270,000 sausages per hour.

The Ishida solution comprises both a 24 head and a 14 head multihead weigher from the company's top-of-the-range RV series, the 24 head feeding a thermoformer while the 14 head is operating in conjunction with a vertical bagmaker. Ishida also supplied the elaborate feed system, the gantry for the weighers and a bespoke tray filling system, together with a DACS-W-012 checkweigher for final weight control.

Key to the success of the new line is its ability to manage the high volume throughput with minimal product giveaway, and also its flexibility in coping with



a variety of packing and production requirements. The line has been designed to feed the sausages either to the 24 head weigher, which packs them into thermoformed trays for many of the UK's leading retailers, or to the 14 head model which packs them into bags, mainly for the foodservice sector.

After manufacture and frying, the sausages enter a spiral freezer where they emerge at the top and are fed into the packing operation. It is particularly vital to ensure that production continues uninterrupted, and the system therefore has the ability to divert product for temporary storage – WIP (Work In Progress) as it is termed – while work is carried out on the line, for example a changeover of pack formats.

Product is then fed back to the weighing and packing system to return the packing operation to full speed.

In addition, the line is linked to another processing and packing line in the factory so that product on this line can be easily switched over to cope with high



demand – for example, sales of certain products can increase by anything up to 20% when a sunny weekend has been forecast.

Centralised control of the line ensures these changes can be carried out quickly and efficiently.

The 24 head weigher is split into 4 sections with six weigh heads dedicated to each quarter of the weigher, in order to handle the sausages as efficiently as possible and maximise throughput. The weighed cocktail sausages then pass through a 4x4 configuration filling system above the thermoformer that fills 16 trays at a time at 12 cycles per minute.

Typical speeds are 192 packs per minute for a 220g tray, 180 for a 345g tray and 150 for the 480g size. The 14 head weigher is operating at around 50 bags per minute for 4kg packs.

With each sausage weighing approximately 10g, pinpoint accuracy is vital and this is an area where the Ishida weighers perform consistently well, according to Tulip's Project Engineering Manager Rob Hunt, who was responsible for the entire installation.

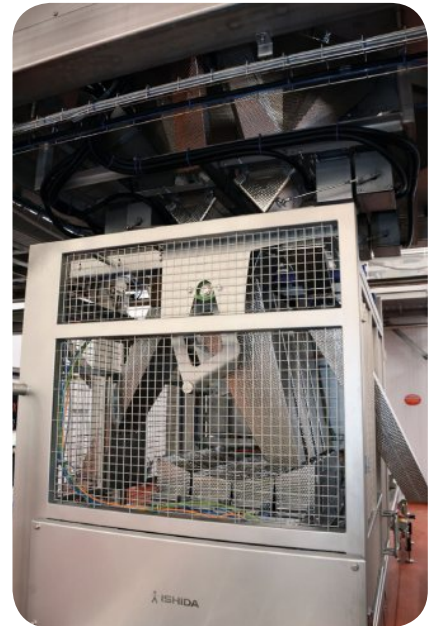
"We needed a solution that combined accuracy and speed and the Ishida weighers are consistently delivering minimal giveaway at an impressive consistency," he comments. "They are also very reliable, easy to use and our operators love them."



"We refer to this line as the 'hungry monster' as it is able to handle nearly anything we throw at it in terms of production throughput."

The factory operates two eight-hour shifts, five days a week, with a comprehensive clean of the line every night in accordance with Tulip's stringent hygiene standards.

The hygienic waterproof design of the Ishida RV weighers is certified to IP-69K specification. Features include upgraded seals and gaskets, angled surfaces for rapid wash down and water run off (ensuring faster drying times) and reduced crevices in bushings and hoppers, which help to eliminate bacteria traps. As a result,



the RV weighers installed at Tulip offer maximum hygiene while minimising downtime for cleaning.

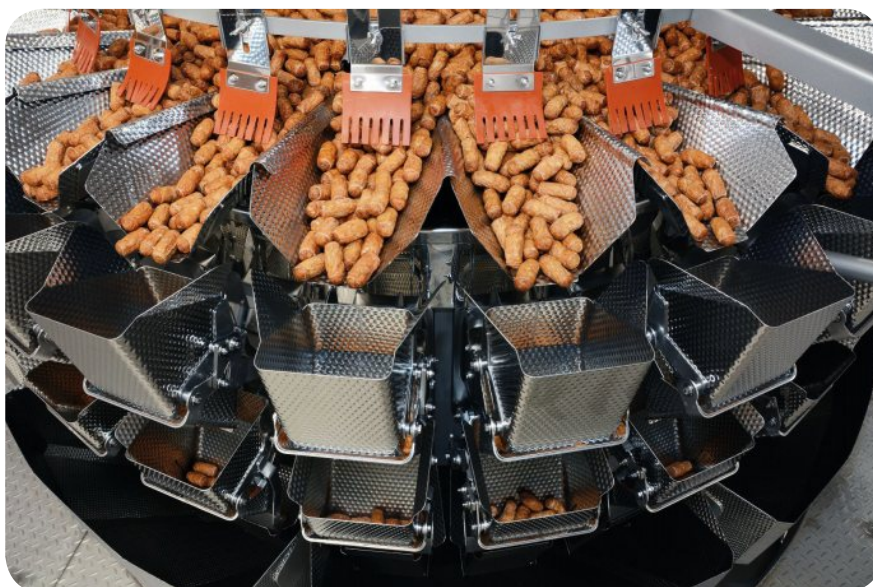
The new line was part of a major investment project co-ordinated by Rob Hunt.

This involved an extension to the existing building, which was built, fitted out and the line installed as a self-contained unit before the internal wall (which had been the original exterior wall) was removed to join up the new area with the rest of the factory.

"Our close working relationship with Ishida and our other suppliers was crucial to the success of the project," Rob continues. "We were very clear about what was required and we worked as a team to ensure this could be achieved. In this way, any potential issues or problems could be identified, dealt with and solved early in the process so that they did not slow down or affect the progress of the job."

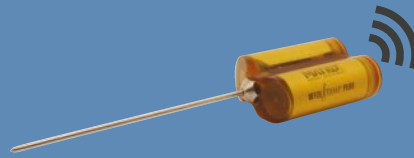
The result was a project that was delivered on time and on budget.

The new line at the Ruskington site joins a variety of Ishida equipment which has been installed there over the years including five multihead weighers, three QX-1100 tray sealers and nine DACS-W checkweighers.



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CONTINUOUS FLOW PRODUCTION SHOWS ADVANTAGES

CONTINUOUS PRODUCTION PROCESSES ENSURE SAFE AND RELIABLE PRODUCTION

By Ulrich Fessmann

The aim to reduce process costs while at the same time raising quality is increasingly taking effect and becoming a strategic advantage in the daily business of producers. A production process based on continuous flow methods creates the framework for this and will in the future be imperative in many cases.

A further aim results from the joining up and concentration of meat and poultry processing companies on firmly defined market segments, as well as from globalization of the discounter stores and supermarket chains. The calls for first class products of prime, reproducible quality that are produced safely and soundly under controlled hygiene conditions with transparent and optimised costs all come out in favour of continuous production systems. These are characterised by process reliability in line availability and by the achievable production capacities. In recent years this has led to ever-higher demand for continuous production lines.

Is continuous production possible at a daily volume of 30 to 40 t?

This question is posed frequently as it is always supposed that large production volumes are involved. A continuous production system presupposes a certain standardisation of

the products and does not allow every product change for small quantities within the course of a day without reducing effectiveness. Often, however, different products with different parameters such as temperature, moisture content and smoke density can be produced on one line in the same process time, so that this product change does not represent any problem for continuous production. Consequently, daily batches of just 30 to 40 t can be produced continuously, cost-effectively and safely.

What benefit does continuous production offer?

Timed assembly lines have already been standard in the automotive industry for a long time, as calculable and safe output of the daily production quantity is of supreme importance and does not admit any compromise in quality and process safety. Producing continuously means maintaining the same conditions in the production facilities throughout the day, without any fault-related changes.

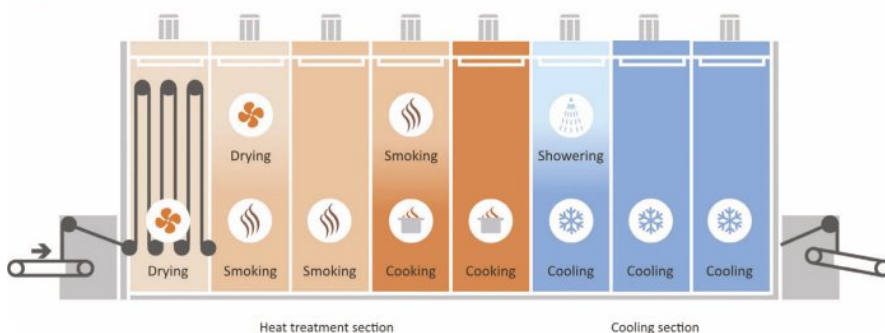


For continuous production this means not only that the temperatures of the stuffing at the input and output must be the same, but also that the same environmental conditions such as fresh air temperature and relative atmospheric humidity must always prevail. Batch facilities change the conditions from one process step to the next and can thus produce different results. This can be ruled out in continuous production, which significantly increases the process reliability. The staff member responsible for the process can, moreover, specifically optimise operations, as no changes occur during the process. Synchronisation is a must for process security. Continuous "assembly line" production also means that no buffering of semi-finished products is necessary between the process steps. The products run through a stable and always reproducible process that does not allow any differences in quality. Only a reproducible,

Production stages of a TF4000 (8 chamber section transfer)



Temperature and moisture can be controlled separately in each chamber section.



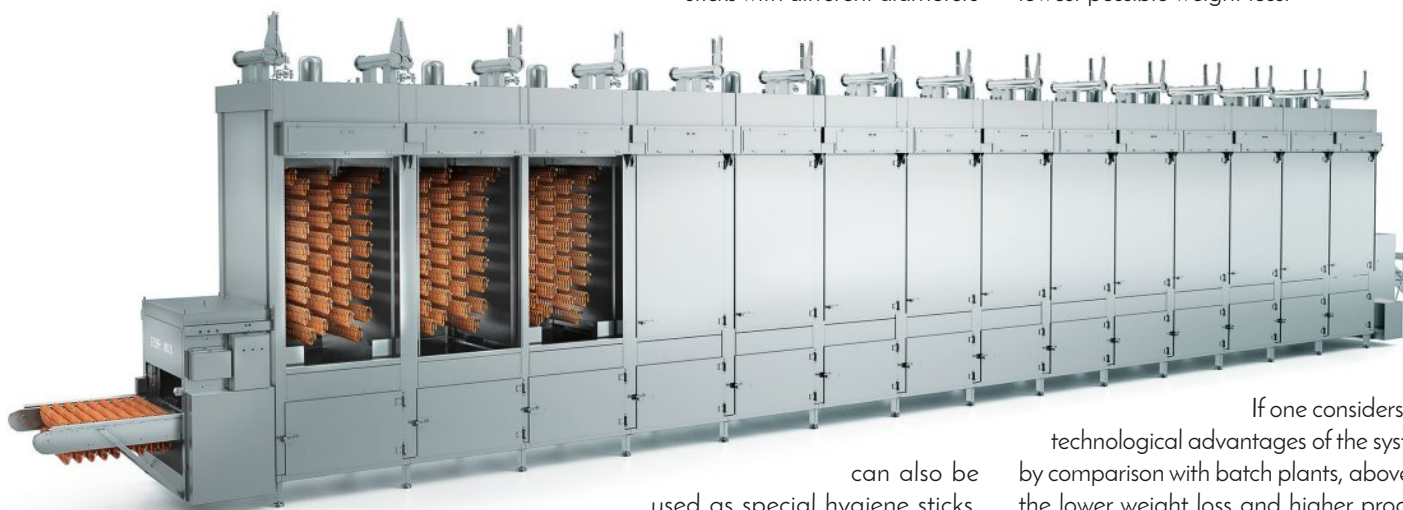
continuous process at a stable level makes it possible to optimise process parameters such as time and production volume, and above all can avoid wastage such as for example excessively high weight losses. Continuous production results in optimal hygiene through the same conditions every day as well as through eliminating operator interventions.

Can the continuous workflows be automated?

The growing hygiene standard as well as labor laws require ever more process automation, especially between the processing steps. Transfer of the products between stuffing and hot smoking using handling systems is possible today and enables users to adjust these to their requirements. In this way labor-intensive operations and unplanned waiting times between process steps can be avoided.

length of 155 cm, the products are fed to the transfer facility directly from the preceding process manually or by an automated system without any waiting time and buffering. The suspension from the smoking sticks is adjusted to the product and in particular to the type of casing. Natural casing products can be suspended automatically in the chain at short intervals. Cellulose casing products can be used with a casing of up to 200 feet. Accordingly, maximum production capacity is always assured on one and the same continuous line. The possible flexibility allows smoking with natural smoke or liquid smoke using drenching methods or by automating the liquid smoke. The Fessmann TF4000 hygiene sticks have an ejector safeguard, so that no sticks can drop out of the conveyor chain. The retention function of the sticks also ensures that the sticks can be tilted regularly during transport in order to distinctly reduce any pressure marks on the sausages at the suspension point. Round sticks with different diameters

thus satisfying the requirements for safe, hygienic production. In daily operation the relevant functions and components of the system are monitored, so that any malfunction is registered immediately. With the help of a maintenance plan, preventive maintenance work is scheduled at specified time intervals, resulting in very high line availability. The concept of the system is based on the philosophy of enabling top product quality at maximum capacity. From the very start the focus was on quality and reducing weight losses during thermal treatment. The treatment temperature, the humidity and the smoke density can be steered separately in the individual treatment zones of the system. Furthermore, during transport to the next section the products pass through a negative pressure zone to avoid exchange of media between the individual treatment zones. Step-by-step adjustment of temperatures and atmospheric humidity in the individual sections guarantees the lowest possible weight loss.



What solutions have proved successful in practice?

The company FESSMANN GmbH & Co KG from Winnenden, Germany, with its continuous production system of type Transfer TF4000 has been offering the right solution for the above tasks since 1972. The TF4000 has been continuously developed further and is today in operation on practically all continents. The continuous system for treating meat, poultry, fish and cheese products with heat, smoke and steam or a combination of these media with subsequent cooling operates with separate treatment zones. The treatment zones are small, independently regulated zones in which temperature and humidity can be adjusted to match the product. Over a stick

can also be used as special hygiene sticks. The system has now been sold worldwide more than 150 times and is constantly being developed further. A continuous production facility can produce around the clock and is the "heartbeat" of all sausage production plants. The synchronous timing throughout the production chain always guarantees the production output to be delivered and makes it easy to understand the mode of operation of the entire continuous production line. Buffers and short capacities become visible immediately.

How safe is continuous production?

The TF4000 has a CIP cleaning station with foam production and a flushing facility. The complete line including channels and piping is lathered and flushed automatically,

If one considers the technological advantages of the system by comparison with batch plants, above all the lower weight loss and higher product quality stand out. For instance in the past it was not rare for weight loss savings of over 3% to be achieved by comparison with batch systems. Thanks to individual steering of the individual drying, smoking, cooking and cooling treatment zones, the plant functions more efficiently than other systems. The products can be started up gently. This saves energy and at the same time boosts quality in minimal space. The space required by the system is around one third of that required by batch systems. The process always proceeds under the same conditions. The end weight, in other words the weight loss, is the same for each sausage. This also applies for the colour and the temperature range for thermal treatment. Different treatment parameters and the resulting quality differences between batches are avoided by the continuous operating

mode of the plant. Continuous production increases the daily output and the quality of the products.

Why does a transparent value stream produce advantages?

The flow of goods can be planned; production can be maintained reliably. Any deviations become visible immediately and allow intervention. Unplanned downtimes between process steps that have a negative influence on the product quality are avoided.

Is continuous production user-friendly?

Product programs can be created and stored using the Trans.CON plant control. The operator can use the system flexibly for different products by simply calling up the programs. The documentation is performed on the host computer and serves both to record production workflows and all occurrences around the continuous line.

How is the system loaded and unloaded?

The latest development from Fessmann is the automatic loading and unloading

of the system with integrated smoke stick management. The smoke sticks are made available to the respective suspension line of the plant operator for automatic loading. The system is flexible and can be connected with the standard commercial suspension lines of leading manufacturers. This makes it even more flexible as regards integration into existing production lines. The smoke stick to be loaded is filled mechanically with freshly stuffed product and fed into the system. The flexible system is space-saving and can also be retro-fitted in existing facilities of type TF4000. The advantage of the system by comparison with robot applications is its simple maintenance. On request, however, the system can also be equipped with a robot and thus user wishes can be satisfied flexibly. After the product has passed through the individual sections of the TF4000, the sticks are taken from the system automatically after completion. The products are removed from the smoke sticks and passed via conveyor belt to the next process stage. The stick is returned to the automatic loading unit via a return conveyor belt. The entire process stage functions automatically.

What products are suitable for or such systems?

The system described can also be equipped with baskets and product carriers, so that round or angular products can also be conveyed lying flat. The automatic loading and unloading is adapted to the product to ensure a continuous flow. The company recently installed an automatic bacon line for a producer in China. The meat product producer wanted to integrate an automatic smoking and cooking system with loading and unloading into a continuous production line. The required hourly capacity was 3.5 t bacon per hour.

How is such a production line put into practice?

The system manufacturer looks at the geometry, the

product data and process times as well as the required production volume and examines whether the proposed products can be produced in a continuously working system of type TF4000. A comparison is made with batch systems or semi-continuous systems that highlights the benefit of continuous production clearly. In a second step, the product carrier system that enables automatic connection to existing or new upstream or downstream processes is developed together with the future plant operator. To implement the project, the engineers from the company's own project management team FPM are called in already at an earlier stage in order to produce the layout planning. With this, a value stream of the entire production is analysed and shown transparently already during the offer phase. Work steps that are not value-creating can be eliminated already during this phase. The service package offered includes optimising of the space requirement and media used, such as energy, water and air, as well as the outflow of media. Technical and technological staff training also forms part of the installation of a continuous production line, so that for the operator of the plant nothing stands in the way of independent production without permanent need of external aid. Continuously flowing processes are characterised by safe and reliable production that delivers above-average results in regards of product quality and savings of weight loss and power. After installation and operation of the first continuous line, many users of the continuous facilities from FESSMANN often decide to invest in further lines. The fast payback of the plant, the process reliability and the quality of the goods produced, back up this decision.

About the author:



Ulrich Fessmann
is the Managing Director at
FESSMANN GmbH und Co KG.

www.fessmann.com



IS SMOKING A STAND - ALONE STRATEGY TO MASK BOAR TAIN?

By Anette Granly Koch and Margit Dall Aaslyng

Boar taint can be a problem in meat from male pigs if the pigs are not castrated. Sorting of the carcasses is therefore crucial to ensure a good quality of the fresh meat reaching the consumers. However, this means that carcasses may be discarded due to the presence of boar taint, but the meat still needs to be utilised in meat products in which boar taint is a limited problem. Masking strategies are therefore of interest, and smoking has been mentioned as a possibility as many meat products are smoked per tradition.

Experiments have shown that smoking can reduce boar taint in products such as bacon and wiener sausages. Smoking of meat products is very much a workmanship, and

Based on this, a product development phase is needed, for each meat product, in which the optimal smoking procedure is set, balancing the need for masking boar taint and the optimal smoked flavour for the product. This can be done by using a combination of sensory and consumer tests, and a practical approach to the smoking procedure.

The more smoked flavour, the better masking of boar taint



results showed that the more intense the smoke flavour, the more effective the masking effect.

Smoking can be combined with dilution of the boar tainted meat

In an emulsified product such as sausages, the boar tainted meat and fat can be diluted using non-tainted meat. Using traditional smoking in combination with dilution gave a very efficient reduction in the perceived boar taint, both assessed by a trained sensory panel and by consumers.

The more complex, the better

Smoked ham was assessed both as the ham itself and as a part of a cold sandwich with cheese. To make the product further complex, a cheese toast was grilled, introducing melted cheese flavour and toasted bread. The three

products therefore represent an increasing degree of complexity of the product. The results show that the more complex the products, the less boar taint. When presented as a warm cheese ham toast, even the most tainted meat could barely be detected by the trained sensory panel, and the consumers could not taste it at all.



it is difficult to set up precise guideline for the smoking process to ensure an effective masking. However, some general rules-of-thumb can be used:

- * The more smoked flavour in the meat products, the better.
- * Combine smoking with other steps such as dilution of the tainted meat.
- * If the meat product is served in a complex meal, the masking effect is enhanced.
- * The effect of mixing the liquid smoke into the product such as sausages compared with smoking on the surface is negligible.

Several studies try to identify which concentrations of boar taint compounds that smoke can mask, but most of them only use one smoking procedure. At DMRI, we have compared the masking effect of three different smoking intensities on boar taint in bacon, all with an acceptable smoke flavour. The smoking was performed using an industrial smoke oven and can be compared directly to practice in the industry. The



The effect of mixing liquid smoke into a sausage does not increase the masking effect

The boar taint is distributed in the whole product, and it was therefore hypothesised that mixing liquid smoke into a sausage would have a larger effect than just smoking on the surface. This could, however, not be confirmed. Three different liquid smoke extracts were tested, but the effect on boar taint was negligible.

The hurdle approach

The experiments show that even though smoke can be used to mask boar taint in meat products, it cannot stand alone.

The best masking results are gained by combining different strategies. It can be seen as a kind of a hurdle strategy as is well known in the field of food safety. For

each reducing process, the boar taint is reduced to a certain level. By combining e.g. smoke and complexity or smoke and dilution, much better results are obtained.

About the authors:



Margit Dall Aaslyng, PhD is an expert in documenting animal welfare on the day of slaughter in pig production facilities. She also has an insight into consumers' understanding of animal welfare and how it can be transformed into willingness to pay.



Anette Granly Koch MSc Food science and technology Ph.D. Food Microbiology She is working with food safety and quality of fresh and processed meat

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MAKING THE MOST OF FOOD

By **Roel Molenaers**

In order to meet the global population's growing demand for food, research by the Food and Agricultural Organization of the United Nations (FAO) predicts that the worldwide food manufacturing and processing industries need to increase their total output by 70 per cent by 2050.

With the rise in the planet's population around 60 million people per year, it is an issue that cannot be ignored.

There are several ways, each with varying degrees of difficulty, to enhance the efficiency of food production. These include tackling climate change, increasing the availability and fertility of land and improving the supply of water. However, an important element of food production which must be addressed immediately is the further optimization of crop yields as it will be a hugely significant factor in ensuring the 2050 target is met.

Whilst tackling climate change, improving the quality and fertility of arable land and supplying water will take time, increases in food sorting efficiencies are possible now. This can be done by utilizing the latest available food sorting technologies and machines, which deliver greater yields, enhanced profitability for processors and, importantly, advanced knowledge from data which can be used further along the processing line.

It is important to recognize that, in addition to the demand for more food, the desire for choice and variety is also growing. This is especially the case in developing countries that are adopting western, middle-class consumption habits such as the desire for a greater variety of food types and outlets in which food is served and consumed.

As people move away from traditional home cooked meals, the demand for convenience food and ready-meals is increasing, bringing with it opportunities to benefit but also obstacles to overcome.

For instance, an average French fry plant produces 140.000 tons of French fries per year. By increasing yields by as little

as 0.5 per cent through modern sorting technologies and techniques, a processor could take an estimated 90 truck-loads off the roads¹.

This action, which has positive repercussions for the environment as a whole, will increase the availability of raw material and boost profitability.

It is important to highlight that this principle can be extended and implemented in all areas of food production. This is especially relevant since the United States Department for Agriculture (USDA) recently claimed that 31 per cent of American-grown food was not available for human consumption at retail and

consumer levels. With a commitment to yield optimization, industries can help minimize this waste.

In terms of volume, the same report stated that over 51 million tons of food was lost in America. In monetary terms, this waste represented over \$161bn (€145.3bn) as purchased at retail prices.

To help overcome this, the food sorting industry is investing in its technological development to ensure that efficiencies continue to be made. For example, the TOMRA 5B sorting machine is a system that not only sorts to customers' specifications, but also provides them with an increasing supply of data and



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easy-to-interpret statistics which can be used to improve future yields.

TOMRA's smart surround view can reduce false rejections by 20 per cent, increasing exponentially the amount of good final end product, in turn limiting waste.

The ability to efficiently sort vegetables, potatoes and nuts – which represent over 19 per cent of the total amount of food wasted in the United States

Developments in technologies, such as a 360-degree surround view of the produce for optimal inspection, combined with innovative detection and rejection technology, result in more valid decisions about the quality of the product. This technological progress not only improves the quantity of food available, it also maintains the high levels of quality expected by consumers who are increasingly interested in what they are purchasing.

Alongside this, the population growth of developing nations – especially those in Sub-Saharan

If a food processor was to notice depressions in yield in a particular area of the process, the results taken from the sorting machine could create a solution to easily identify and form actions earlier in the food growing process. Armed with this data, food processors are able to formulate plans to overcome present issues.

If the world is to meet the expected demands for food by 2050, and to make further improvements as the population continues to grow beyond that date, it must tackle the issue of improving yields quickly. By investing in sorting technologies and machines, food manufacturers and processors will be able to not only satisfy the need for increased volumes of product, but also increase their revenues.

To support this, food sorting technology developers will continue to refine their systems to enable greater access to increasingly accurate data and provide more capable machines to reduce waste to an absolute minimum.

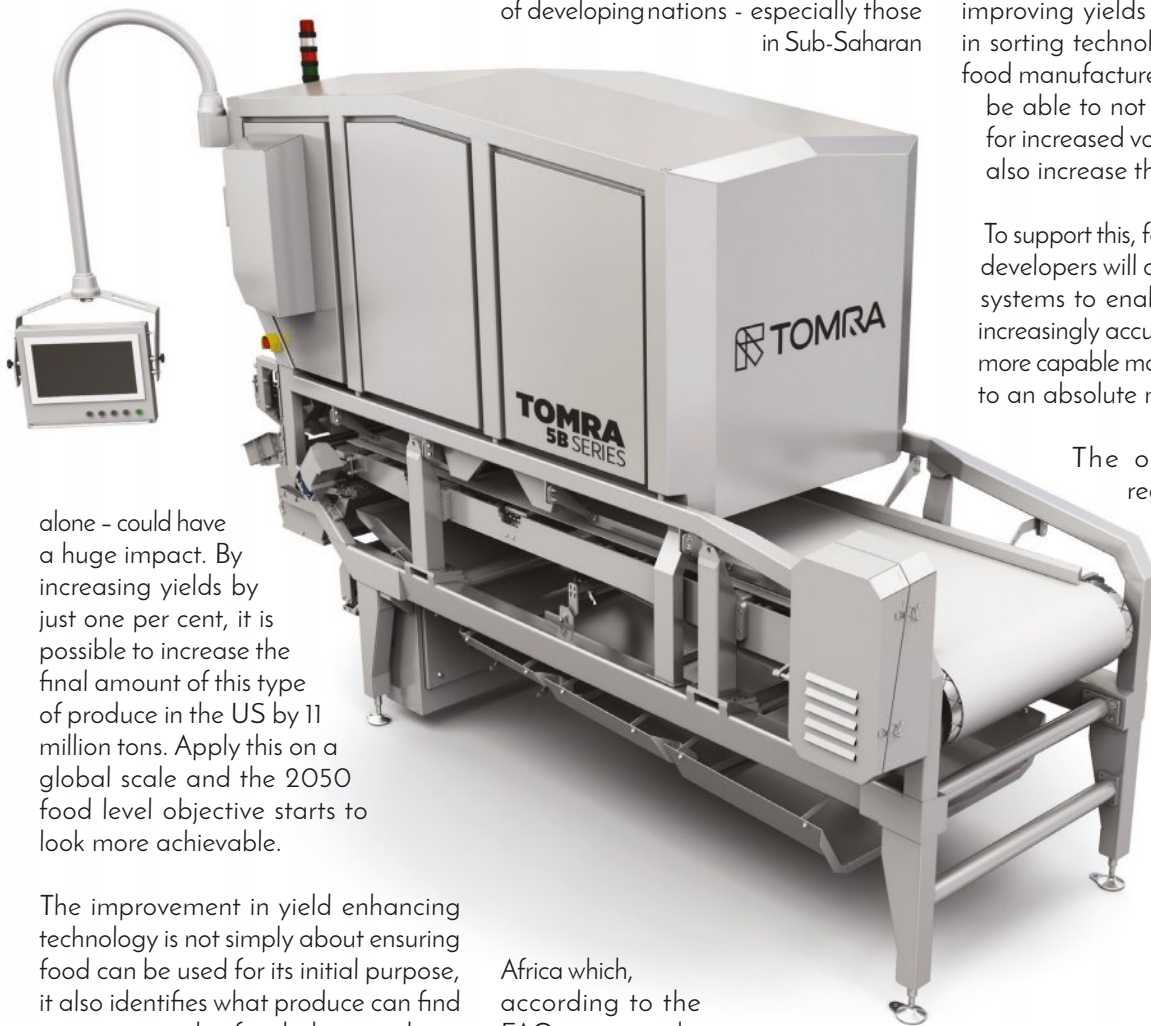
The outlook should be regarded as a positive one. The assistant director general of FAO, Hafez Ghanem, said that his organization is "cautiously optimistic about the world's potential to feed itself by 2050". With continued developments in food sorting technology, it has every reason to be.

About the author:



Roel Molenaers,
head of product management,
TOMRA Sorting Food

www.tomra.com



alone – could have a huge impact. By increasing yields by just one per cent, it is possible to increase the final amount of this type of produce in the US by 11 million tons. Apply this on a global scale and the 2050 food level objective starts to look more achievable.

The improvement in yield enhancing technology is not simply about ensuring food can be used for its initial purpose, it also identifies what produce can find its way into the food chain with an alternative use.

These improvements, as delivered by the TOMRA 5B sorting machine, will result in produce that would once have been identified as waste being recovered. A food type that does not make the grade for sale in its original form can be recouped for the creation of potato flakes, tomato sauces or other alternatives. It can also be sold as a grade B product, ensuring that waste is reduced at every stage of the process.

Africa which, according to the FAO, is expected to grow by up to 108 per cent – means that plans for improved yields in these economies must be tackled sooner rather than later.

The use of ever-improving technology to directly increase yields is a move in the right direction. However, the next generation of food sorting machines will be able to provide vital information which will not only increase yields, but also look at improvements further down the production line and in future seasons.

FOOD REFLECTS A NEW REALITY

By Henk Hoogenkamp

Global Protein Market

The global protein ingredient market enjoys an annual growth of 4 percent. This growth will continue until at least 2025. Most of the growth is driven by the developing world, particularly Indonesia, the Philippines, India, China, and sub-Saharan Africa. As of 2016, Asia has an estimated population size of 4.4 billion, of which it's continuously growing segment of middle-class consumers totals about 500 million. This number is projected to reach 1.25 billion by 2030, hence it is obvious that this demographic presents a large potential for growth in premium food, meat, and beverage products. In terms of quantity, the total world protein ingredient market is estimated at 5 million ton per year. Soy protein demand is hovering around 2 million ton per year, with wheat protein making up about 900.000 ton per year. Dairy protein, including milk powder, whey protein, and caseinates are slightly higher than 1 million ton per year. Pea protein has emerged as a formidable new source of plant protein with a market capacity of about 130.000 ton per year. Rice protein is now also appearing in serious numbers on the radar screen with an annual production of approximately 18.000 ton per year, a number that can grow quickly if demand continues to increase.

Protein Choices

Many traditional proteins –especially dairy protein ingredients such as whey protein and caseinate– are considered the gold standard. This is especially true for flavor sensitive applications such as yogurt, infant nutrition, and coffee creamer and filled cheese. For the emerging plant protein ingredients, it is often a challenge to duplicate the organoleptic consumer expectations as well as reach the same

high level of animal protein performance in terms of –for example– dispersibility, solubility, emulsification, gelation, foaming and whipping.

A New Day for Plant Protein

The consumer landscape is changing rather quickly and especially Millennial consumers (born 1982-2004) are driving change in areas such as clean and clear labels, natural, and recognizable ingredients. This powerful group of consumers is looking for



unique meals or meat snacks with less or no preparation time. However, they also want foods to fit a holistic wellness that is perceived as foundationally nutritious. Differentiating lifestyle foods for specific consumer segments is becoming the new normal.

It is expected that the young generations will adjust their diet and include more sustainable food choices, including embracing the plant-forward movement. Plants will be playing a meatier role, and not just for vegetarian alternatives. Consumer eating habits in the US are changing and there are clear indicators that explain why these patterns are evolving. The most obvious sign of change is the fact that Millennials will

surpass Baby Boomers (born 1946-1964) as the largest generation in 2016. The Millennial customer prefers less processed food and likes menu components that are made to order, or can be personalized or customized. Consumption of fresh foods, including vegetables, fruits and snack meat grew by 20 percent from 2003 to 2014. Looking at it from a different perspective, more than half of food and beverage consumption now occurs when consumers are alone, not to mention the fact that households of just one person –28 percent in 2016– are at the highest level in US history. The trend of eating solo will grow in the years ahead and ultimately will also start to impact EU consumption patterns. For centuries, meat and meat products have been the center of the plate to supply protein and nourishment. Ever since the turn of the century, a seismic shift has occurred and especially meat-formulated snacks, cheese, egg and yogurt are now considered the preferred emerging animal protein choices. It is clear that many young consumers have a different mindset when it relates to eating meat as their prime source of protein. In 2016 this trend is picking up further speed as an

increasing number of consumers replace meat with non-meat alternatives, including the many extruded structured plant protein and hybrid foods in which meat is either eliminated or used as a component rather than a dominant source. As a result, it is safe to assume that protein from plants will become the leading food trend of the next decennia. Plant meat food can ideally be teamed up with wellness, health and “natural convenience.” Plant protein also bodes well for lifestyle prowess and environmental responsibility.

New US Dietary Guidelines

The new US dietary guidelines (2015-2020) back off from strict sodium rules,



reverse previous guidance on the dangers of dietary cholesterol and add strict new advice to cut back on added sugar.

Apart from these guidelines, the new dietary advice can be summarized as an environmentally friendly diet, lower in red meat and processed meats and deemphasizing the role of lean meats in the list of proteins that are part of a healthy eating pattern. As a strategy to increase the variety of protein foods, consumers should increase consumption of seafood, vegetables, fruits, and seeds and nuts.

Meat Rules Protein

Consumers' relationship with meat in their diets is changing. This is mainly caused by the shift in perceptions of meat's effect on nutritional and health properties. Although it is true that affluent consumers are increasingly aware of the importance of dietary protein, they often look away from meat and instead prefer non-meat foods as their first choice. This development should set off alarm bells for the meat industry in the western world. Growing meat consumption in emerging markets will push the global market with a volume growth of 3 percent in 2016. Poultry has emerged as the most popular meat protein in the world, increasing by 4 percent volume growth.

Shifts in meat consumption occur in both developed and developing markets. The US and some EU countries have a negative growth (-1 percent) while poultry wins shares of the consumers' stomachs at the expense of beef and pork, with the exception of China. Some of the declines in meat consumption are due to health concerns, religious and sustainability issues, but also due to consumers embracing or adopting a different diet and lifestyle.

To put these figures in a different perspective: the US population of about 330 million eats about 20 billion hot dogs each year, according to the National Hot Dog and Sausage Council. It does not require much imagination to figure out how many trillions of hot dogs will be eaten globally when these figures are extrapolated, assuming the typical American diet will prevail. The twin effects of time-pressed lifestyles and pressed budgets are the main reason that consumers living in affluent societies are shifting away from home-cooked traditional center-of-the-plate whole muscle meat cuts, and are switching to semi or fully prepared natural wholesome options, including snacks. Increasingly, meat is looked at as an ingredient. In 2016, Canadians will be eating some 30 percent less pork and 20 percent less beef compared to 2000. Over the same time period, chicken consumption

has increased by approximately 12 percent. There are multiple reasons why meat consumption is steadily declining in affluent societies. For the aging population, health is usually cited as the main reason, while the Millennial generation favors different lifestyle choices in which meat increasingly plays a less dominant role as center-of-the-plate food.

Water and GHG

Long-term agricultural greenhouse gas emissions are clouded by two main uncertainties:

- How does livestock production and consumer preference for meat and dairy cope with much-needed yield improvement in order to meet rapidly growing demand?
- How fast do human dietary requirements and food preferences change? Emissions are closely interrelated with agricultural land, manure management, crop yield, genetic livestock improvement, and possible climate change and water availability.

Agriculture accounts for about 15 percent of Green House Gas emissions globally, including emissions from mechanical farm equipment, plowing and planting, manure management, feed cultivation and field burning (US, Environmental Protection Agency 2015).

When extrapolating 2016 baseline knowledge to 2050 feed and food availability, it can be concluded that the projected increase of ruminant meat and dairy consumption will not be able to keep emission levels within agreed targets, unless major technology improvements occur and are implemented. Hence, based on today's state of technology, it can be predicted that meeting climate targets may require forced reduction in the future of meat and dairy consumption. To be specific, in reality, this will mean an increase per capita consumption in the developing world and a much-needed decrease in affluent societies. Realistically, however, this is not going to happen anytime soon.

Carbon dioxide emissions from energy and transportation currently take the largest share of climate pollution. On the heels of energy and transportation come the emissions from agriculture and these will continue to increase to keep pace with the

significant projected growth of global meat and dairy consumption. It will be necessary to address these increases because when no adequate actions are implemented, nitrous oxide from the field and huge methane emissions from livestock may double by 2050, if not sooner.

There is no question that the growth of meat production is intimately associated with many ecological issues. Meat and ecology are on a collision course. Especially the huge requirements of fresh water for meat producing animals will have a catastrophic impact on the environment. The world needs to make hard choices and will—at some point—be forced to accept a diet with less animal protein. Conventional beef production by means of raising animals for a quickly rising world population requires enormous levels of energy, feed, and water expenditure. These factors are damaging the ecological environment and will, ultimately, prove to be unsustainable. In addition, traditional beef production is a time consuming process that has a high impact on carbon emissions, not to mention the huge amounts of methane released into the air. Methane gases released by cattle are very damaging for air quality as agriculture is responsible for an estimated 15 percent of the world's greenhouse gases. A significant portion of these methane emission pollutants is 23 times more powerful than carbon dioxide. Cows emit a massive amount of methane through belching, with a lesser amount through flatulence. These ruminant animals have four stomachs and digest feed in their stomachs instead of their intestines. The bacteria that aid digestion in these stomachs produce most of the methane. The question that needs answering is if large-scale agriculture-driven cattle faring is sustainable in the long term?

The solution will be to develop improved genetics of livestock, providing increased amounts of lean muscle meat, cultured meat, insect protein extraction and last but not least great tasting nutritive plant-based protein foods. Consumers should be encouraged to eat more plant-based protein foods to not only improve their nutritional status but also relieve the rising world demand for meat and dairy protein. Most—if not all—of the West European countries are not self-sufficient in foods supply and heavily rely on vast imports from other parts of the world. Putting more

emphasis on plant protein formulated diets is a major step forward for a country to secure its food supply.

Protein Alternatives

When it comes to protein, consumers have a lot to choose from. Plant protein ingredients like those derived from legumes, cereals, vegetables, and fruits are rapidly transforming into a valuable functional and nutritional cost-effective ingredient in various food formulations. A good protein has a handful of components: stellar nutrition, great flavor, process adaptability, versatility and performance in more ways than one. Plant proteins—or vegetable proteins—are widely regarded as functional and versatile. There is no question that the harvest needs to transform plants into premium and sustainable protein foods to nourish the world.

Ingredients or active biological intermediate compounds are important for securing essential nutrition in formulated food, beverage, and meat products. The interaction between, and behavior of proteins and their blends are of great importance in a wide range of applications in food technology, biotechnology, biomedicine, and cosmetics. Protein derived from all-natural plant sources such as soy, wheat, pea, rice, corn, potato, algae and water lentils has all that and more.

It is clear that modern consumers want more lean protein in their diet, and many are looking to lower the cost of protein sources. In theory, plant proteins should be less expensive, though in reality this is not always true, especially when it concerns so-called high moisture extruded meat analog foods. More consumers are willing to look beyond animal-based proteins to satisfy



their need for protein. While generally the interest in protein is growing, plant-based meat-alternatives are emerging as a viable option. The number of grocery shoppers that seek out protein-enriched foods is increasing, and many are willing to pay a premium for these foods. The bottom-line is that consumers should be encouraged to have diets that are less energy-dense, allowing a larger food-intake containing essential nutrients such as proteins, healthy oils, vitamins, and minerals.

The Future Is Now

It will be essential to develop an economically, ethically, and nutritionally tasty and viable source of meat for the wellbeing of people. On the horizon is cultured meat made from laboratory-grown bovine skeletal muscle stem cells as well as edible insects and products made from insect protein flour that can stretch the sustainability and availability of animal protein without further damaging the environment. From a nutritional standpoint, insects are comparable to livestock.

Insects (Entomophagy)

Some two billion people routinely eat insects as part of their diet. Beetles are the most commonly consumed, accounting for 30 percent of the total eaten, with caterpillars second at 18 percent. Crickets both as crispy fried delicacies as well as cricket protein flour are popular dishes in Asia.

Entomophagy –the official word for eating insects- is considered one of the solutions to meet the huge increase in demand to feed the world affordable and nutritious supplies of protein.

The evolutionary march by our ancestors from eating insects to BigMac's stretches 1,5 million years. Meat consumption is threaded throughout human culture and perhaps even genetics.

Under EU food law insects are classed as novel foods and are yet to be approved. Most EU citizens would accept the use of insects as animal feed, but are more anxious about human consumption and find eating them repulsive. In the future insects –perhaps fully processed into unrecognizable protein powders- should be part of the solution to the huge challenges ahead because of the growing world population.

Eating insects could very well become part of a regular diet. As a matter of fact, it already is: vegetables, fruit, chocolate, and peanut butter usually contain insect fragments, not to mention the red food colorant cochineal made from crushed carcasses of a Latin American beetle. It is estimated that an adult person ingests about 700 gr/yr. of insects without even knowing it.

A major reason for considering high-quality insect protein is the nutritional, economic and environmental impact; while the biggest advantage is that insects are also very efficient in converting agricultural food waste to useful animal protein. Still, many questions remain to be answered before insect protein becomes mainstream. One of these questions is ethical in nature and another is whether the genetic make-up of insects might negatively influence long-term human health.

The World in Transition

Diets high in dairy and meat are expected to rise exponentially because of the growing number of people that will have the means to afford these much-beloved foods as the primary source of nutrition. However, the enormous expected increase in animal protein consumption will mean a real setback in reducing greenhouse gas emissions.

The growing number of transformative changes, with increasing meat and dairy consumption, as well as the rising demand for food and nutritional quality, will put additional pressure on the agricultural eco-systems. To meet world needs by 2030, it is estimated that about 40 percent more food must be produced from less land and fewer inputs such as chemical pest control, less water, and less fertilizer. In addition, the inequities between developing and affluent societies must be solved in order to improve economic and societal imbalances.

Agricultural productivity rates have failed to keep up with global population growth. The overuse of priceless fresh water poses not only serious environmental hazards but also a risk to social and political stability. It is inevitable that water scarcity will cause certain food shortages in the next decennia. In 2016 and beyond, water withdrawals will probably surpass sustainable supply and this discrepancy will only widen.

Soybean cultivation can serve as an example of how difficult it will be to navigate the world of future requirements and their environmental impacts. The average EU citizen consumes 61 kg of soy yearly, 93 percent (57kg) of which is embedded as animal feed in the animal-derived foods that most consumers eat daily. By far the highest amount of embedded soy (109gr per 100gr) is present in chicken breast meat, closely followed by eggs (55gr. of soy per 100gr), pork chops (51gr. of soy per 100gr. of meat), hamburgers (46gr. of soy per 100 gr. of meat) and cheese (25gr. of soy per 100gr. of product).

Although soy is an essential part of the global food supply, the high-protein crops have negative ecological and environmental impact if grown irresponsibly. There is no doubt that the explosive growth of the soy crop has come at the expense of millions of hectares of grassland, forest, savannah and wilderness, taken away and converted to agriculture harvest land around the world. South America in particular has been affected, destroying valuable eco-systems such as the Amazon. In addition, in 2016, about 96 percent of all soybeans harvested in the US will be of GMO origin.

It is, therefore, necessary that the meat and dairy industry, as well as its customers, implement a strategy to purchase only responsibly produced or harvested soy for use in both animal feed as well as formulated foods in which soy plant protein isolate is used as the main protein component.

About the author:



Henk Hoogenkamp

Former President DMV USA (a Friesland Campina company), Senior Director Strategic Technology Dupont Protein. Board member RIBT. Author and Publicist. His new book "Plant Protein & Disruptive Diagnostics" is due for release January 2017.



**The Food Industry
starts here !**



NUTRITIOUS FOOD REDUCES WASTE

By Robin J Birn

Eating Nourishing Chilled Ready Meals

There have been many independent studies that show that recipes created by popular TV chefs nor ready meals produced by supermarket chains meet international nutritional standards for a balanced diet. Some of the recipes seemed to be less healthy than the ready meals. Maximum nutritional benefit is likely to be derived from home cooking of nutritionally balanced recipes primarily using raw ingredients, rather than relying on ready meal recipes or recipes by TV chefs. Further reformulation of ready meals in line with international nutritional guidelines, and collaboration with TV chefs to improve nutritional quality of their recipes may also help consumers to achieve a balanced diet.

Cooking processes can be just as important for our health as the sugar, salt and fat content. Food processors do not have to label total vitamin content and probably don't bother figuring out how many of the myriad of cancer preventing compounds in plant foods are lost during production. The nutritional value of ready meals matters as consumers, such as the single elderly, rely on them for a lot of their nourishment. Poor diet is the main reason for the epidemic of chronic diseases. Food processors that make ready meals could help the fight against these chronic diseases by providing nutrient-rich meals. But to achieve these nutrient levels, those eating ready meals should be able to rely on them being produced to a high nutritional standard. The aim is to be able to cook and eat a restaurant quality meal at home, but with all the nutritional ingredients cooked so they are appetising and enjoyable.

Micvac's team in Sweden is aware of this and know that there's a new breed of food consumers out there. They're health conscious and expect you to be as well. Consumers want their food freshly cooked, but at their own convenience, but to taste an appetising good quality meal. They expect these high quality meals, but are not prepared to wait an extra minute to get it. So are they

satisfied if the meals they want to eat are made with the Micvac process and their needs satisfied? Now these consumers are interested in searching for a new and better ready meal for themselves and their children. And this is where the Micvac process helps to challenge the conservative food industry, and is a partner for food processors dedicated to finding new ways to the hearts and stomachs of the modern food consumer knowing that the meal will be cooked to satisfaction.

Micvac completed some market research - the systematic, objective collection and analysis of data about a target market, competition, and/or environment. The goal for investing in it should be to increase your understanding of customers and consumers, their buying behaviour and their typical journey engaging with brands and marketing for the products they want to buy. The power of information is outstanding when it comes to market and consumer survey research. The information you find can guide your most important strategic business decisions and usually, if done properly, the findings and conclusions you reach have a value that exceeds the cost of the research itself.

The main benefits of market research are guiding the development and positioning of your communication with current and potential customers. It helps to minimise risks and establish your market positioning.

So market research is an invaluable tool that some managers might think expensive and slow, but for other managers it is more than an investment when realising what can be gained from it.

Micvac in Sweden

So some companies develop new processes, find customers for them to sell to and start to develop successful businesses. The business grows and then it gets to a point that there is a lot of interest in its product,

but those interested need to be convinced that there is a market which is sustainable and is being changed by the new process that it has launched.

Micvac of Mölndal, Gothenburg, Sweden, is such a company. It is a food technology company with fresh ideas on how to produce chilled ready meals. The Micvac food processing method is based on a minimum cooking and pasteurisation time for maximum nutrition and taste, which extends the shelf life of chilled ready meals without preservatives - it has an ingeniously designed packaging, which provides new benefits to food manufacturers of chilled ready meals and the consumer who buys those meals in a supermarket. The company is a solution provider offering production equipment, packaging material, know-how and support systems to the chilled ready meals food industry.

"Fresh thinking, served." is the essence of its brand, the values and what the company stands for and is used in its internal and external communication. But this brand positioning also gives guidance in the company decision making and its daily work. "Fresh thinking, served." is also used as a quality seal - used by the company, its customers and partners. It highlights Micvac's unique food processing method to enhance customers', retailers' and consumers' sense of high value and quality when eating chilled ready meals.



The Micvac Microwave Tunnel

The Micvac food process makes a chilled ready meal in the following way:

- * First the tray is filled with fresh ingredients and other recipe components - vegetables, meat or poultry and other ingredients are combined. Filling takes place directly into

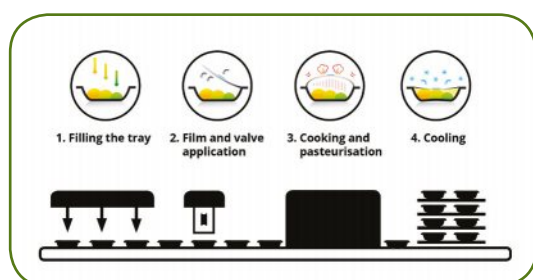
the consumer portion pack

- * A hole is made in the film and a valve is applied over it, then sealed to the tray creating a safe enclosure
- * Then cooking and pasteurisation takes place simultaneously using microwaves making sure the meal is evenly cooked. The valve opens and releases steam and air
- * The valve on the lid film closes, ensuring no recontamination. The meal is then cooled, steam condenses and a natural vacuum is created. The vacuum is also visual proof for a successful process

approximately 3 minutes. As the meal cooks the microwave-friendly shape of the packaging ensures that the meal is evenly heated within any regular microwave oven. When the food is cooked through, the valve releases a distinctive whistling sound, alerting the consumer that the food is ready.

On the top of the packaging the valve can be seen very clearly. This valve can be customised with the food processor brand/ printing which means it blends into the meals' branding.

Three European Chilled Ready Meals markets



The food process used

The food tray is made in a variety of shapes – single and two compartment trays, sizes and colours. The vacuum packaging allows the product to be displayed upright on the shelves, which ensures better visual exposure.

When the consumer takes the meal home and wants to eat it, she or he takes off the outer packaging (sleeve or carton) and puts it in the microwave oven, without piercing the lid film, at maximum efficiency for

Over the last ten years Micvac has worked with an increasing number of food manufacturing customers who have experienced these benefits for the food they sell to their customers - and so it has become evident that the Micvac process works. But as markets get more competitive

and food retailers require proof that their customers want to buy the products that food suppliers want them to stock and sell in their stores, it is increasingly important to get information from the end consumer that they are satisfied with the chilled ready meals made – and so Micvac wanted to do this research to prove that their food process is preferred.

Micvac is also expanding its international presence and the company wanted to approach major European markets which included some new to the company. So in 2013 it decided to learn more about the German consumer, in 2014 French consumers, and in 2016 UK consumers, to identify the competitiveness of the market and see if the British consumer realised the benefits of the process in chilled ready meals.

But to do this it needed to work with an external organisation which has provided advice, access to information and resources for interviewing consumers to other food processing companies, as it wanted to have independent expertise to provide objective and accurate market research and interpretation of results to help the company and its customers with their marketing.

My organisation had worked with Micvac's Marketing Director Christina Frohm Kramer in the past in another food processing company in Germany researching markets

in Germany, Scandinavia and Worldwide. So we started to work on designing a research programme to develop consumer insight in each of the three countries. Insight is the beacon of light for a company giving the company something to aim for – it provides the direction for the company to steer in – and helps the company keep off a collision course that many companies navigate when they are in the situation that their managers take decisions without information or direction on what the consumer likes or dislikes about a product. So where possible it is vital to do market and consumer research to get that direction and steer the correct course. But even so the reality for many major food and drink companies is that 90% of the new food products they introduce to the market fail, even though they have completed market and consumer research. So it is important to get feedback from consumers on existing food products to understand their preferences and how to develop the right products and propositions.

Our research was designed to review how nutritious food reduces food waste and to provide consumers with healthy chilled ready meals. 'Fresh thinking, served' is a very effective brand platform. It communicates Micvac's values and provides a unique competitive positioning to stimulate awareness in the food process and the resulting preparation and cooking of a meal. This market research in all three countries has provided the following feedback for Micvac and it confirms the strength of this brand positioning:

- * Consumer reaction is extremely positive towards learning about a new vacuum packed process, as the ratings we received in all countries was high for liking the meals cooked and tasted made with the Micvac process. But the research also shows that the Micvac process has to be communicated carefully to the consumers, as they have to absorb a lot of information about it to understand and realise its benefits.

- * Consumers reacted positively to a meal with a vacuum pack which opens more easily than those they currently buy in supermarkets. But the consumers need to be convinced they would be able to buy these meals in supermarkets in the future, so food processors that Micvac work with will need to market creatively to reassure consumers.

- * Consumers have provided positive feedback to both the preparation and cooking of the



Micvac packaging design preferred by UK consumers showing the meal

meal and the quality of the food and the ingredients in the different recipes made with the Micvac process in comparison with meals they currently buy in supermarkets – confirming not only that they like the vacuum pack process, but they provided feedback that the meal was more enjoyable because of the quality of the ingredients, giving the consumers the feeling that the meal is more nutritious.

- * When the consumers have the Micvac vacuum pack process explained to them, the Micvac valve and whistle are recognised as a benefit and they understand that it will produce a better and more enjoyable meal. But the consumers will have to learn how to cook meals in their microwaves, and rely on the whistle, when they purchase the products in the future as they will have to become more familiar and used to cooking them with the valve.

- * Consumers recognise that a meal made with the Micvac process delivers an experience of eating a better quality and nutritious product which the consumers said they would pay more money for if they could buy it in their local supermarkets. There is evidence that this is consistent across all the three countries the research was completed in. So the perception is that the better quality meal delivers value, which could be passed on to the consumer and benefit the food processor manufacturing the meals.

- * There is consistency in the net promoter score metric in all three countries – the measure which says whether the consumer would recommend the meal they have just eaten to another consumer - with consumers giving a very high recommendation rating for buying and eating a meal made with the Micvac process. We identified a high proportion of consumers who say they are positive to the product made with the Micvac process

- * The consumers also say that as they like the food ingredients in chilled ready meals made with the Micvac process, the consumers also say they produce better quality meals and are different to the meals they currently buy in Supermarkets.

The research also confirmed the vacuum pack process consumer benefits as the consumers said the following as feedback about the meals they cooked and ate in the research Studios:

- * It is easy to cook the meals.
- * There is no need to check on the meals as they are cooked as they find the whistle novel but more importantly reassuring.
- * When tasting the meal the consumers say it is evenly warm across the meal making it more enjoyable.
- * Consumers believe it is a better quality meal and it is better value.

One of the most important findings in the research was in the in-home tests with the consumers who took meals home to cook and eat over a three week period. The consumers think the quality of the meal remains the same if they eat them immediately or keep them and eat them two and even three weeks after purchasing/being given to them.

We also included in the research a test to compare two curry recipes, one in a single compartment tray and the other in a two compartment tray. We found out the younger age groups prefer the two compartment tray and the older age groups prefer the one compartment tray.

So the UK research showed that a meal made with the Micvac vacuum pack process provides a more nutritious chilled ready meal than consumers are used to. So do consumers think that the process would help them to reduce the waste they tend to have with their food at home? UK households waste 6.7 million tonnes of food every year, which is one third of the 21.7 million tonnes purchased. Most of the food thrown away is avoidable and could have been eaten if it had been managed better. Nearly half of the avoidable food thrown away is in a fresh, raw or minimally processed state. An additional 27% is thrown away having been cooked or prepared in some way. Over a quarter of the avoidable food thrown away each year in the UK is thrown away still in

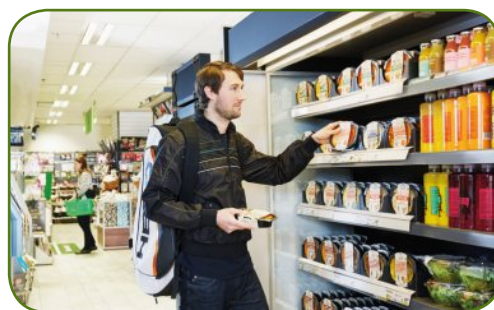
its packaging, either opened or unopened. Nearly 1 million tonnes of food is thrown away whole or unopened – this is a quarter of all avoidable food waste. At least 8% of all avoidable food waste is in date at the point of disposal.

Food waste in the UK is costly: the UK as a whole pays for but does not eat £10.2 billion of good food each year. That equates to £0,420 of avoidable food for the average household each year. Food thrown away whole and unopened is particularly costly at more than £2.2 billion a year. Food thrown away still in date costs UK households at least £950 million per annum.

In our survey in June 2016 in the UK we added some questions about food waste to the questionnaire consumers filled out for us as they cooked and ate the meals they took home.

The first question asked the consumers for their reasons why food tends not to get used in their household. The main answers were:

- * 67% said it was passed its best before or use by date
- * 57% said they forget the food is there
- * 49% said when preparing a meal they substitute something else they would rather eat at the time and then the original food does not get used in time
- * 44% said they cook too much



- * 30% said their children do not eat all their food
 - * 27% said the food looks inedible.
- The last question was a series of statements about food waste and the consumers were asked to say if they agreed or disagreed with each statement. They agreed with many of these statements confirming that UK consumers recognise there is a problem with food waste. The highest ratings were for the following statements:

- * 95% agree that they try to ensure

the food thrown away is kept to a minimum

- * 89% agree that if they could buy a meal prepared in a natural way but giving longer shelf life then they would throw away less food
- * 87% said if they had information on the cost of food they throw away they would probably make an effort to throw away less food
- * 81% said discarded food packaging is a greater environmental waste issue than food waste
- * 78% said that if they had information on the environmental impact of food waste they would probably make an effort to throw away less food
- * 70% also said if they cooked more chilled portioned ready meals in their microwave they would reduce food waste.



So the research has proved that if consumers agree that if they could buy a meal prepared in a natural way but has a longer shelf life then they would throw away less food. The consumers also say that if they could buy meals made with the Micvac process then they would buy more chilled ready meals as they believe that the ingredients are more nutritious as a result of the cooking in the Micvac process. So this research has provided substantial evidence that nutritious food can reduce food waste.

So what was the benefit of this market and consumer research to Micvac? Here was a company that was having success but had not had an opportunity to get feedback from its customer's customers about how much their food process was having an impact on the experience they were having when eating chilled ready meals made in their microwaves at home. By asking the consumers what they like and dislike about meals prepared with the Micvac valve the company gained an understanding not just about the acceptance of their product but a real feel for the fact

that the consumer said that it was better than anything they can currently buy and it helped them to enjoy the taste and eating experience. But the real benefit of doing market and consumer research was to get the strength of the opinion from consumers, which may have been assumed but could not be guessed at - and as it was so strong it showed why the consumer research delivered analysis which is likely to have a lasting impact on the chilled ready meals market in Europe.

About the author:



Robin J Birn
marketing and market research
practitioner and trainer

www.micvac.com

FIRST DETECTAMET SILVER GUARDIAN AWARDED

Exhibitions are exciting and surprising and SIAL 2016 turned out to be a very good location to launch Detectamet's new incentive scheme to encourage good anti-contamination management.

Detectamet's Jon Ireland, left, presents Gianluca De Martino with the Silver Guardian Award for Caseificio Tere Stelle's commitment to food safety



A user of Detectamet detectable products was exhibiting near to Detectamet's exhibition stand and they helped to keep their customer's products protected with detectable gloves to protect the safe supply of Pizzas.

Caseificio Tre Stelle s.r.l. is an Italian producer of high quality Buffalo Mozzarella and to demonstrate their cheese they supplied visitors with samples of Pizza made on the stand using their cheese.

Following research, we discovered that the company was already using more than 5 Detectamet detectable products which qualified them to receive the Detectamet

Silver Guardian award for their commitment to food safety.

The Technical Manager Gianluca De Martino at Caseificio's Three Star Dairy said he was delighted to see Detectamet at the show and was pleasantly surprised when he was presented with the Silver Guardian award by Jon Ireland, the new Sales Director at Detectamet.

The new award scheme is rewarding companies that demonstrate their food safety culture by protecting customers and consumers from the risk of physical contamination in their products. There

are three levels of award; Silver, Gold and Platinum and they are being presented in accordance with the level of commitment made by the recipients. Silver awards will go to food companies using more than three detectable plastic products. Gold winners will be employing seven or more products and the users of eleven or more products will receive the Platinum Award.

Sean Smith, the Chairman of the Detectamet Group of Companies, said "I was delighted that we could recognise and reward Caseificio whose product at SIAL was not only safe but delicious."

www.detectamet.co.uk



MEAT IN THE MIDDLE: HOW FANUC COLLABORATIVE ROBOTS CAN IMPROVE WORKPLACE SAFETY

By Andrew Armstrong, FANUC UK Sales & Marketing Manager

Each year, over 5000 injuries in food and drink manufacturing industries are reported to the Health & Safety Executive (HSE), representing about a quarter of all manufacturing injuries reported. Around 90% of these injuries occur in food manufacture, the remainder in the drinks sector. According to statistics gathered by HSE, processing poultry and meat consistently rank as the most hazardous jobs and remain the top two causes of injury in the food and drink sector*.

In meat, poultry and fish processing and packing, being struck by hand tools, the manual lifting of heavy and awkward loads, slips on greasy or wet flooring, and the use of machinery, such as conveyors, bandsaws, derinders, skinning machines, pie and tart machines and packaging machinery are the key causes of injury. Yet, robot technology, including collaborative robots, are now taking on many of the repetitive and strenuous tasks that cause musculoskeletal injury from manual handling, and work-related upper limb disorders (WRULDs) from repetitive work.

As many meat processors are discovering, robots can actually improve safe working practices at all stages of production and packing. Effective and secure guarding is central and integral to every installation. Now we are starting to see the next generation of collaborative robots (Cobots) emerge from cages and undertake tasks in close proximity to people. Here too, the same care is being taken to minimise risk.

Robots are becoming more humanoid

Industrial robots are automated moving devices with multiple axes. Motion paths, sequences and angles can be freely programmed and controlled by sensors. Robots can also be fitted with grippers and other tools, enabling them to manipulate objects and carry out production tasks. What's more they are well suited to carry out many different automated tasks and make frequent changes to batches and products.

Traditionally, the automotive industry has led the way to use robots on a large scale.

Yet, if used without care, robots can be dangerous to humans. Back in 1961 when General Motors introduced the first industrial robot to its production line, humans were at high risk inside a robot's work zone. In the decades since, robot manufacturers such as FANUC have spent enormous effort and money to produce models with the best possible safety levels.

As robots have become more refined, and applied across more industry sectors, mainly for heavy work, devices are used to monitor a robot's surroundings, such as vision and force sensors that allow robots to see and feel what is around them.

While meat processing robots can slice, dice, debone, mince and pack, when it comes to skilled cutting, particularly in the beef industry, full robotic butchery remains a few years off. This is in part due to the fabrication of the animal; beef processing is inherently more difficult to automate. That's because the art of butchering requires touch, not just sight. Nevertheless, sometime soon there'll be a



robotic solution that can gauge how deep a bone is. Already, scientists are looking to endow future robots with a human-like sense of touch using smart synthetic skins.

Collaborative robots

Over the last few years, collaborative robots have emerged. In contrast to traditional robots, which cannot operate in an operator-occupied workspace without safety fencing, these cage-free robots can work side by side with humans on shared or separate tasks.

Although collaborative robots do not eliminate the need for workplace risk assessments, the increased adoption of peripheral safety devices is enabling robots and humans to work in close proximity of each other, eradicating the fear of interrupting production or worse, an accident.

Cobots are equipped with force sensing to limit their power and force: in any situation they can feel or detect an abnormal force and stop their motion immediately.

Although they still cannot avoid a crash, Cobots can reduce its impact and avoid certain types of incidents, like crushing accidents. This makes them safer to work alongside humans.

Dual Check Safety (DCS) Position Speed Check

Dual Check Safety (DCS) Position/Speed Check features check the speed and positional data of motors with two independent CPUs within the robot controller. These functions can detect any position and speed errors immediately and shut down the motors power. Safety data and processes are cross-checked by two CPUs. Self-diagnosis of safety hardware and software is executed periodically to prevent potential failure accumulation.

The DCS position speed check software allow safety zones to be quickly and easily designed:

* CS Position Check ensures that the robot stays in the designated safe areas, with

adaptive zones that allow for more compact cell layouts and which allow robots and humans to share a common space in a controlled way.

* DCS Speed Check monitors the speed of the robot to ensure safe operation. Using the inputs from devices such as floor scanners, the robot slows down to a safe speed, which is then safely monitored by the DCS function. If the robot goes over the monitored speed, the DCS function will stop the robot.

Avoiding heavy lifting

Another aspect of safety where robots can help is preventing injury to humans through heavy lifting. This is especially prevalent in meat, particularly the handling of carcasses before butchering and the palletising of prepared and packed products. With health and safety regulations stipulating 25kg as the maximum load an operator may handle, there is a real requirement for a robotic solution to handle loads that exceed this limit.



FANUC has extended the application field for collaborative robots with a model that has a higher payload than any other on the market. The human-safe CR-35iA has a 35kg payload, opening up applications that have previously been off limits for both traditional industrial robots and lighter duty collaborative robots, particularly in difficult-to-access areas where conventional assist machinery cannot fit or where a six-axis robot adds dexterity.

Risk assessments

As collaborative robots are working alongside humans without any type of shield or guarding, it raises a new level of complexity.

In line with ISO 10218 and ISO/TS 15066 standards which relate to the collaborative operation and safety functions, end users or integrators will need to do a complete risk assessment to prove that their robotic application using a collaborative robot is safe.

When doing a risk assessment, while the robot itself may be safe, the entire robotic system has to be considered, including grippers and any other peripheral equipment.

Gripper technology

Grippers are handling equipment that secure position and orientation in relation

to the handling device when picking up and depositing objects. Most grippers work on a mechanical, pneumatic, electric or adhesive principle. Grippers also include vacuum suckers.

The gripper must cope with the physical and mechanical properties of the object and handle it without leaving any visible marks or damage.

From a safety point of view, grippers can cause pinching or crushing injuries and the risks of these should be taken into account in any risk assessment.

Safety standards

In 2013, the first safety standards for collaborative robotics, ANSI/RIA R15.06, were published. More recently, the ISO/TS 15066 standard was published in March 2016. It specifically outlines guidance for and the requirements of collaborative industrial robot systems, such as contact forces and pressures that can be applied to different regions of the body.

Practical measures

In order to ensure that humans are not exposed to unacceptable risks when working collaboratively, the current standards describe four separate measures that can be used

to provide risk reduction. It is required that at least one of these is fulfilled, in addition to having visual indication that the robot is in collaborative operation.

The four measures are:

*** SAFETY-RATED MONITORED STOP:** when it is detected that a human has entered the collaborative workspace, the robot should stop. The stop condition should then be maintained until the human leaves the workspace.

*** HAND GUIDING:** the human can guide the robot by hand. Additional requirements for safety include safe-limited speed monitoring and a local emergency stop.

*** SPEED AND SEPARATION MONITORING:** the robot must maintain a specified separation distance from the human and operate at a pre-determined speed. This measure requires careful risk assessment and needs to take account of safety distances.

*** POWER AND FORCE LIMITING BY INHERENT DESIGN OR CONTROL:** the power and force of the robot actuators need to be monitored by safety-related control systems to ensure that they are within limits established by a risk assessment.

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MCDONALD'S: BURGERS THAT MATTER

By Henk Hoogenkamp

The verdict is out: as far as Millennials (born 1982-2004) are concerned, McDonald's flagship product "Big Mac" has gotten less relevant. It is shocking to know that just one in five Millennials -the fast-food core target group- has ever eaten a Big Mac hamburger.

There is clearly a discrepancy between McDonald's long-time strategy to improve speed of service and lower food costs and the "better burger" restaurants such as Five Guys, Habit and Smashburger, who are serving gourmet made-to-order, never-frozen beef patties grilled over an open flame.

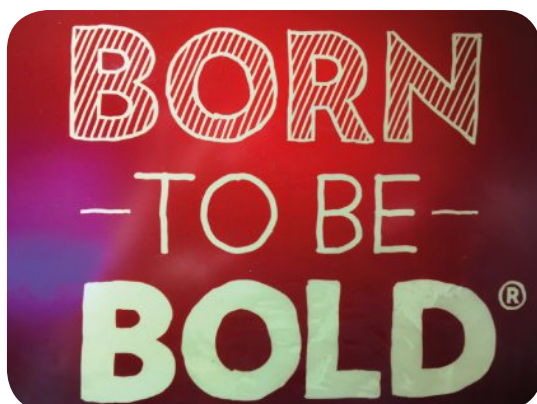
McDonald's will continue to gradually lose market share over the medium term in the US due to weakening of the brand perception within the burger category and the less relevance among the health-conscious consumers. On the international scene, it is expected that the McDonald's international markets will outperform the US.

As a matter of fact, the number of hamburgers sold at McDonald's US has been flat for the past few years and in the consumers' mind the value does not reflect what they expect. McDonald's is in urgent need to refocus and address issues that for too long have been snowed under: fresh instead of frozen beef, customized burgers, different cooking systems, and not made long in advance and kept in warming cabinets.



Each and every of these issues are in direct confrontation with McDonald's current strict guidelines and criteria to deliver the food within 90 seconds after ordering. The challenge is even greater knowing that the fast-food chain generates nearly 70 percent of its US business through the drive-through lanes.

Although McDonald's corporate offices in Oakbrook IL was told many times about the negative quality impact of "pink slime" they continued increasing its use level and conveniently ignored consumers' queries received through their hotlines complaining of -for example- an ammonium smell or strange aftertaste of the burgers.



Inward self-centered thinking

Insiders and food technologists have warned McDonald's senior management repeatedly about the continuous degradation of their meat-formulated products. For example, the decision to add, "lean finely textured beef" -also known as pink slime- probably has been McDonald's worst move ever.

Actually, there is nothing wrong using ultra-processed mechanically separated beef as part of a burger formulation. However, McDonald's totally miscalculated the intensity of the social media and rightfully many of its core customers felt betrayed that they were never told about the use of a free flowing pink "substance" in their beloved burgers. The public relation nightmare centered on the fact that McDonald's never communicated the significant amount of presence of "pink slime" and kept touting the virtues of 100% pure beef. When Chef Jamie Oliver exposed



grill. Also important is to extend the toasting time of the buns with a few seconds, and no tinkering with the quality of the beef. The right serving temperature and premium taste, flavor and texture are the main challenges for McDonald's. These organoleptic properties might be difficult to achieve without relaxing the enormous criteria to push for time, speed and lowering costs.

The last few years, the McDonald's US same-store sales growth has been almost flat while competition serving better burgers are growing at much faster speed, especially among Millennials.

Green and Clean: additive-free fast food

Under the leadership of Steve Easterbrook CEO, -a British citizen- McDonald's has finally recognized the often "self-serving" errors of previous generations of management executives and now is working double duty to figure out a new way forward and to become relevant again for their core customers. The company has already said goodbye to hardened vegetable fat and returned to using butter in the Egg McMuffin. They also have completely reformulated the McNuggets recipe by removing all sorts of (secret) artificial additives which presence were never clearly communicated with their customers. The McNuggets of 2016 have undergone a metaphoric change and the wait is when McDonald's will do the same for the rest of the world.

the scheme they got caught with their pants down and very quickly went in damage control mode.

Not premium quality, but rather maximizing profit and fat bonus checks (pun intended) was the mantra for many of the money hungry management, often based on a too intimate "association" with their so-called exclusive meat suppliers.

But it didn't stop there. The quest for speed and reduce costs no matter what, also made the company stop toasting the buns resulting in detrimental quality flaws such as a chewy and soggy product. McDonald's still didn't get the message and implemented a system of microwaving burgers as well as extending the stay-time in the warming cabinets.

To reverse sales, McDonald's US attempted to market upscale burgers at higher price

points using higher quality ingredients. Legendary are the failed introductions of the Arch Deluxe, Sirloin Burger, Angus Burger, and the Lean Deluxe -also termed the seaweed burger by their customers who were not impressed with its low fat content-.

The message is clear: consumers are not waiting for yet another McDonald's burger gimmick. They are waiting for a better burger made with much preferred attributes such as juiciness, tenderness and the right degree of caramelization.

Many of these quality improvements only can be reached by switching from cooking beef patties on Teflon coated sheets (easier and faster to clean) to open-flame grilling or searing the burgers on an iron

For McDonald's the "fat swap" represents a clear refocus by returning to the original genuine foods to satisfy the evolving demands of the modern trending consumer who are at ease with social media and insist on no artificial ingredients or often hidden chemical additives. Scrapping artificial preservatives in their food line-up and only using beef





free of rbST growth hormones as well as antibiotic-free chicken. These guarantees will demonstrate that the company is serious about full disclosure of the products proudly displayed on the menu board.

Socio-economic Sustainability

On the other side of the scale, the question needs to be asked for how many more years McDonald's can sustain the sale of "100% pure beef patties" in developing countries? Selling premium priced beef burgers in low-income countries to just the happy few is not something McDonald's should embrace as a policy. In terms of ecological sustainability and affordability in developing countries or less affluent societies, McDonald's is caught between a rock and a hard place.

The logical and smart way going forward is to introduce hybrid burgers made from blended plant and meat protein or further down the road all-plant meat burgers. As a matter of fact, McDonald's stores in Asia—such as in the Philippines—are extremely successful selling their flagship "Burger McDo" and this hybrid burger is made from

ingeniously blended soy protein and beef at an approximate 70 to 30 ratio. It seems as if finally the regional areas are no longer constrained by the dogmatic or ideological harness of the corporate offices.

Going Forward

There is real urgency to improve customer satisfaction. Not an easy task to accomplish because ever since the turn of the century, every time McDonald's went outside their space, they failed. Perhaps it is a sign of the times or perhaps it is time to acknowledge that fast-food sales have peaked. For now the tendency is clear, fast casual food outpaces fast food and McDonald's better accept reality that consumers can't be fooled long-term. The fast-casual food concept mainly features a simple menu each made with "responsible raised meat", shakes, sodas, fries and condiments.

However, when everything is said and done, the turnaround plan for the struggling fast food giant should refocus on upmarket quality and ambiance while still making certain the customer wait time as short as

possible. One way of accomplishing that goal is to reduce the number of ingredients. That is the easy part; the true challenge is winning back the trust of a generation they nearly lost.

About the author:



Henk Hoogenkamp

Former President DMV USA (a Friesland Campina company), Senior Director Strategic Technology Dupont Protein. Board member RIBT. Author and Publicist. His new book "Plant Protein & Disruptive Diagnostics" is due for release January 2017.

IPPE, THE WORLD'S LARGEST ANNUAL POULTRY, FEED AND MEAT INDUSTRY TRADE SHOW OPENS ITS DOORS ON JANUARY 31, 2017



IPPE, the world's largest annual poultry, feed and meat industry trade show, will be held Jan. 31 - Feb. 2, 2017. IPPE is a collaboration of three trade shows—the International Feed Expo, International Poultry Expo and International Meat Expo—representing the entire chain of protein production and processing. The event is sponsored by the U.S. Poultry & Egg Association, American Feed Industry Association and the North American Meat Institute. The 2017 IPPE will provide a great location for attendees to learn about new products and services, network and discuss common topics facing the animal protein and feed industries," stated the show sponsors.

VENUES NOT TO BE MISSED!

Communicating Sustainability with Consumers, Suppliers and Stakeholders Focus of Animal Agriculture Sustainability Summit at 2017 IPPE

The ninth annual Animal Agriculture Sustainability Summit will be held during the 2017 International Production & Processing Expo (IPPE) in Atlanta. The Summit, sponsored by the U.S. Poultry & Egg Association, will focus on communicating the animal agriculture sector's sustainability efforts with consumers, suppliers and industry stakeholders. The Summit is a half-day program and will be held Tuesday, Jan. 31, 2017. The program is free for all registered IPPE attendees.

Topics to be covered include: What is Sustainable Agriculture and How Do You Demonstrate It?; Collaborating with Farmers to Advance the Sustainability of Their Farm; An Industry Success Story on Achieving Zero Landfill Status; Striving to

Become More Sustainable - Establishing Value Chain Partnerships to Grow Purina's Sustainability Culture; and Agriculture and the Chesapeake Bay: Working Together for Profitable Agriculture and Healthy Waters. The Summit will end with a ceremony announcing the winners of USPOULTRY's Family Farm Environmental Excellence Awards for 2017.

Poultry Market Intelligence Forum to Discuss Domestic and Global Drivers at 2017 IPPE

Domestic and global markets have changed over the last year. The Poultry Market Intelligence Forum, held during the 2017 International Production & Processing Expo (IPPE), will provide insight on economics, performance and how animal rights activists are all impacting the poultry and egg industry. The Forum, sponsored by the U.S. Poultry & Egg Association and the National Poultry & Food Distributors Association (NPFDA), will be held on Wednesday, Feb. 1, 2017, and is free to all registered IPPE attendees and NPFDA meeting attendees.

"The Market Intelligence Forum is a popular recurring program on the Expo schedule, and we are pleased to again include it in the 2017 education line-up. It is important to stay on top of current conditions and projections for the future that could affect the poultry and egg industry. This program assists in keeping industry leaders current on the various factors that affect financial performance," said Paul Hill, West Liberty Foods, Ellsworth, Iowa, and USPOULTRY chairman.

The program will feature a leading economist, an agriculture communications specialist and an industry performance analyst. Dr. Paul Aho, Poultry Perspectives, will discuss "Domestic and Global Drivers for 2017." Hannah Thompson, Animal Agriculture Alliance, will provide a presentation on "Securing the Poultry Industry's Future:



Responding to Animal Rights Activists Threats," and Mike Donohue, Agri Stats, will provide insight into "Performance Trends for the Poultry & Egg Industry."

NAMI Announces Additional Free Education Programming for 2017 IPPE

The North American Meat Institute (NAMI) announced it will sponsor three additional free education programs at the 2017 International Production & Processing Expo (IPPE).

The "Beef 101" session, scheduled from 8 to 10 a.m. on Tuesday, Jan. 31, 2017, will provide an overview of the beef lifecycle, address common questions regarding beef production, discuss factors affecting beef quality and offer a unique demonstration of innovative beef cuts. The workshop will feature Davey Griffin, Ph.D., professor and extension meat specialist, Texas A&M University.

The "Meat Industry Regulatory Update and Compliance Session," scheduled from 8 to 10 a.m. on Wednesday, Feb. 1, 2017, will

cover the major regulatory issues affecting meat processors in the past year and the challenges facing the meat and poultry industry in 2017. In addition, the session will provide an overview of common in-plant inspection and enforcement issues and discuss strategies to best respond to these matters. NAMI's Senior Vice President of Regulatory and Scientific Affairs and General Counsel Mark Dopp and Vice President of Regulatory Services Norm Robertson will lead the session.

The "Family Businesses Strategies for Success" workshop, will highlight some of the most pressing concerns facing family businesses in the meat industry, focusing on succession planning and family member employment, along with other related topics. The session also will provide opportunity for interaction and discussion to facilitate the sharing of best practices and ideas. Dave Miniati, CEO of Ed Miniati, LLC, and Jennifer Pendergast, senior consultant, The Family Business Consulting Group, will speak during the session, which will take place Tuesday, Jan. 31, 2017, from 8:30 to 10:30 a.m.

www.ippexpo.org

MAREL UNVEILS MANY NEW DEVELOPMENTS AT IPPE



During the 2017 IPPE show, Marel will unveil a large number of new developments in the world of food processing. Many of the new launches will be physically present at the expo floor, so IPPE visitors can get a real touch and feel experience.

POULTRY

At the IPPE booth, Marel Poultry features a lot of introductions for the American market.

Thigh fillets on the rise

Marel Poultry already foresaw the trend towards a growing popularity of deboned thigh meat and created the world's first inline high-capacity thigh filleting solution. With utmost efficiency and consistency, the bone is carefully separated from the meat, in order to supply retail quality thigh fillets. Meanwhile, the knee cap is removed accurately and at no point in

the process, there's a need for manual trimming.

Intelligence in breast filleting

For years now, Marel Poultry has set the standard for breast cap filleting with its AMF system. To make life easier for poultry processors, Marel Poultry now adds even more intelligence to the process. Processors no longer have to manually select a product size related recipe, as module settings adjust themselves automatically to the measured product size.

Smooth Controlled Atmosphere Stunning

Stork CAS SmoothFlow ensures not only the most humane process, it also preserves the highest possible meat quality of the end product. Blood spots or fractures will hardly or not occur, reducing downgrades considerably. The smooth, straight movements with no abrupt transitions nor human intervention,



together with the calmest possible, gradual anesthetization, secure the supplied quality.

Chilling Control

Precise control of the air chilling process is critical when processing poultry; products leaving the chilling tunnel should have the defined core temperature without any frozen parts. ChillingControl dynamically and automatically adjusts tunnel settings to the load being handled. It saves a considerable amount of energy, making the chilling process more cost-efficient while at the same time optimizing product quality.

Taking portioning to a new era

The Marel I-Cut 122 Portion Cutter combines the highest levels of accuracy, throughput and reliability with new, innovative software. The dual-lane I-Cut 122 has been designed for cutting boneless, non-frozen poultry (or red meat) products to fixed weight or uniform dimensions.

FURTHER PROCESSING

At IPPE 2017 Marel launches various solutions for the production of convenience

products and sausages. Some highlights:

New pump concept for QSR hamburger patties

With the V-Pump Marel introduces a new high volume pump concept, producing up to 5,000 kilos of high quality convenience products on one RevoPortioner. Core of the new technology are two alternating belt-wide pistons, delivering a uniform pressure to the forming unit, moving the meat mass over a small distance with a minimum of pressure. This retains the original meat structure and texture as much as possible, an important factor for a good bite and attractive mouth feel.

New Sausage Peeler

Marel is proud to announce the launch of their newest high capacity Sausage Peeler, developed for the peeling of large pepperoni sausages with a caliber up to 50 MM and a length up to 1500 mm. The 2850 Sausage Peeler has an improved easy-access design and is made of robust materials and long-life-parts.

www.marel.com

BOOTH - B8362



NEW TIPPER TIE TTSEALH

BOOSTS PRODUCTIVITY, LOWERS PACKAGING COSTS

Apex, North Carolina, USA - TIPPER TIE, Inc., a leading supplier of automated clipping systems, releases its new TTSealH at IFFA 2016. The TTSealH delivers key performance benefits to meat processors, as well as to chemical, confectionary,

and dairy manufacturers. Processors can expect to see improved productivity and lower packaging costs with the automated heat-seal and clip system for pumpable products.

TTSealH is compatible with the TIPPER TIE TT1512 and TT1815 automatic double clippers. The system runs cost effective roll stock films including blank or printed films, as well as most types of monolayer and multi-layer flat foils such as poly, mylar,

and aluminum coated films. Roll stock film increases versatility while enabling longer production runs with a maximum film roll diameter of 355 millimeters. The system's hot-seal capacity is 30 meters per minute, producing chubs in calibers from 20 to 120 millimeters.

TTSealH is easy to operate, thanks to advanced touch screen controls that are integrated into the clipper. The highly functional controls enable a single operator to work in any of several languages, quickly accessing and recalling hundreds of product recipes. The system is compact and constructed of stainless steel and other non-corrosive materials. The results are long service life, safe performance, hygienic cleaning and easy maintenance.

www.tippertie.com

BOOTH - B4133



DE-BONING, SKINNING & MUCH MORE!

STEEN is known for more than 50 years for their cutting edge food processing machinery. With their experience, they produce high-end skinning machines for practically any chicken or turkey like the ST700 skinning machine, or without water. This machine is created to be taken apart without any and thorough cleaning. Next to that, they also have their high-yield deboning machines for chicken thigh, drum and prime wing like the ST828, ST800 or ST840, but also for turkey like the ST850.

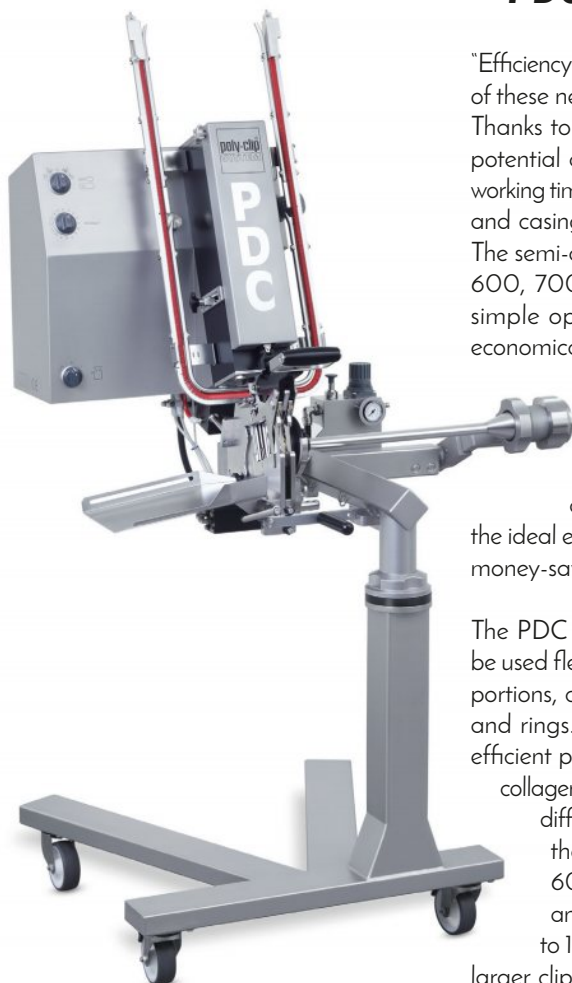
Next to de-boning, the ST840 is also able to make pirzola from thighs and tulips from the prime wings. Other specialities in their range are the ST820 mid-wing de-boner, prime wing tulip processor, the ST350 thigh sparerib machine and the ST832 thigh de-boner and patella remover and the whole breast skinning machine ST650. The ST700, ST840 and the ST850 will be displayed for your inspection at IPPE 2017 in 174 Atlanta and our sales team will be more than happy to answer your questions.

www.steen.be

BOOTH - B8362

FLEXIBILITY THAT SAVES WORKING TIME

PDC 600/700/800



"Efficiency through versatility" is the hallmark of these new PDCs from Poly-clip System. Thanks to the flexibility provided by their potential applications they save valuable working time and are suitable for all products and casings up to a diameter of 115 mm. The semi-automatic double-clippers PDC 600, 700 and 800 offer exceptionally simple operation, modular design and economical compressed air consumption.

And the newly integrated two-handed triggering of the first clip makes for added safety.

The PDC has proven its worth a hundred times over and remains the ideal entry-level machine for time- and money-saving sausage production.

The PDC 600/700/800 machines can be used flexibly for the production of single portions, chains, long sausages, half rings and rings. They offer secure closing and efficient processing for all plastic, fibrous, collagen or natural casings. The machines differ essentially in their processing of the various calibre sizes. The PDC 600 closes calibres up to 90 mm and the PDC 700/800 calibres up to 115 mm. The PDC 800 processes larger clips and is thus suitable for larger calibres and stronger casings and foils.

Continuous and uninterrupted operation is achieved among other things by integrated sausage chain control. An additional safety element for the operator is the two-handed triggering of the first clip. And the ergonomic design also caters for operators of differing body sizes. For operators who are shorter in stature there is a second supply option in which the clip stick is at a lower position.

**Further refinement of PDC
increases productivity**

Poly-clip System has improved this "all-rounder" so it continues to meet the exacting quality requirements made by both small-scale and medium-sized producers, while at the same time increasing the productivity of the machine. The separator can be adjusted to the calibre of the product, thus ensuring shorter lever strokes. For smaller calibres the separator opening is optimally adjustable and can be decreased in size to match the corresponding product calibre range. This dispenses with idle travel of the operating lever, and the time thus saved results in enhanced machine performance and ensures fatigue-free operation. Once adjusted, the machine is easily and ergonomically operated with the aid of just three switches. Its electro-pneumatic control facility ensures a high



cycle rate, whilst the low air consumption saves money. The automatic looper, for example, now only needs an air pressure of 3 bar. And the control box is highly service-friendly, it can be opened without any tools. The cutting knife is easily exchanged. Extreme versatility and high product output combined with ergonomic operation make these semi-automatic PDCs the perfect production tool.

Modular design results in increased efficiency and enhanced reliability

Thanks to the modular design of the PDC, the system can be upgraded at any time. Whether installed on a bench top or on a space-saving trolley, equipped with filler coupling, automatic looper or string dispenser for rings – these semi-automatic clippers are in all cases upgradable as and when needed. The optional features of the new PDCs include a manual or automatic looper (GSE). And if necessary, the now newly positioned string dispenser can expand the functionality of the PDC, inclusive of the bobbin holder, guidance of which has been further improved. In addition there are the options of the pneumatically movable casing brake holder, the portioning device for the

sausage tray or the S-clips on reels (model variants PDC 600/700 only). Accurate batch labelling and tracking are provided as required by the automatic labelling system ES 4000. This system guarantees tamper-proof product labelling, always an important aspect of food processing. The labels carry individualised, up-to-date product information and can easily be clipped during the closure process.

Machine design meets the most stringent hygiene requirements

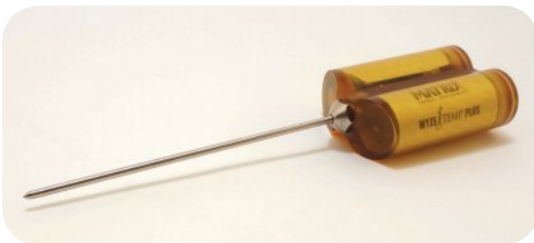
The PDC conforms to the most exacting standards and guidelines current within the food processing industry, and so complies with the most stringent hygiene and safety requirements. Smooth surfaces and a compact construction prevent the emulsion from adhering to the machine, which is also open toward the bottom, thus ensuring better water drainage during cleaning. The inclined square tubes further facilitate cleaning of the machine and leave nothing to be desired where hygiene is concerned. Finally, the use of stainless steel ensures a long service life and thus helps the machine to maintain its value, resulting in an excellent price/performance ratio for the PDC.

www.polyclip.com

BOOTH - B5631

NEW WIRELESS TEMPERATURE MONITORING SYSTEM FOR OVENS AND GRILLS

COOK WITH WYZE TEMP® FIRE AND YOU'LL NEVER LOOK BACK!



Matrix Product Development, Inc. (Matrix PD), introduced the Wyze Temp® FIRE wireless temperature monitoring system for outdoor grills, home ovens, and commercial ovens. The battery operated unit easily installs in minutes and provides

both the grill (or oven) temperature and food product temperature on a local display by using a simple pencil shaped wireless temperature probe. The data can also be viewed with a smart-phone or tablet complete with alerts for maximum convenience. For the commercial food service application, a permanent cook record can be kept on a remote cloud server with a

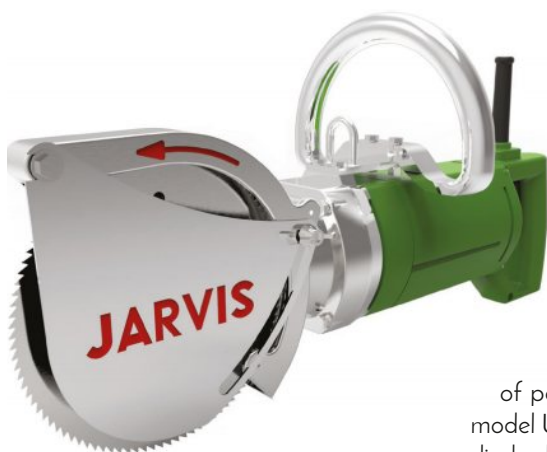
monthly subscription service. For wood or charcoal grills, an optional wireless draft fan is available to maintain the grill temperature for optimum cooking.

The compact unit can replace the temperature gauge on a ceramic grill, charcoal grill, or gas grill. A clip-on- door model is available for the commercial restaurant oven, rotisserie, or home oven. Messy wires in traditional units are eliminated. It is the first fully wireless system for grills and small ovens that gives the user oven temperature, food temperature, and estimated done time in one simple product.

www.matrixpd.com

www.wyzetemp.com

BOOTH - B5771



JARVIS PRODUCTS CORPORATION AT IPPE 2017

Visitors to the Jarvis booth will see the latest automation and robotic technologies for hog splitting, head dropping, and belly ripping. Along with their line of penetrating and non-penetrating model USSS and PAS stunners, Jarvis will display low cost tools ideally suited for small

to mid-sized production facilities, and new auxiliary stunner testing equipment. Jarvis' Poultry Division will display top-of-the-line poultry processing equipment, specializing in pneumatic tools for eviscerating and performing several off-line processing procedures.

www.jarvisproducts.com

BOOTH - C1019 & C1230

SOFTWARE SOLUTION BEEFS UP BUSINESS PROCESSES



An IT solution from CSB-System is managing all the business processes at Belgian beef specialist Veviba. The fully-integrated solution, which has facilitated the company's rapid growth over a 15 year period, ensures effective planning and product management, as well as total transparency and traceability of all products.

weigh labelling, to the fully-automatic high bay storage facility, dispatch and traceability; as well as its management and administration.

The ease of use offered by the system, which is operated from a clearly laid out control station, has led to a significant increase in productivity, along with a decrease in weigh labelling errors. Overall, the system structures the whole operation, allowing for optimised purchasing, up-to-date stock, on-hand information at any time, reliable planning bases and meaningful reports and statistics.



The system unites every stage of food processing under one roof, allowing Veviba to monitor a range of detailed performance indicators at a glance, including production quantities, machine utilisation and availability of required raw materials. It also provides data on such vital concerns as order quantities, deadlines, manpower requirements and stock consumption.

"With the CSB-System, we can design our processes, from rearing up to delivery, in an efficient and transparent manner, and consequently reduce costs," explains Diederik Verbist, Managing Director of Veviba. "We can also quickly access the latest operating data by means of integrated online analyses of our production. As a result, we can make decisions based on facts."



In addition, the system allows users to trace meat products from package back to pasture – an important feature for today's consumers, who are more concerned than ever with food origins.

Veviba, part of the Verbist group, specialises in "Belgian Blue" cattle, a particularly muscular breed. The company sells its products mainly in Belgium, France, the Netherlands and Greece, and last year reported sales of approximately 150 million euros.

www.csb.com



The CSB software, which replaced Veviba's previous system of manual data retrieval, controls all the company's business processes – from its own cattle breeding business, with some 10,000 animals on 19 farms, via slaughter, cutting, production, packaging,

BOOTH - C363

GLOBAL BEEF ALLIANCE HIGHLIGHTS TRADE, SUSTAINABILITY AS TOP ISSUES



NEW ZEALAND - The 2016 annual conference of the International Beef Alliance (IBA) hosted by Beef + Lamb New Zealand in Taupo, 16 - 21 October, offered the opportunity for leaders of the major beef producers groups of Australia, Brazil, Canada, Mexico, New Zealand, Paraguay, and the United States to exchange views on a wide variety of topics including trade liberalisation, sustainable beef production, and young leader development.

The Alliance, which represents 46 per cent of global beef trade and 63 per cent of global beef exports, is particularly concerned by the growing rhetoric opposing trade. The rising tide of global protectionism threatens to undermine momentum in trade reform that has to date delivered substantial benefits to beef producers, their wider rural economies and consumers.

In this regard, the IBA calls on all 12 Trans Pacific Partnership (TPP) member countries to expedite their respective domestic ratification procedures in order to secure a more seamless trade and investment environment and deliver the potential gains on offer for the beef sector.

The IBA also reaffirms its unequivocal support for further trade liberalisation and, in conjunction with supply chain partners, will redouble its efforts to prevent the imposition of trade restrictive non-tariff barriers and eliminate those already in place. We support progress on liberalisation through all mechanisms including multilateral, regional and sectoral engagement.

Sustainability of beef production was of similar priority for IBA delegates at the conference. Sustainability is viewed as a key requirement for meeting the continued global demand for beef by balancing environmental responsibility, economic opportunity and social diligence. The IBA will continue to advocate issues such as improving animal health and care, reducing beef's environmental footprint, and ensuring a positive social and economic impact.

The beef sector's future is highly reliant on current and future producers.

www.thebeefsite.com

WELFARE GROUP WANTS 'BROILER REVOLUTION' TO FOLLOW CAGE - FREE EGG SWITCH



GLOBAL - Animal welfare group Compassion in World Farming (CiWF) has suggested a switch to higher-welfare broiler farming might follow the recent cascade of announcements to move to cage-free egg production.

The organisation said that Compass Group USA and Aramark (also in the States) have pledged to use 100 per cent slower growing chickens, at reduced stocking densities and with environmental enrichment by 2024. Earlier in the year Whole Foods Market became the first major food business in the US to support a commitment to slower-growing breeds and better living conditions for chickens by 2024.

The recent cage-free egg revolution began in the US with McDonald's and Walmart pledging to only use cage free eggs in their outlets by 2025. This created a domino effect with almost 200 other US companies from across all sectors following their lead,

while in the UK pledges from Tesco, Aldi, Asda, Morrison's, Lidl and Iceland came in rapid succession.

In July food service business Sodexo announced a global cage-free commitment for both whole and liquid eggs by 2025, which was followed in September by a similar pledge from their competitor Compass Group.

CiWF is hoping a similar domino effect will occur in the chicken meat industry, following these initial announcements of movements to different chicken farming standards.

www.thepoultrysite.com

HUNGARY, ISRAEL REPORT MORE BIRD FLU OUTBREAKS

GLOBAL - Israel and Hungary are the latest countries to report outbreaks of highly pathogenic avian influenza on farms, with Hungary reporting over 20 farms affected.

The countries have suffered outbreaks of the H5N8 strain of the disease, which has been spreading widely through Europe in the past few weeks, killing both poultry and wild birds.

Hungary has reported 24 outbreaks in total in its most recent report, mainly in its southern central Bacs-Kiskun region. Most of the affected farms were duck and goose farms, although some were backyard operations. Over 10,000 birds died and another 38,000 birds had to be destroyed to prevent the disease spreading.

Hungary's report suggests contact with wild species, airborne spread, and fomites (humans, vehicles, feed, and so on) as the sources of the outbreaks.

In Israel, two turkey farms and one chicken breeder farm in Hadarom region have been affected. The country's report to the World Organisation for Animal Health (OIE) said the farms are on the path of migrating birds flying from Europe to Africa, which is thought to be how the virus is spreading so far so quickly.

www.thepoultrysite.com

CANADIAN BEEF INDUSTRY WORKS TO SUSTAINABLY INCREASE PRODUCTION



CANADA - Canada has an opportunity to play a leading role in meeting rising global food production needs responsibly through investments in agriculture research across a variety of disciplines.

On Friday (2 December), the Beef Cattle Research Council (BCRC) and the national Beef Value Chain Roundtable (BVCRT) released a strategy to achieve high priority beef research objectives that support increasing productivity while remaining environmentally, socially and economically sustainable.

The new Canadian Beef Research and Technology Transfer Strategy will support the industry's ability to manage challenges and sustainably supply demand. This strategy builds upon the success of the 2012-2018 National Beef Research Strategy. The new strategy's research objectives are to be captured by 2023.

With long-term trends of rising temperatures, decreasing precipitation and greater weather variability, ongoing research and innovation is necessary to produce adequate livestock feed. Development and adoption of technologies can also enable the industry to continually improve efficiencies that reduce its environmental footprint. Production efficiencies reduce greenhouse gas emissions and the land, water and fossil fuels needed to produce each kilogram of safe, high quality beef.

While facing several challenges related to competitiveness, the industry is tasked to increase production. The Food and Agriculture

Organization of the United Nations (FAO) has projected beef consumption to grow 1.8 million tonnes or 6 per cent in developed countries and 6.8 million tonnes or 17 per cent in developing countries over the next ten years.

"With a growing global population that desires beef, research and innovation is critical to produce more using limited resources," said Andrea Brocklebank, Executive Director of the BCRC and Chair of the BVCRT Research Committee. "The Canadian beef industry will be increasingly challenged to responsibly increase productivity while remaining environmentally, socially and economically sustainable. Adequate research and technology transfer funding, infrastructure, and expertise focused on the knowledge and innovations that have the greatest potential to advance the industry are key to meeting this important objective."

The Strategy identifies desired research outcomes related to beef quality, food safety, animal health and welfare, feed grains and feed efficiency, forage and grassland productivity, environmental sustainability and antimicrobial use, resistance and alternatives. It encourages greater communication and collaboration between the various beef research funding agencies across Canada so that funding can be allocated in ways that adequately address industry priorities, avoid duplication, and enhance adoption.

"Limited, fragmented funding does not complement or adequately support a national value proposition of Canada as a leader in animal health, food safety, and quality," added Ms Brocklebank. "Clear direction of funding allocations across funding agencies is needed to achieve specific outcomes that adequately address industry research priorities. Together we can invest in a portfolio of research that includes both near-term and long-term research."

The Strategy was developed for and by industry stakeholders, researchers, research institutions, and beef research funding agencies. It outlines how research dollars have been invested in the past, which research issues are of highest importance to industry stakeholders, and specific desired outcomes that require dedicated research or technology transfer. The Strategy will better enable the industry to achieve its core research objectives of enhancing

industry sustainability, improving production efficiencies, improving consumer confidence and beef demand, and improving public confidence in Canadian beef.

The Canadian Beef Research and Technology Transfer Strategy 2018 - 2023 was developed through an extensive collaborative process that engaged researchers, funders and grassroots producers. Input was sought through various means including direct stakeholder consultation, an online survey, and two workshops. The collaborative process helped to identify gaps in research needs, research capacity, and programming.

www.thebeefsite.com

AMERICAN RESTAURANT CUSTOMERS CONCERNED OVER MEAT ORIGINS



US - American consumers are increasingly concerned about where their meat and poultry comes from and the methods used to produce it, according to a new report from market research company Packaged Facts.

The report, Meat, Poultry and Seafood: Restaurant Trends and Opportunities, identified transparency and knowledge as the two key trends in the foodservice sector.

"Perhaps more than ever before, consumers want to know about what's in their meat and poultry, how it was raised and where it came from. This need to know taps a breadth of concerns related to food healthfulness and sustainable practices," says David Sprinkle, research director, Packaged Facts.

Packaged Facts' survey data reveals that more than 6 in 10 restaurant meat and poultry eaters say that "all natural" is

important to them when selecting meat/poultry dishes at a restaurant.

Animal welfare and sustainability also play a role in their decision, as does how the animal is fed - grass or vegetarian, for example. In this respect, consumers are likely weighing the effect of feeding choice on the quality, taste and healthiness of the dish.

The percentage of consumers who make an extra effort to buy local should crack 50 per cent within the next couple of years, in the face of widening concerns about where food comes from.

www.thecattlesite.com

RESEARCHERS LOOK FOR NEW SOLUTIONS IN SUSTAINABLE AQUACULTURE



NORWAY - Uni Research and the University of Bergen are coming together to find solutions that allow increased food production from the sea with a reduced environmental footprint.

“So, it’s all about finding new ways to increase fish production with less impact on the environment. As of today, we are working with industry to evaluate and optimizing environmental conditions in different solutions for post-smolts in semi-closed and closed-containment systems,” said centre leader Lars Ebbesson, the head of the Integrative Fish Biology Group at Uni Research in Bergen.

“We engage in the development of new feed sources and development. Moreover, we are creating novel analytical tools that industry can use to monitor the fish and see how it reacts in different environments.

Thus, fish can get the best possible growth and welfare,” said Mr Ebbesson.

The opening of the Centre for Sustainable Aquaculture Innovations (CSAI) will also help strengthen and develop Uni Research and the University of Bergen’s position as both national and international leaders in their fields of aquaculture-related research.

“In this center, we will be working with everything from basic research in fish biology to innovations. A major advantage the centre has is the broad interdisciplinary and in-depth knowledge,” said Mr Ebbesson.

He also said that researchers in the centre are studying many novel ways to use environment to modulate biological processes, for instance how different types of wavelengths of light can lead to the best possible production, robustness and welfare of farmed salmon.

“This is something new that the industry is interested in, and we have a partnership with major players in this research topic. Among other examples I could mention research into tunicates, representing new opportunities for sustainable ingredients to be included in fish feeds.”

www.thefishsite.com

BIRD FLU CONCERNS CHALLENGE POSITIVE OUTLOOK FOR GLOBAL POULTRY, RABOBANK SAYS



GLOBAL - The outlook for the global poultry industry in 2017, which is generally positive,

is now being challenged by a new wave of avian influenza outbreaks, according to the Rabobank Global Poultry Quarterly report for quarter four of 2016.

This is a most unwelcome development in a global market that was just recovering from the negative impact of the 2015 avian influenza crisis.

This adverse development comes at the same time the industry has started reporting better results, and given the favourable fundamentals. The industry currently has strong market balances in most regions and ongoing low costs, despite pressure from declining red meat prices.

An unwelcome return

The return of avian influenza is now shaking up global trade conditions and is especially affecting the outlook for Asia, Europe and Africa. It will also be a test for the US industry, after last year’s multiple avian influenza outbreaks. As many European and Asian countries are exporters of meat and breeding stock, this will certainly impact the outlook for the industry, and could shake up meat and breeder trade again.

China’s supply remains tight

The ongoing Chinese supply shortage will continue to affect global market conditions. Imports to China and Hong Kong are expected to remain high, benefiting countries that are allowed to export directly to China, while Chinese consumers will continue to face high prices for specific preferred products, such as feet and wings. The Industry is working on new strategic sourcing initiatives to alleviate some of this supply pressure.

Trade volumes under pressure

Pressured global trade volumes are expected next year, given a continuation of high avian influenza impacts and increasing trade protectionism. China’s import demand and the possibility of improved relations between the US and Russia are promising, but lower support for trade deals like TTIP and TPP will have adverse impacts.

www.thepoultrysite.com



PREVIEW OF IFE 2017

The UK's biggest food and drink exhibition opens its doors on 19th March 2017. Bursting with inspiration, The International Food & Drink Event (IFE) is a four day extravaganza, showcasing pioneering global food and drink products and providing the opportunity to network with the industry's finest.

IFE is divided into nine easy to navigate sections, including Bakery, Cheese & Dairy, Drinks, Great British Food, Grocery, Health & Wellbeing, Ingredients, Snacks & Confectionery and Meat & Seafood. The event will attract an estimated 29,000 professionals from the retail, wholesale, foodservice, hospitality, manufacturing and import/export markets wanting to discover products from over 1,350 global suppliers showcasing the latest category innovations.

From game to poultry, to cured meats and bbq, the meat and seafood section will be filled with a fantastic array of top exhibitors for 2017. This year's line up of

suppliers includes Ben Rigby Game Ltd, a family business established in 1979 and recognised as the UK's premium venison & game supplier, and Smithfield Foods showcasing a portfolio of branded and private-label meat products. Sample a selection of award-winning artisan goods too, such as Mr.C's flavoursome Scottish game and meat pies - the sole

category supplier to Fortnum & Mason. The international exhibition will also welcome brands from across the globe including duck from the Bangkok Ranch in Thailand and cured meats from leading Spanish supplier Luis Oliveras.

IFE provides the perfect opportunity for buyers & suppliers to network and find the latest produce and industry innovations.

A new feature for IFE 2017 - the Networking Hubs, will provide the perfect place to create new business connections and do face-to-face business. Some of the UK's biggest and international buyers such as Costco, Unilever, British Airways, Amazon and Ocado attend the event. Whether you're a wholesaler, investor or supplier, you'll discover exciting products and original ideas that will inspire you and ensure your business is bursting with renewed energy.

Revamped and better than ever before, IFE 2017 also





has a freshly updated and interactive website, which is the go to resource to stay up to date with the latest industry news, speaker and chef demos, as well as providing a sneak peak at show content before the show launches. What's more, IFE 2017 will see the launch of two inspiring speaker stages, the Talking Trends stage and the Big Picture theatre, both free to attend with your entrance badge.

Focusing on the latest industry developments and key food and drink insight, the Talking Trends stage will be home to a wealth of knowledge as industry experts cover everything from consumer buying habits to forecasting future food trends and new product development. Key speakers include Michael Zee, Chef & Food writer who will be looking at the latest breakfast and brunch trends. The spectacular line up is sure not to disappoint!

New to 2017, The Big Picture theatre will be IFE 2017's keynote speaker stage,



commenting on the hard-hitting topics that really matter to the food & drink industry. The schedule will include talks, panel debates and discussions on a range of key topics including sugar tax, obesity and the skills shortage. Highlights include 'The Changing face Out of Home' hosted by Ben Carter from Just Eat and a panel debate around 'The impact of Brexit'

where FDEA, Bidvest, Green Seed and NFU amongst others will be debating the impact on UK food & drink exports.

Also brand new for 2017, will be The Staff Canteen Live. This interactive demo kitchen will offer practical guidance, the latest food fusion advice as well as exclusive behind the scenes insight from some of the industry's finest chefs. Some of the biggest names in the culinary world will be taking part in interactive demos, with recipe inspiration and butchery skills to take away.

Co-located with IFE is Pro2Pac, the UK's only food & drink packaging event and Waste-Works, the UK's only waste & sustainability event for the food industry. The 3 events together cover the entire supply chain. So whether you are looking for new product inspiration, fresh food & drink packaging or sustainable solutions to your everyday issues; the event is your solution.

www.ife.co.uk





VIV TURKEY 2017

PREMIER TRADING HUB FOR POULTRY BRANDS & COMPANIES

The best fully-fledged tradeshow for the Middle East, Central Asia, Africa, Eastern Europe, Russia and the CIS poultry market will run up on 06-08 July 2017 at Istanbul Expo Center for the 8th times. This edition, over 500 poultry exhibitors and 27.000 buyers will gather under one global stage. Leading poultry industry players and suppliers are exhibiting and giving conference talks on key trends across the 15,000 sqm show floor.

The exhibition show floor will feature companies including top brands of Belgium, China, Denmark, France, Germany, Greece, Hungary, India, Iran, Israel, Italy, South Korea, Mexico, Poland, Slovenia, South Africa, the Netherlands, Ukraine, USA poultry market

In line with the growing poultry demand in this region, VIV Turkey provides a dedicated

one-stop platform for the region's poultry industry to meet, network and understand



the intricacies involved in conducting business in such a diverse and challenging territory.

VIV Turkey 2017 is backed by sponsorship from leading poultry industry manufacturers including Provimi Cargill, Buhler, Yemvit, Alfam, Cimuka, Biokey, Feedtech.

VIV TURKEY International Trade Fair for Poultry Technologies has been held with the organization of HKF Trade Fairs and under the license of the Netherlands based VNU Exhibitions Europe which has been known as VIV Worldwide. VIV Worldwide events are the leading global trade fair series serving the poultry industry.

With events and serial conferences, it offers an integrated and intertwined platform consisting of exhibitions and conferences providing an unmatched offline and online meeting place to do business, exchange ideas and learn, all year round. www.ivturkey.com/eng

Marel is now preparing to host the 16th Salmon ShowHow on February 8, 2017 in Copenhagen, Denmark. The recurring event has become a meeting place for salmon processors.

MAREL SALMON SHOWHOW: IT'S ALL ABOUT SALMON

The Salmon ShowHow is dedicated entirely to the salmon processing industry and has become the place where salmon industry

leaders meet to discuss the latest trends and hear guest speakers address some of the key issues facing the industry. In 2015, the event attracted around 300 visitors representing 150 companies from 30 countries around the world.

The participants will experience Marel's industry leading equipment at close range in a simulated processing plant environment. With ever-increasing demands for processors to uphold food safety, increase yield, and improve

the utilization of raw materials, the Salmon ShowHow is a valuable opportunity for processors to see how Marel products can help them address these demands.

The event is being held at Marel's state-of-the-art demonstration facility, Progress Point, just 5 minutes from Copenhagen Airport, where there will be ongoing demonstrations throughout the day as we present our wide range of stand-alone machines and integrated processing systems. The program will conclude with dinner and entertainment in the evening.

www.marel.com



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