

# International Meat Topics

Volume 6 Number 5 (2015)

Meeting meat's technical needs

## **LABELLING**

*Understanding international regulations for meat.*

## **PACKAGING**

*Centralised vacuum supply system in Denmark.*

## **TRICHINELLA**

*A safer and cleaner testing method for swine carcasses.*

## **TESTING & MONITORING**

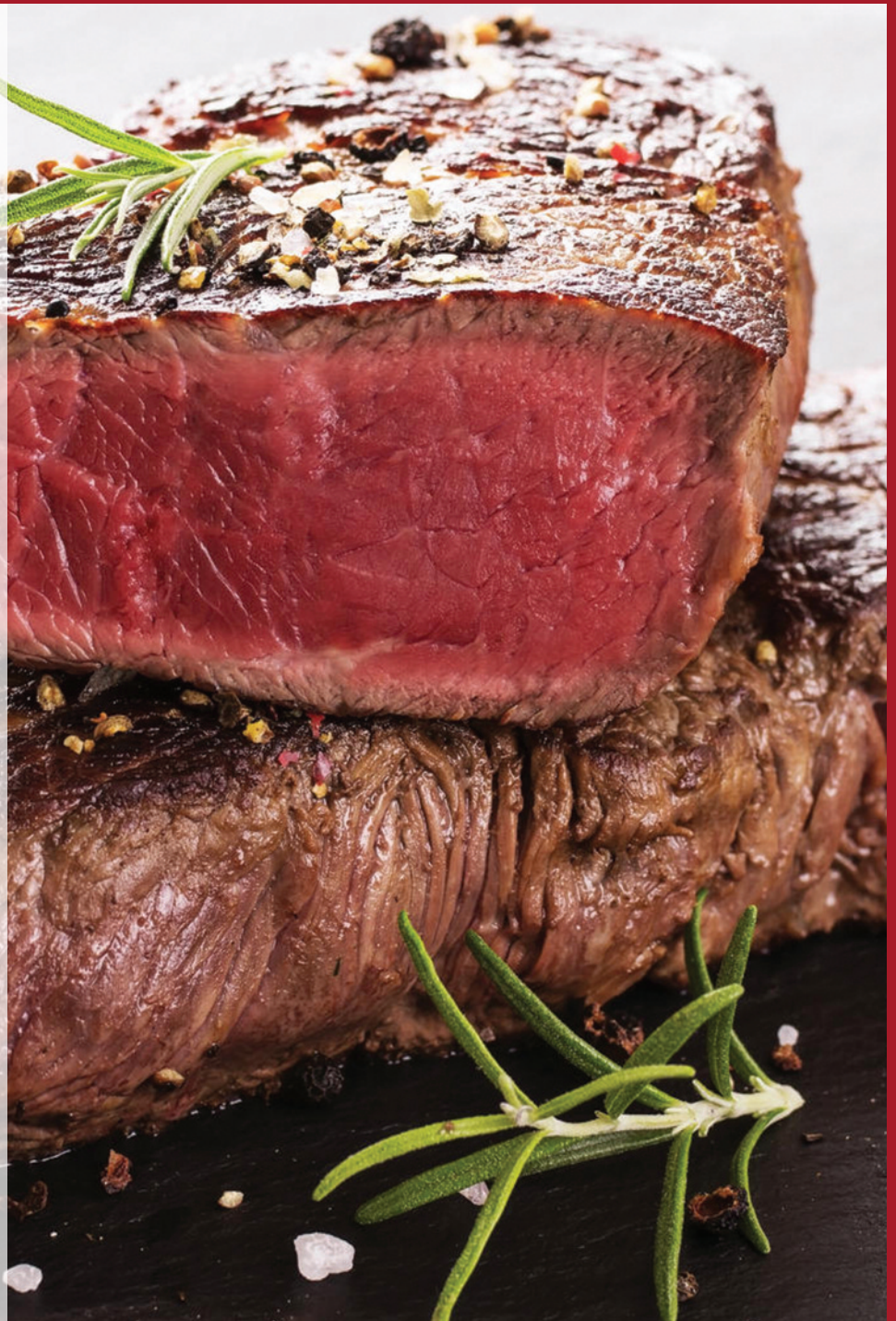
*We look at options from around the world.*

## **SUPERCHILLING**

*What has been achieved in shelf life extension?*

## **BUILDING**

*New slaughterhouse project for Belarus.*





NEW

# D-ICER

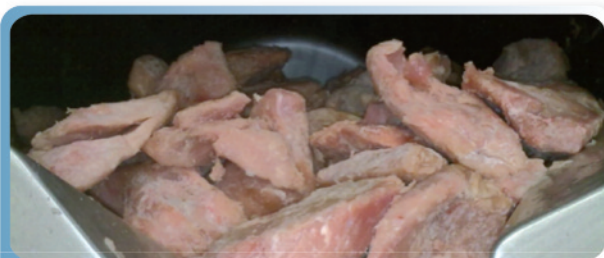
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# Chewing the fat

**A**ntimicrobial resistance is in the news again! Has there ever been a subject on which so many important decisions, including legislative ones, have been based on emotion rather than fact and hard science?

The end result is that the meat sector and the legislature have inadvertently given society a big stick to beat us with!

Let us look at the facts:

- There is no such thing as antimicrobial resistance in meat – the resistance occurs in bacteria and these may or may not be present in a particular meat or meat product.
- Again there is no such thing as antibiotic resistance in man – the resistance may occur in some of the bacteria of his intestinal tract.
- Antibiotic resistance only becomes an issue if one of these bacteria is pathogenic and causes disease in man which fails to respond to treatment because that bacterium was resistant to the

particular antimicrobial used for the treatment.

- Antimicrobial resistance is passed to a bacterium's progeny and very occasionally to a closely related bacterium by the reproductive process. Cooking kills bacteria and dead bacteria can not reproduce or pass on resistance!
- The properties and genes in bacteria associated with antibiotic resistance are non-functional except in a living bacterium. They can not operate alone.
- Generally, man has different strains of most common bacteria and human and animal bacteria do not co-exist, therefore removing a key pre-requisite for the transfer of antimicrobial resistance. The notable exception to this is zoonotic foodborne pathogens, such as campylobacter and salmonella.

Perhaps it is time to let the brain and not the heart make important decisions! ■

## Cover Picture:

**Rare quality!**  
(Photo courtesy: [www.randoxfood.com](http://www.randoxfood.com))

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# WorldFocus

An executive summary of key international issues

## Politics

### *British shadow minister to remain a shadow?*

Kerry McCarthy, Britain's new vegan shadow secretary of state for environment, food and rural affairs, has recently admitted she was a 'militant' when it came to clamping down on meat consumption. She has also stated "I really believe that meat should be treated in exactly the same way as tobacco, with public campaigns to stop people eating it. Progress on animal welfare is being made at EU level, but in the end it comes down to not eating meat or dairy products." Her ideas are verging on the extreme and this appointment is only going to make it more difficult for Jeremy Corbyn's Labour Party to regain credibility as a political party!

## Labelling

### *A label too far?*

The USA's Food and Drug Administration say that ractopamine is safe and the agency approved its use in pigs in 1999. However, safety regulators in the European Union, China, Russia and a variety of other countries have not approved the drug. They say there is not yet enough evidence to prove that pork produced using ractopamine is safe to eat. Soon, some shoppers in the USA will encounter a new and unfamiliar phrase when looking at packages of pork from one producer as it will probably be labelled 'Produced without the use of ractopamine'. While this is a correct statement of fact, is it a bad marketing decision as it will once again stir up consumer emotion about pork?

## Salmonella

### *The consequences are no longer 'peanuts'!*

A former peanut company executive in the USA was recently jailed for 28 years – the toughest punishment in US history for a producer in a foodborne illness case. Others received lesser sentences. The outbreak involved 714 people in 46 states and may have contributed to nine deaths. The illnesses began in January 2009 and ultimately prompted one of the largest food recalls in US history. A federal jury convicted the executive last September on 71 criminal counts, including conspiracy, obstruction of justice and introduction of adulterated food. Everyone now needs to consider whether or not this case is a one off with exceptional circumstances!

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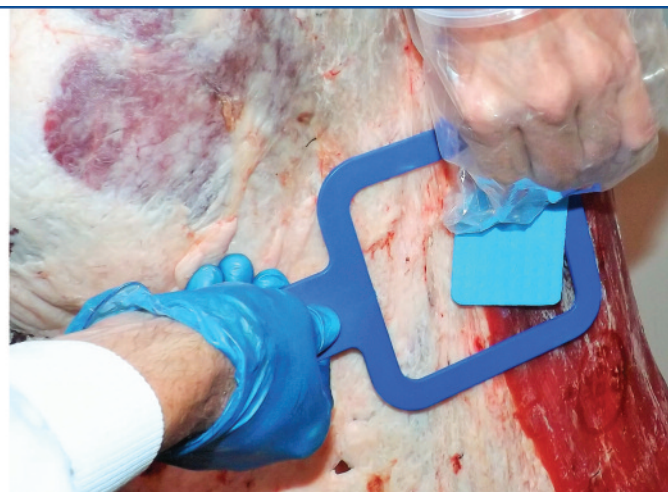
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# Understanding international labelling regulations for meat and poultry

by Sergio Zamora, Vertical Marketing Manager, Videojet Technologies.

The world's meat consumption is on the rise. In fact, global meat consumption is expected to grow about 1.9% every year from 2014-2023, with meat shipments from major exporters projected to rise 2.2% each year.

Improved consumer wealth, trade and urbanisation in emerging economies are transforming countries traditionally known for grain, vegetable and seafood-based diets into some of the largest meat and poultry consuming nations on the planet.

This growth has coincided with highly publicised food safety issues, most recently swine flu and bird flu, which have resulted in fear amongst consumers and regulators. The World Health Organisation put deaths from swine flu at 18,500 since 2009, whilst bird flu has so far been contained at 402 deaths.

## Understanding regulations

For manufacturers, distributors and retailers, importing and exporting meat and poultry means understanding regulations that apply to specific products and more general rules concerning labelling and additives.

Failure to comply can cause delay when products pass through cus-

tomers and subsequent action by enforcement authorities.

In addition to protecting public health, there is a rich tapestry of cultural values driving authorities in how they want meat labelled including attitudes to genetically modified food, animal husbandry and nutritional details.

All these drivers combined with such strong growth in demand makes labelling for this sector a concern.

## Regional demand

Since 1961, the global production of beef, sheep and goat meat has more than doubled, while the production of pork and poultry increased by a factor of three and nine respectively.

Asia, having undergone a massive dietary shift, now leads overall world growth in meat consumption, with Chinese and Japanese consumers demand at the forefront. China's annual meat consumption of 71 million tons is more than double that consumed in the United States and a quarter of all meat eaten globally.

In Tokyo, Japan, for the first time in history, residents are now consuming more meat than seafood, averaging at 90g of meat daily. Since Japan has limited space for raising livestock, well over half of the beef and pork consumed is imported.

In the US, the total meat and poultry consumption remains flat at 250g per capita daily. However, chicken



has overtaken beef as the most popular meat of choice for the first time.

Beef consumption has been dropping for the past decade as consumers become more health aware, choosing leaner meats.

Across the EU, meat consumption has been influenced by economic issues, higher unemployment and inflated meat prices.

Overall consumption per capita has remained stable at 220g per capita daily but it is expected to rise, mainly due to more poultry and pork consumption.

## Core labelling

In 2009, China began to standardise its overarching food labelling guidelines. While still being modified, with key amendments currently in active debate, the core meat labelling standards for exports are clear.

Since September 2014, meat exports to China must include: product name, country of origin, production date, expiration date or storage period, storage temperature, country of destination, net weight, inspection legend, name and address of company, production lot number and specification (refers to packaging type).

In Japan, in addition to country of origin, standardised labelling on meat in Japan must include standard weight and 'best before' / 'use by' information, as well as detailed information related to additives.

In the US; widespread concern over preventable foodborne ill-

nesses and diseases drove the implementation of 2010's Food Safety Modernisation Act.

The law includes new tools to hold imported foods to the same standards as domestic foods. Since 2012, 40 of the most commonly purchased cuts of beef, poultry, pork and lamb both whole and ground, are required to display standard nutritional facts including: calories, calories from fat, total fat, saturated fat, cholesterol, sodium, and protein.

Furthermore, if a ground product is marked 80% lean meat, it must also say it contains 20% fat. There is also a voluntary-yet-US Department of Agriculture (USDA)-regulated label called 'Natural'.

It is required that the label includes a brief statement to explain what is meant by the term natural, i.e. that the product is a natural food because it contains no artificial ingredients and is only minimally processed.

In the EU, since the outbreak of Mad Cow Disease in the mid-1990s, there has been heightened concern about overall meat quality. While individual European countries still have specific guidelines, what is unique to the region is its centralised EU-wide set of labelling regulations, which is necessary for the free movement of goods once products are legitimately in the region.

More stringent than seen in other countries around the globe, the EU's food safety and labelling guidelines requires the greatest of detail in

*Continued on page 9*



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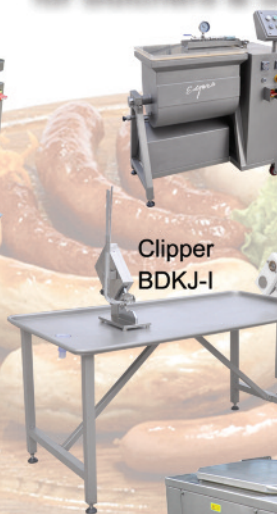
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Continued from page 7  
 terms of straightforward supply chain tracking to country-of-origin and GM labelling.

### Country of origin labelling

According to a recent EU report, country of origin labelling (COOL) is one of the top details to be included on a food label for nearly half of European consumers. The EU has mandatory COOL guidelines for meat and poultry. Beef labels must display the animal's country of birth, rearing and slaughter along with information on nutritional value and allergens for consumers. However, in April 2015, this was broadened to include pig, poultry, sheep and goat meat, which are required to indicate the animal's country of rearing and slaughter.

As a consequence of the horse-meat scandal of 2013, where horse-meat was discovered in processed beef dishes, the EU parliament voted in January 2015 for COOL for processed meat in food like lasagna or meat pizzas, which will now be put before the EU commission.

In the US, COOL is arguably the most controversial of all labelling information and, as such, requirements remain unresolved.



The regulations met with significant opposition from the domestic market and neighbouring suppliers, Canada and Mexico, who felt the guidelines discriminated against their meat products. A series of legal actions has seen the World Trade Organisation rule twice against US COOL labelling requirements.

In October 2014, the most recent WTO ruling was against COOL for certain cuts of meat, which had already been implemented across the US market and is currently still in place. However, changes are expected in the future.

After the tragic consequences of the swine flu pandemic across Africa and South-East Asia and the more imposing threat of the spread of bird flu, Asian consumers are more wary of food safety issues. In efforts to calm fears and ensure public safety, the Chinese Government has implemented significant labelling measures

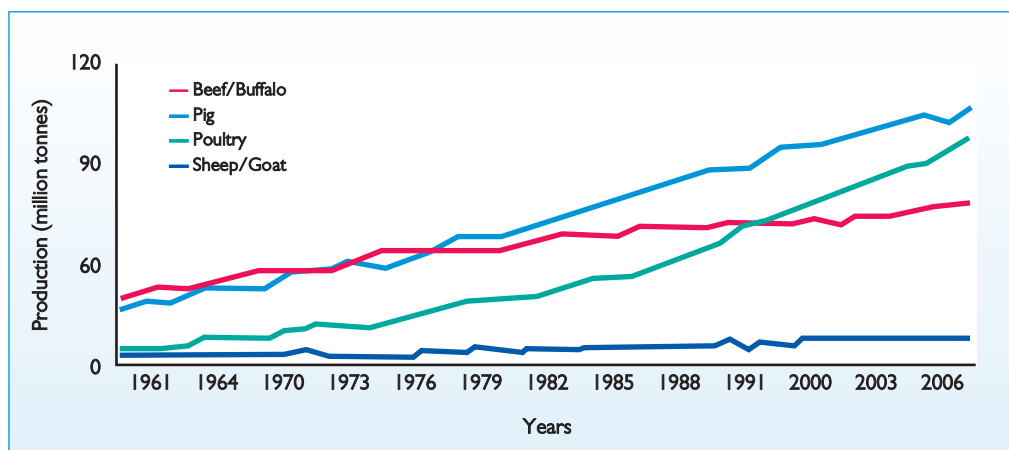


Fig. 1. Global production of meat.

including COOL since September 2014.

Japan has long held adherence to COOL to properly identify the source of the meat for both supply chain tracking as well as consumer visibility. However in the aftermath of the Fukushima disaster, Japanese consumer fear of contamination has led to a tightened specification of food's origin, both for domestic and imported food.

### GMO labelling

The debate to require information about genetically modified (GM) meat from animals fed GM grains is heating up across continents.

Currently, 64 countries around the world require labelling of GM foods as a whole, including China and Japan. In both countries, GM labelling is limited to agricultural-based products and by-products.

Meat, poultry and dairy products are excluded, since the animals themselves are not considered modified. Meat and poultry manufacturers in the Asian market still have the opportunity to distinguish products by voluntarily displaying GM information on labels.

Over the years, the EU has needed to respond to public pressure to identify GM foods and products. Since the 1990s, legislation has evolved for mandatory labelling of food products that consist of GMO or contain GMO, and products derived from GMO but no longer containing GMO, if there is still DNA or protein resulting from the genetic modification present in the product. This can include animals fed on GMO feed. The enforcement of this sits with the individual member states.

Some EU countries have gone further and completely banned GM food products altogether. And numerous large grocery chains in countries throughout Europe have instituted their own rigid GMO meat, poultry and dairy labelling or banning efforts, including Ireland's

Kepak Group, the UK's Tesco, Italy's Coop Italia and Switzerland's Migros and Coop.

However, this is certainly not the end of the story as a recent vote by European Parliament in January 2015 will now allow member states to decide what GM crops can be grown in their jurisdiction meaning labelling will be brought to the fore once again. Up to this point, only one type of GM maize was allowed to be cultivated in the EU.

In the US, only three states – Connecticut, Maine and Vermont – have passed laws requiring products containing GMOs to be labelled. None of these states have implemented the legislation to date. A number of public ballots in other states – Oregon and Colorado – were defeated in 2014. GMO crops are the primary feed for animals raised in the States and there is no requirement for labelling on meat to state this. For meat to be labelled organic in the US, it must not be intentionally fed GMO feed.

### Printing technology

After assessing the labelling landscape of the three fastest growing meat regions in the world, it clear that the field is evolving fast in response to a unique mix of consumer demand and public pressure.

Videojet Technologies Inc, a world-leading manufacturer of coding, printing and laser marking products, fluids and accessories for the product identification industry has released key tips and best practices for meat and poultry manufacturers to refer to when selecting printing technology including:

- Evaluate needs: take time to identify the application the technology will be used for, what material substrate is being coded, where will the code be located, and how fast is the manufacturing line running.
- Consider environment risks: production environment risk areas such as sanitation procedures, wash-down cycles and plant temperatures all play an important role in equipment and inks performance.
- Determine the best option: each coding technology offers different benefits based upon a manufacturer or processor's needs, so researching the technologies will help narrow down the best solution(s) to meet specific requirements.
- Run sample tests: due to the variability across packaging types and line configurations, it is recommended to test multiple coding solutions in order to establish the best fit. ■

References are available on request from the author





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# Centralised vacuum supply system for beef packaging in Denmark

by Uli Merkle, Manager Marketing Services, Busch Dienste GmbH, Germany.

Since 2014 DC Beef, a division of Danish Crown, has operated a cattle abattoir and meat processing facility in Holsted, Denmark. It has a capacity of 900 animals per day and is one of the largest and most modern facilities of its kind in the world. The vacuum required for packaging the final products is supplied by a Busch centralised system.

Danish Crown has manufactured food products for more than 125 years, and is now the largest abattoir and meat processing corporation in Europe. It employs 23,000 staff and is one of the top three meat exporters in the world.

As the beef division of Danish Crown, DC Beef's activities are cattle slaughter and beef processing. DC Beef operates two abattoir and deboning centres in Denmark and one in Husum, Germany. Two processing centres are also operated in Denmark.

The new facility in Holsted was constructed in early 2014, and employs 350 production staff in a two-shift system to slaughter, debone and process cattle.

## Latest standards

Every aspect of the production process is designed to the latest standards. The EUROP classification guarantees top quality beef processing. Every half carcass is scanned automatically to determine its dimensions, fat content and the position of fat layers.

This information is analysed and used for sorting purposes, with the objective of delivering beef of similar quality to the individual processing lines. This fully automatic system is supplemented by DC Beef staff, who conduct an additional visual check. The half carcasses are then stored for at least 24 hours at below 7°C

before further processing.

DC Beef products from Holsted are exported throughout Europe. All products leaving the factory are vacuum packed, from quarters of



The pump room showing installed R 5 rotary vane vacuum pumps.

beef to commissioned packaged units for end users.

DC Beef uses a variety of packaging machines, depending on the packaging size, number of units and cycle times required.

Thermoforming, tray sealing and rotary vacuum sealing machines are operated, all of which require high vacuum levels. The packaging lines were designed from the outset for a central vacuum supply. The benefits of centralisation are apparent, and have been confirmed by experience at other sites. No vacuum pumps are installed in the production area, providing the following advantages:

- No heat emissions to cooled rooms, thus saving energy.
- Optimal hygiene, no aerosol emissions in the production area.
- Outstanding reliability.
- No downtime for maintenance: easy-access servicing without production stoppages.
- No maintenance tasks are carried out in the production and packaging areas.
- Low operating costs.
- High energy efficiency.
- Consistently high vacuum levels.
- No noise emissions at work-stations.

The contract to design and implement the central vacuum supply was awarded to Busch, as Busch equipment had previously been supplied to other Danish Crown sites.

An additional argument in favour of Busch products was the presence in Denmark of Busch A/S, which has a special department for the design and manufacture of centralised vacuum systems and supplies complex custom-made vacuum systems.

Busch vacuum specialists in Denmark designed and built the DC Beef central vacuum supply, and the system was commissioned in early 2014. The entire stainless steel pipework system was also dimensioned, installed and commissioned by Busch.

The vacuum system is installed in an intermediate floor directly above the packaging lines, and is powered by R 5 rotary vane vacuum pumps.

These were requested specifically by DC Beef, as previous experience of these models had been extremely positive. In addition, several R5 units formerly in service at other sites could be incorporated into the system. The central vacuum supply thus comprises new and factory-reconditioned R5 vacuum pumps.

Two R5 units with a pumping speed of 400m<sup>3</sup>/h each supply three tray sealing machines to pack minced beef under a permanent vacuum of 30mbar. Five vacuum pumps of the same type and dimensions supply vacuum at 150mbar to three thermoforming machines and two rotary vacuum sealing machines (carousel).

The vacuum system is designed so the pipework between the packaging machines acts as a reservoir in which vacuum can build up between evacuation cycles. This has the advantage that vacuum is applied instantly at the start of the packaging evacuation.

The arrangement also saves the installation of a separate vacuum reservoir, and increases the production rate by reducing the evacuation times. The vacuum supply control system was also supplied by Busch, and was integrated into the site control system.

## High efficiency

Of all the advantages of centralised vacuum systems, none is appreciated by DC Beef more than high efficiency. The number of vacuum pumps running at any given time is determined by the control system, which activates only the units required to meet the current demand.

The packaging machines never run at full capacity simultaneously, so the full output of all the vacuum pumps is seldom required. In comparison to decentralised systems, the central vacuum supply provides enormous energy savings in both the packaging machines and the supply network.

The central vacuum supply has been in continual two-shift and single shift operation since the first animal was slaughtered at the site in 2014. The DC Beef management report that in more than a year of operation no faults or system failures have occurred. Minor servicing tasks such as inspections and the replacement of oil and filters were carried out by DC Beef personnel.

A maintenance contract agreed with Busch provides servicing by Busch technicians. The single-shift units are serviced once a year, and the two-shift units – with twice the number of operating hours – every six months.

Busch Denmark maintains a stock of reconditioned R5 rotary vane vacuum pumps, which if required can be supplied, installed and put into service within four hours. ■



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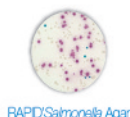
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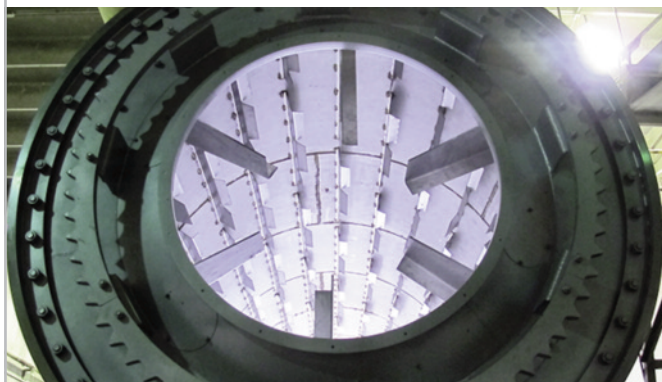


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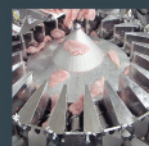
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## Screw feeding multihead weigher with sensorgate



### Application

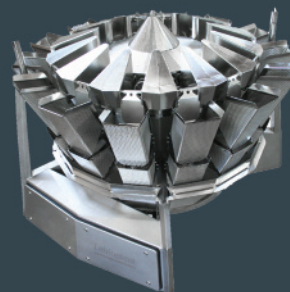
- Designed for accurate weighing of few piece portions (E.g. 450 g chicken breast, 3 pieces in a tray)

### Functionality

- Gates at screw feed outlet
- Sensors to detect movement
- Program to handle infeed

### Advantages

- Reduces no. of empty weighing pans
- Reduces no. of duplets and triplets in weighing pans
- The core reduces no. of pieces in the screw
- Practically no give-away



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# A safer and cleaner trichinella testing method for swine carcasses

by Patrik Bulhofer, Thermo Fisher Scientific.

Trichinellosis is a zoonotic disease (can be transmitted from animals to humans) that occurs worldwide and is caused by the larvae of the nematode (roundworm), *Trichinella*. Pigs can become infected through feeding on contaminated animal waste products, exposure to living or dead rodents or other wildlife infected with *Trichinella* larvae, or cannibalism within an infected herd.

Humans can be infected by eating raw or insufficiently cooked meat from infected animals. While human trichinellosis can be a debilitating disease and may result in death, in animals, the infection is clinically unapparent. Therefore, under the European Commission (EC) Directive No. 2015/1375 (formerly No 2075/2005), all pigs slaughtered for human consumption must be tested for *Trichinella* spp. by artificial digestion.

## Historical testing

Testing methods for the detection of *Trichinella* infection in wild and domesticated animals has historically been achieved by either:

- Directly demonstrating the parasite's presence in tissue samples; or
- Indirectly demonstrating the parasite's presence by using immunological methods to detect specific

antibodies to *Trichinella* spp. in blood, serum or tissue fluid samples.

The artificial digestion method is based on the use of pepsin and has several drawbacks, including sourcing and supply of sufficient amounts of pepsin, quality of pepsin, and lack of standardisation of materials that often requires retesting.

Plus, any time workers handle pepsin or hydrochloric acid during the artificial digestion process, they are at risk of serious injury.

## New and safer solution

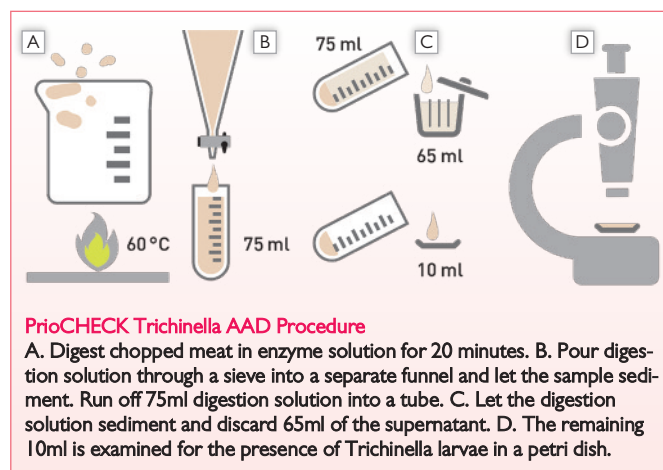
PrioCHECK *Trichinella* AAD from Thermo Fisher Scientific offers abattoirs and meat packers a cleaner, safer way to test swine carcasses for potentially dangerous *Trichinella* at meat inspection. The alternative artificial digestion (AAD) method has been validated and approved by the European Union and is now listed in commission regulation (EC) 2015/1375.

PrioCHECK *Trichinella* AAD uses a serin-endopeptidase, part of the enzyme group of subtilisins. It is a reliable testing alternative to the currently used pepsin-based artificial digestion method because it uses a recombinant enzyme from a standardised, secure production facility, ensuring good availability of the enzyme and consistent quality.

In addition, it does not use pepsin powder or hydrochloric acid, increasing ease of handling and worker safety.

## Testing methodology

Laboratories converting to this innovative new method do not have to change their testing routine since the protocol of the sample preparation method follows the same steps as that of the currently used pepsin-based method. A piece of muscle tissue is chopped, minced and then digested with the digestive enzyme subtilisin. The assay runs at a slightly basic pH. The digestion solution is filtered, and after sedimentation steps, it is examined under microscope for the presence of the larvae.



All components of the PrioCHECK *Trichinella* AAD are liquid solutions, and no acid is added. Therefore, the risk associated with handling powder or concentrated acids are avoided.

## Procedure

- Heat up the digestion buffer and enzyme solution provided with the kit to 60°C.
- Add chopped meat and incubate for 20 minutes.
- Pour digestion solution through a sieve into a separation funnel.
- Let the digestion solution stand for 30 minutes to allow sedimentation.
- Transfer 75mL digestion solution into a tube.
- Let the digestion solution stand for 10 minutes to allow for separation.
- Discard 65mL of the supernatant.
- Optional wash step: if high amounts of debris remain, add 30mL water, mix, allow solution to stand for 10 minutes to allow for separation and then discard 30mL of supernatant.
- Pour the remaining 10mL into a petri dish and examine for the presence of *Trichinella* larvae.

## Validated by the CRL

The Community Reference Laboratory (CRL) for *Trichinella* in

Rome has validated the performance of the PrioCHECK *Trichinella* AAD Kit and has approved the product as an official method for use in the in vitro detection of *Trichinella* spp. in meat from domestic swine. The performance of the PrioCHECK *Trichinella* AAD has also been evaluated in more than 100 digestion runs.

The samples, obtained from the European Reference Laboratory for Parasites (EURLP) and Nationales Referenzlabor für *Trichinella*, BfR in Germany, included samples from abattoirs, experimentally infected animals, and spiked samples.

Results show that the remaining residue on the sieve was below 5% of the starting meat tissue, which is fully compliant with the related guideline requirements.

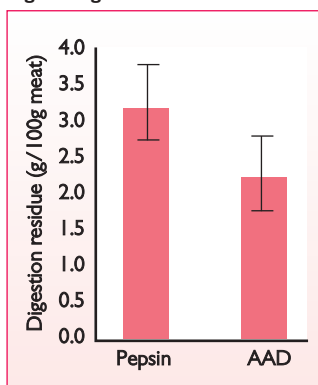
## Conclusion

PrioCHECK *Trichinella* AAD is easier to handle than the pepsin-based method, resulting in a safer work environment.

This is by eliminating the need for pepsin and acids, and also offers high quality standards with certified production through a quality management system.

Monitoring health at slaughter is an essential way to prevent the transfer of animal disease to humans and helps ensure the safety of our food source. ■

Fig. 1. Digestion residue.



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# Options for

# testing & monitoring



## Data loggers for essential temperature monitoring

Tinytag data loggers help ensure that temperatures are accurately maintained at specified levels and recorded for ongoing verification throughout food production and the cold chain. Loggers are used to ensure compliance with industry-wide environmental, health and safety regulations including HACCP measures.

[www.gemindataloggers.com](http://www.gemindataloggers.com)

Stand alone Tinytags record data which is downloaded via a USB cable to a PC for analysis.

Loggers are robust and easy to use, helping to verify conditions during initial processing through cooking, chilling, freezing, storage and transportation.

The range includes loggers that are BS EN 12830 compliant, and probes

are available to monitor extremes of temperature, including core temperatures.

For example, premier poultry suppliers T. Soanes & Son uses Tinytags to monitor their chicken production process to ensure products are cooled as quickly as possible.

Loggers record temperatures throughout the cooling stages in an air chiller, blast freezer and chilled storage areas to help ensure temperature control procedures are correctly maintained.

The Tinytag range also includes a Radio Data Logging System which is ideal for warehouses requiring multiple monitoring points, and in refrigerated delivery vehicles.

Data is gathered automatically and sent via a receiver for direct viewing on a PC, across a LAN, or remotely across the internet.

## Getting your product to market faster

According to Mocon their GreenLight rapid microbial screening system is better than the traditional method as it tells you what is going to happen to your product in-process, during packing and all the way to the consumer.

[www.mocon.com](http://www.mocon.com)

GreenLight has been proven in customer trials to out-perform traditional plate count methods and other 'rapid' methods while detecting microbial organisms that other systems miss. This saves you time and money.

Sample preparation is simplified because serial dilutions are eliminated. Sample volume is 150 times larger than for agar plates, enhancing precision in very low bacterial environments. Results are obtained typically in the same work-shift with no manual counting or reading.

GreenLight is eco-friendly, removing the need for large incubators that run continuously. The system allows loading and unloading of samples at will, while maintaining traceability via the integral sample bar code capability. Mocon's goal is to help you get your product to market faster, and avoid recalls.

## Reduce the cost of outsourcing residue testing

Meat producers could significantly reduce the cost of outsourcing their chemical residue testing by introducing the testing into their own Quality Control process.

[www.biorexfooddiagnostics.com](http://www.biorexfooddiagnostics.com)

Biorex Food Diagnostics offers a range of test kits that can be used on meat (including beef, pork and poultry) for drugs such as beta agonist including clenbuterol and ractopamine and feed for mycotoxin quantification. With growing consumer awareness with regards to the overuse of antibiotic residues, the company's product range has also increased to include a wide range of tests for this class of drugs (chloramphenicol, tetracyclines, quinolones, and nitrofurans). Many of the tests are easy to use with

quick sample preparations and fast assay times of 1.0-1.5 hours making sample analysis a lot quicker than outsourcing this type of testing as well as being cheaper.

Training of staff, if required, can also be provided by the company along with any additional equipment needed. Biorex Food Diagnostics is based in the UK and is a sister company to the well established Fortress Diagnostics who are an ISO accredited medical diagnostics manufacturer. The product range offered also adheres to the EU and global MRLs/tolerance limits set by governing bodies.



## Simplicity and accuracy in environmental testing

Despite the increasing regulations governing testing and control of salmonella in the processing environment, it remains a threat to consumer product safety. Typically, the food industry associates raw meat as a vehicle for salmonellosis infection.

[www.romerlabs.com](http://www.romerlabs.com)

Recently processed foods have been related to a number of salmonellosis outbreaks since the target pathogen is present in very low numbers. Due to these factors, it has become extremely important to screen these types of foods and their processing environments for the presence of salmonella to ensure safe food is being supplied to consumers.

The RapidChek SELECT Salmonella test from Romer Labs is AFNOR and AOAC-RI validated, affordable, simple and accurate.

The system uses patented, phage-supplemented media coupled with a

lateral flow device to provide a sensitive, specific salmonella test.

Food companies should not be asked to compromise on salmonella testing. They can have ease-of-use, improved training efficiencies, reduced product hold time and reduced testing costs. Laboratories that have implemented the RapidChek SELECT Salmonella system have realised a measurable reduction in their testing costs.

Moreover, there is no need for up-front expense on automated fees or binding contracts.



# Options for

## Outstanding flexibility and no cross-contamination

Alfa Laval Unique Mixproof Valves provide maximum flexibility in hygienic flow processing by making it possible to handle two different fluids at the same time, with no risk of cross-contamination. Using two independent plugs and seals means a single mixproof valve can often replace two or more valves of other types.

[www.alfalaval.com](http://www.alfalaval.com)

Alfa Laval supplies several different designs of mixproof valves, all with leakage detection, that help boost reliability and safety levels. They enable you to design versatile set-ups that are both cost effective and easy to maintain, as well as providing you with important new processing opportunities.

The Alfa Laval Unique Mixproof Valves give you a modular solution that is easily tailored to your specific requirements. This also means you only pay for the exact features and capabilities you really need. For example, as part of the range they offer the Alfa Laval Unique Mixproof Large Particle Valve



with features ideal for handling fluids with high viscosity or large particles such as soups. This valve is specially designed with large openings handling particles up to 45mm in diameter to minimise pressure loss and securing product integrity by eliminating the risk of product damage or blockage.

The Alfa Laval Unique Mixproof Valves provide:

- Low cost of ownership and no risk of cross-contamination.
- Efficiency gains by greater flexibility.
- Reliable operation and easy validation of plant performance.
- Substantial water, chemical and heating savings during Cleaning-in-Place.

Alfa Laval is a leading global provider of specialised products and engineering solutions based on its key technologies of heat transfer, separation and fluid handling.

The company's equipment, systems and services are dedicated to assisting customers in optimising the performance of their processes. The solutions help them to heat, cool, separate and transport products in industries that produce food.



## Advanced hygiene monitoring system

Neogen has now released an enhanced version of its popular AccuPoint ATP Hygiene Monitoring system which, they say, is the most sensitive and consistent system available. AccuPoint Advanced comprises state-of-the-art samplers, a compact, hand-held reader and data manager software, with the added training and ongoing support from Neogen to increase confidence.

[www.neogeneurope.com](http://www.neogeneurope.com)

ATP (adenosine triphosphate) sanitation monitoring systems have evolved into the current 'gold standard' for food and beverage produc-

tion facilities to monitor their hygiene programme's effectiveness.

Using an ATP system is an easy and quick gauge of cleanliness, and is easily customised for the specific people, products and processes used in any food production facility.

"The feedback we've received led directly to this next generation of AccuPoint system," Dr Chambers, Neogen's sales and marketing director, told International Meat Topics. "Our many years of working closely with the food industry have shown us what matters. We are pleased to offer a new hygiene monitoring system that we believe is superior to anything else on the market."

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## Innovation in leak detection minimises food waste

Ishida Europe is launching a revolutionary new leak detector to help food manufacturers minimise spoilage in pre-packed retail products.

[www.ishidaeurope.com](http://www.ishidaeurope.com)

Designed for use with a wide variety of foods including fresh, cooked and cured meat, poultry, seafood and ready meals, the Ishida AirScan uses advanced laser technology to identify leaks of carbon dioxide from holes as small as 0.5mm in sealed modified atmosphere packaging (MAP) packs at speeds of up to 180 packs per minute.

It has been designed to be easily integrated into existing production lines.

"With retailers and suppliers under pressure to minimise food waste, packaging leaks have been associated with almost 500,000 tonnes of food wasted in production each year," explains Alan Mutch,



Ishida Europe's Quality Control Manager.

"Compromised packaging can lead to bacterial spoilage, reduced shelf-life and a damaging rise in complaints and returns.

"This can result in increased cost of production, loss of brand image and reputation, and the heightened risk of retailer fines."

The new Ishida AirScan offers fast, 100% reliable and completely non-destructive identification of leaks of carbon dioxide and has been designed to be highly effective in fast moving production environments so that maximum quality can be achieved without compromising on high throughput speeds and minimum packing time.

By maintaining the optimum gas fill for each pack, the leak detector provides consistent product quality, and allows production problems to be identified and rectified quickly.

It also reduces the amount of packaging that has to be scrapped, while the non-destructive testing process ensures that product can be re-packed.

hydrochloric acid, increasing ease of handling and worker safety.

The Community Reference Laboratory (CRL) for Trichinella in Rome has extensively validated the performance of the PrioCHECK Trichinella AAD Kit and has approved the product as an official method for use in the in vitro detection of Trichinella spp. in meat of domestic swine.

Thermo Fisher Scientific provides many additional diagnostic tools associated with cattle (for example bovine viral diarrhoea, tuberculosis, Johne's disease, bluetongue, trichomoniasis, infectious bovine rhinotracheitis), swine (for example porcine reproductive and respiratory syndrome, swine influenza, porcine epidemic diarrhoea) and other animal diseases.

## Innovative diagnostic services for meat inspection

Thermo Fisher Scientific Inc helps customers improve their animal diagnostics capabilities and increase laboratory productivity.

[www.thermofisher.com](http://www.thermofisher.com)

They offer innovative diagnostic products and services like the new PrioCHECK Trichinella AAD, a cleaner, safer way to test swine carcasses for potentially dangerous Trichinella at meat inspection.

It is a reliable alternative to the currently used pepsin-based artificial digestion method, because the test uses a recombinantly produced enzyme from a standardised and secured production facility, ensuring good availability of the enzyme and consistent quality. In addition, it does not use pepsin powder or

## Increase productivity and reduce lean give-away

NDC Technologies, a leading global provider of precision measurement and control solutions, offers the InfraLab e-Series at-line meat analyser for the accurate and reliable measurement of fat, moisture, protein and collagen content in meat samples.

[www.ndc.com](http://www.ndc.com)

Suitable for beef, lamb, pork and poultry, this near-infrared (NIR) analyser produces accurate measurements in less than 10 seconds while next to the production line.

The InfraLab e-Series uses non-contacting, multi-wavelength NIR technology to capture accurate and consistent measurements, completely independent of product and ambient changes in the process area such as temperature, relative humidity and factory lighting.

The system is simple to use, with no special operator skill required, and allows for the rapid analysis of meat samples with minimum sample preparation. These advantages enable meat processors to achieve

consistent product quality, optimise batch fat values, reduce lean give-away, improve traceability and replace laboratory testing.

The InfraLab e-Series is available in fat-only or combined with moisture, protein, and collagen measurements. Data can be reviewed locally or remotely via Ethernet connectivity enabling the display or storage of vital quality data wherever it is needed.



## Improve yield while spotting foreign objects

More and more meat producers are reaping the rewards of X-ray analytical technology. Instead of taking samples for analysis in a laboratory or control room, X-ray analysers such as the Foss MeatMaster II can measure entire batches of fresh or frozen meat directly in the production line. It also checks for foreign objects at the same time.

[www.foss.co.uk](http://www.foss.co.uk)

A video explaining how accurate fat testing can yield thousands of Euros per day can be seen at [www.foss.dk/meatmaster](http://www.foss.dk/meatmaster)

MeatMaster II offers a leading accuracy for fat analysis down to 0.5% depending on user situations. This exceptional accuracy offers a rapid return on investment. The system can scan up to 38 tons per hour of fresh, frozen or packed meat and determine fat content and weight.

Typical uses include control of fat content in raw meat trimmings to avoid lean meat giveaway and batch standardisation for production of processed meat products.

Other innovative applications are automatic grading of pork belly cuts for bacon production, selection of pork legs for dry ham production and in-line fat testing after the grinder.



# Options for



## Monitoring pathogen hazards in raw meat

Pathogens have always been associated with raw meat, for example *E. coli* and salmonella, but campylobacter in poultry is now the largest cause of bacterial food poisoning in the western world that can cause severe illness, hospitalisation and even death. Experts say that the bacteria are not difficult to kill but cross contamination is the much bigger problem. There is no magic bullet to resolve the problem at source, so better cleaning and hygiene all along the food chain is required to minimise the hazards.

[www.hygiene.com](http://www.hygiene.com)

Detecting pathogens such as campylobacter is a difficult, skilled and expensive process giving results after several days. However a new simple rapid test, CrossCheck from Hygiene, specifically measures the presence of raw meat and fish residues giving results in 2-5 minutes that can be used by anyone and anywhere. It specifically measures an enzyme that is present in raw meat and fish. It is not a test for specific bacteria.

CrossCheck is a simple rapid method to measure the hygienic status of surfaces to assess the hazards associated with cross contamination. The enzyme measured is destroyed by cooking such that CrossCheck can also be used on finished product to verify cooking processes.

Salmonella detection is also a laborious lengthy process but InSite

Salmonella provides a rapid and convenient colorimetric salmonella species test for environmental surfaces.

InSite Salmonella is a self-contained, ready-to-use swab test which contains a specialised liquid medium which changes colour when Salmonella species are present in the sample.

A colour change from purple to bright yellow indicates presence, with positive results in as early as 24 hours from sample collection.

A short pre-enrichment period of six hours also enables detection of presumptive positive samples within the 24 hour period.

Otherwise, optional overnight or 24 hour pre-enrichment enables detection of such samples in 48 hours. The all-in-one test device eliminates the need for sample preparation materials, saving material and labour costs.

The incorporation of a large foam swab bud improves sample collection, while enabling the coverage of a large surface area for environmental surface testing.

The neutralising non-selective pre-enrichment broth utilised enables detection for even low numbers of salmonella. It also minimises the effect of residual sanitisers, while also facilitating the recovery of stressed cells.

InSite provides a proven performance for the detection of salmonella, but with little interference from non-salmonella bacteria.

## Pathogen testing and raw meat analysis

Bio-Rad Laboratories has played a leading role in the advancement of scientific discovery for over 60 years by providing a broad range of innovative products and services to the food science, life science research and clinical diagnostic markets.

[www.foodscience.bio-rad.com](http://www.foodscience.bio-rad.com)

The Food Science Division of Bio-Rad Laboratories produces tests for food safety, veterinary diagnostics and water testing. Bio-Rad has a complete line of solutions for food pathogen testing, including a full menu of real-time PCR test kits for detection of important foodborne pathogens including campylobacter, cronobacter, *E. coli* O157:H7, *Listeria* spp., *L. mono*, *Salmonella* spp., *Salmonella enteritidis*, *Salmonella typhimurium*, and STECs.

Methods were developed to provide same day results but also salmonella threshold testing for raw meat analysis.

Culture media are available for nutritive enrichment and RAPID chromogenic media for easy colony identification for detection of pathogens and enumeration of quality indicators.

As an instrument manufacturer, Bio-Rad provides instrument options for both low and high volume users.

The iQ-Check Prep automation solution allows for walk-away automation of the pathogen detection process with next level traceability, sample verification and LIMS integration. Bio-Rad provides a complete solution for food safety testing.



## Increasing global consumer confidence

Antibiotic resistance is a growing concern with regulations being strengthened right across the world, with an increasing demand from consumers that meat is safe and fit for consumption.

[www.randoxfooddiagnostics.com](http://www.randoxfooddiagnostics.com)

For producers and processors to be able to screen for more drug residues efficiently and accurately to be confident that their products meet all of the required Maximum Residue Levels set, more and more companies recognise the need to invest in modern technology to meet these demands.

On the Evidence Investigator from Randox Food, the unique multi-analyte testing platform will reduce labour costs, increase throughput and guarantee overall productivity improvement. Detecting up to 22 analytes from a single sample in less than two hours and with less than 5% false positives and no false negatives, the consumer market can have an increased assurance that food

purchased is acceptable for consumption.

Randox Food offers a versatile test menu that contains a range of drug residues including AOZ, AMOZ, chloramphenicol, ractopamine, beta agonists, tetracyclines, thiamphenicol and quinolones on the Evidence Investigator. Using traditional ELISA would require up to 16 different kits and potentially 16 different sample preparations in order to receive the same test results gained from the revolutionary Biochip Array Technology.

Randox Food is at the forefront of this safety revolution striving to increase global consumer confidence by improving food security.



To feature your products

# Options for

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Don't miss the opportunity to have your products or services included in forthcoming issues of International Meat Topics' Options for section. The next issue will cover:

Processing of poultry IMT 6.6 – December



# testing & monitoring

## Ensuring the integrity of the meat supply chain

The continued presence of underlying threats means that ensuring the integrity of the meat supply chain has become industry's key focus.

[www.biocheck.uk.com](http://www.biocheck.uk.com)

Last month, Russian authorities reported the mislabelling of meat species with some imported meats. In the USA, separate studies using DNA sequencing and PCR analysis revealed mislabelling of game and ground meat. Some samples contained horsemeat and others included multiple species.

It is now 12 months since the UK release of the Elliott report, which encouraged industry to conduct sampling and testing at all stages of the supply chain.

A UK Food Crime unit has been established to detect fraud and deter criminals.

Also, in the latest BRC Global Standard for Food Safety (implemented from the 1st July) section 5.4 on

Product Control has been expanded to help prevent fraudulent products being sold. Industry must now introduce risk-based testing or assurance to mitigate risks.

The very latest tools for onsite testing are being offered by Bio-Check (UK). Its FlowThrough tests for raw meat species and food allergen detection can be performed within 12 minutes, making them an excellent choice for real-time verification. Bio-Check has a specialist test kit capability (ISO 9001:2008) and many years' experience in food analysis, which enables them to advise on the best analytical choices.



## Self service sample booking for smaller companies

Eurofins Food Testing has launched a new portal designed specifically to enable smaller food businesses to easily register product samples and pay for testing by credit card with no minimum spend.

[www.eurofins.co.uk](http://www.eurofins.co.uk)

The Eurofins Testing Portal has been launched to give small food businesses that are required to have products and ingredients tested an easy route to the testing facilities and expertise of a large laboratory.

Small manufacturers make up the majority of the food industry with more than 90% employing less than 50 people.

The portal allows users to order from some of Eurofins' most popular testing packages including pesticide residue analysis, nutritional, animal speciation and allergen testing.

Eurofins also offers small food businesses a basic check of UK food labels to ensure they comply with current EU labelling regulations.

Operating like a self-service point and with just a few easy steps to set up, users simply need to register samples, select the analysis they require, pay by credit card via the portal and send in samples to the Eurofins laboratory.

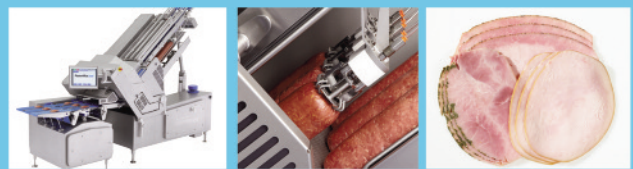
Results are reported by email, from five working days onwards, for added convenience.

"The new Eurofins portal means that customers can deal with us immediately rather than having to go through credit checks to set up an account.

"It also means that the samples have already been registered so testing can start sooner," Tracie Elwell, Customer Services Account Manager at Eurofins, told International Meat Topics.



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See Provisur equipment at AGROPRODMASH, October 5-9 2015, [Pavillion 2.1 Stand 21C82](#), [2.1 Stand 22B50](#), [2.3 Stand 23B50](#), [8.3 Stand 83B30](#).

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# Extending the shelf-life of meat and fish products with superchilling

by Greg Jones, Microbiologist, Campden BRI, Station Road, Chipping Campden, Gloucestershire GL55 6LD, UK.

Superchilling is the practice of chilling food to a temperature just below the freezing point of the aqueous phase of a particular product, and then storing it at that temperature. This is generally around -1.5°C to -2°C.

Superchilling is not a novel concept, and was proposed as a method for preserving food approximately 100 years ago. Since then, the majority of research has concentrated on the fishing industry, as this is where the largest perceived benefit has been identified.

## The importance of ice

Superchilling well deserves its alternative terms of partial freezing, crust freezing and deep chilling. Some definitions of superchilling use ice fraction as an indicator of the chilled state of the product, however this measurement is more suited to a research environment than the high-throughput requirements of industrial

processing. Ice crystals can damage the structure of foods and can cause increased drip loss, softening and other textural changes when defrosted. It is therefore essential that any superchilling process results in the formation of the smallest possible ice crystals, and this can be achieved by freezing the product as swiftly as possible. Swift freezing can also result in dehydration of cells and formation of ice crystals in extracellular spaces. This has a further protective effect. The method used to freeze the product has surprisingly little effect on the final quality of the product. Therefore, existing freezer technology can be used to produce superchilled products without the need for investment in new equipment, although some delicate products may benefit from more rapid freezing.

## Effects on shelf life

The data so far indicates that superchilling has the ability to extend the shelf life of some fresh (non-frozen) products without the sensory attributes being affected. The



majority of research so far has been performed on fish, with a few studies looking at other foods. There is little data to support shelf life extension of fresh (non-frozen) ready-to-eat foods such as pies or ready meals. Table 1 lists some available data on shelf life extensions reported in the literature.

The microbiological effects of superchilling in terms of spoilage indicate that the rate of growth of the microflora is suppressed, however it does not completely stop microbiological activity. The studies that have compared psychrotrophic counts to mesophilic counts did not detect significant differences between the two.

## How is it done?

Superchilling is not a difficult process, and can be achieved using standard blast chillers. Dwell times will be increased compared to chilling, and it follows that the size of the product will affect this. From a legal perspective, superchilling is defined in legislation between a limit for 'chilled' products and 'frozen' products.

The definition of these two states is arbitrarily identified through legislation. According to Council Directive 89/108/EEC as part of EU legislation, frozen food can be kept at -18°C±3°C unless in a retail cabinet, in which case the fluctuation can be as much as 6°C either side of -18°C.

Therefore, an upper limit of -12°C is the boundary below which a product would be considered frozen. In the case of poultry and its preparations, the legislation (Regulation (EC) No 1234/2007) states:

**Table 1. Examples of shelf life extension of superchilled product above that of the equivalent chilled product.**

Product	Superchill temperature (°C)	Packaging atmosphere	Shelf life extension (days)
Salmon	-1.5	90% CO <sub>2</sub>	11
Mullet	-2.0	Vacuum	3
Japanese seabass	-1.5	40% CO <sub>2</sub> / 30% O <sub>2</sub>	4
Cod muscle	-4.0	Air	5
Pork roast	-2.0	Air	98
Salmon	-1.4	Air	17
Salted fresh salmon	-1.0	Air	7
Salmon	-2.0	60% CO <sub>2</sub>	11
Cod fillet	-1.5	Air	3
Japanese seabass	-3.0	Air	14
Cod	-2.0	50% CO <sub>2</sub> / 5% O <sub>2</sub>	7
Wolf fish	-1.0	60% CO <sub>2</sub>	2
Arctic charr	-2.0	CO <sub>2</sub>	6
Shrimp	-3.0	Air	6



'fresh poultrymeat' means poultrymeat which has not been stiffened at any time by the cooling process prior to being kept at a temperature not below -2°C and not higher than +4°C.

It also states that 'frozen poultrymeat' means poultrymeat which must be frozen as soon as possible within the constraints of normal slaughtering procedures and is to be kept at a temperature no higher than -12°C at any time.

Regulations for foods other than poultry make no mention of storage temperature until the threshold of -12°C is reached, therefore a product containing no poultry could be chilled to any temperature above this and still be classed as chilled (Reg. 853/2004). Therefore, there is a grey area between -2°C and -12°C, where the definitions of 'chilled' and 'frozen' merge into each other.

## Recent research

Recent work at Campden BRI (funded by DEFRA and industrial partners) showed the effect of superchilling using a conventional blast chiller did not result in a significant loss in quality compared to the chilled product, a finding which is supported by other research.

At present, it is unrealistic to expect that retailers and consumers are going to be able to keep food at superchilled temperatures without major re-investment in their chilling equipment.

Therefore, it is likely that at some point in the distribution chain, a superchilled product will be tempered to standard chilled conditions before retail.

The Campden BRI project examined the effect of this practice on a range of products, with cook-chill prawns packed in a modified atmosphere showing the greatest promise. Prawns were cooked, superchilled and packed before being sent to Campden BRI for sensory and microbiological shelf life analysis. The product was kept at superchill (-2°C), then it was removed and stored at chill temperature (5°C).

The effect of storing for varying time at



superchill was tested for its effect on a standard 10 day chilled shelf life post-superchill storage. The results of this experiment are shown in Fig. 1.

These results indicate that the standard 10 day chilled shelf life can be kept after six days superchilled storage. The chilled shelf life starts to decrease as superchill shelf life is increased, so a balance must be obtained between an increase in superchill shelf life at the production site, whilst maintaining an acceptable chilled shelf life once released from the site.

## Is it safe?

The test shown in Fig. 1 was repeated with a challenging cocktail of *Listeria monocytogenes* strains added before superchilling.

The results showed no difference in growth of *L. monocytogenes* over the chilled shelf life of any superchilled product when compared to the chilled version. There was no observed growth during superchilled storage. The implication of this experiment is that superchilled food is no more dangerous in terms of pathogen growth than the chilled version.

Therefore, the same approach to risk assessment is needed to have confidence in the safety of any product that will be superchilled. This may take the form of a challenge test or another test that will show the product is safe.

Another advantage is for products affected

by shelf life guidance for psychrotrophic *Clostridium botulinum*. Storage below the minimum growth temperature for this organism (3°C) allows a shelf life of longer than 10 days (according to Campden BRI Guideline 11) for the duration of the low-temperature storage. A shelf life of 10 days or less would then be applied from the point at which the product temperature rose above 3°C.

## Reduced waste

Superchilling has the potential to reduce the amount of waste generated during production, principally due to the longer production runs possible. Further advantages identified by the industrial partners participating in the DEFRA project included a longer Minimum Life On Receipt (MLOR) for retailers, reduced start-up and shut-down losses due to the possibility of longer production runs, and a reduction in overweighing of packs.

There can also be savings in transportation costs, particularly if ice is used to keep product chilled as is the case for fresh fish. Removing ice from the process can result in water and energy savings during production, and allows more product to be packed into a vehicle.

## Conclusion

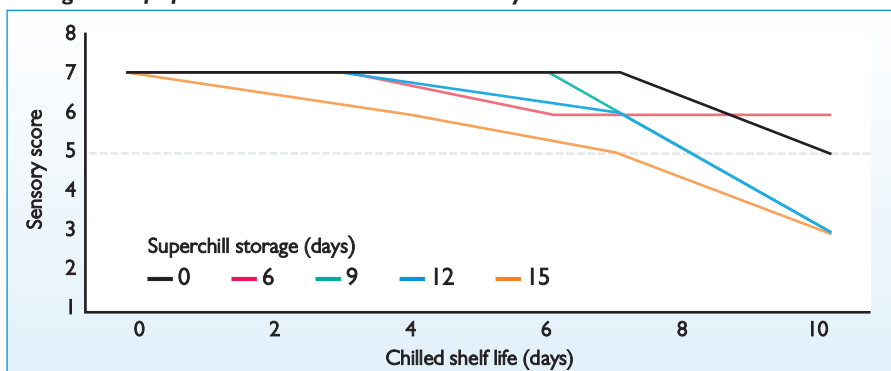
Superchilling, on a practical level, offers a simple method of extending the shelf life of a chilled product by several days. The evidence so far indicates that some products respond to the process more favourably than others, with fish and meat products having been tested most so far.

The effect on ready to eat products such as pies or ready meals is less clear, and this is purely due to lack of evidence. The potential benefits of this technique are likely to be felt by manufacturers, who will be able to better manage stock before releasing it to retailers.

The evidence so far suggests that superchilling introduces no other microbiological risk, is no more dangerous than standard chilling, and safety would be assessed as for any other product.

The food industry is under constant pressure to extend shelf life, and superchilling offers a cost effective and simple method of achieving this. In order to implement this approach for their own products companies would be advised to undertake the usual risk assessment and shelf-life trials for their own product types, however current evidence would suggest that many different products types could have longer shelf life through the use of a superchilling approach. ■

**Fig. 1. Chilled sensory shelf life of prawns after 0, 6, 9, 12 and 15 days of superchill storage. Shelf life is deemed to end when sensory score = 5.**



References are available from the author on request

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for all available assays



# Turn your ideas into reality with applied buffer glucose technology

by the technical team, PH Liquid Belgium NV and Belgosuc NV.

Buffer systems and buffer films can support meat producers in their prevention against food infections caused by harmful germs and bacteriological contamination from salmonella, listeria and E. coli 0157:H7.

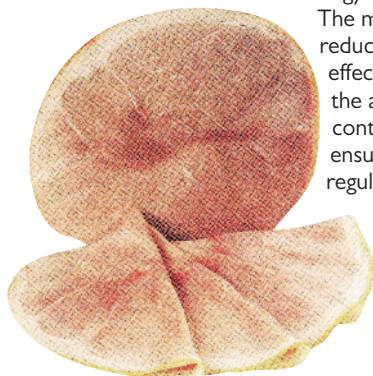
By applying buffer systems in the preparation of heated meat products like ham, bacon, freshly salted and/or smoked bacon meant for slicing and pre-packaging, further gas development is avoided and the colour, taste and smell of the product remains optimal for the duration of a longer shelf life.

## Buffer glucose technology

PH Liquid is a world leader in the supply of buffer systems and buffer films according to patented applications for fresh and all heated meat, liver and fish preparations, matured and cured meat (salami) and fish products. Their Bufferglucose Syrup product is a concentrated and biologically balanced extract of a range of pure organic food acids, vitamins and aromas on a carbohydrate base. Using Bufferglucose Syrup results in a production system with 50% less sodium chloride and 30-50% less nitrite in order to achieve a healthier finished product.

As well as the physiological effect against regular brine bacteria development, it also has other regulatory effects that are very important for meat product preparation technology.

The mildly reducing effects of the acids it contains ensure regular



nitrate reactions. These organic acids are chosen quantitatively and qualitatively in such a manner that the meat's pH value always remains within its natural limits. Thanks to its correct and controlled composition, Bufferglucose Syrup combines high safety with a guaranteed effect.

In view of the strong effects, the prescribed quantities as well as the working method need to be observed closely so as to use the advantages to the full.

The simultaneous use of Bufferglucose Syrup and buffer phosphates results in the creation of a buffer stabilising the essential pH on its value, even in case of unfavourable circumstances.

In cooperation with the sweet and sour medium of Bufferglucose Syrup, the mildly alkaline buffer phosphates constitute a buffer of the desired pH which stabilises the pH on the effective value through its buffering effect even in case of unfavourable conditions.

It is used in the production of pickled and smoked products and offers extraordinary benefits versus other products used for this purpose, in particular with regard to heated ham. Not only the preparation process, but also the quality and digestibility of the meat products that are prepared with Bufferglucose Syrup improve significantly.

As it is only composed of natural substances such as vitamins and organic acids, Bufferglucose Syrup is legally allowed and there are no physiological objections against its use.

The addition of Bufferglucose Syrup accelerates the colouration process of pickled goods as initiated by nitrate or nitrite. In this process, excess nitrite in the sausage and meat mass is reduced significantly or even removed in its entirety.

The level of residual nitrite in finished sausages can decrease by 30-50%. It was furthermore found that the permissible quantity of physically harmful nitrite can almost be reduced by half.

Meat products treated with Bufferglucose Syrup not only look tastier; they have a better aroma and a refined taste. This is especially remarkable with products that have been in storage for quite some time.

In the case of heated sausages, use of the product results in a tender and yet crisp



casing, while uncooked sausages obtain a spicier aromatic taste (salami ranges).

Thanks to its antioxidant characteristics, the product slows down the process of going rancid, so that longer freshness is ensured with a guaranteed buffer system.

## Benefits of application

Food acids are generally known to inhibit and prevent the growth or spread of listeria, clostridium, salmonella and E. coli when combined with antioxidants. The benefits include the following:

- Stable buffer pH value for all fresh and heated meat products with a final buffer pH value of 6.2.
- Improved colour preservation.
- Improved taste.
- Improved odour.
- No discolouration of the surface after the products are cut in case of further storage under the counter.
- Improved cutting properties of heated products in case of slicing system.
- In full control of the yeast and mould development.
- No gas development in case of pre-packaging of heated products such as hams, mortadella and frankfurter sausages during the normal storage period.
- Prolonged shelf life of products.
- Control of Lactobacillus lactis, Clostridium botulinum, Listeria monocytogenes, Salmonella enteritidis, Staphylococcus aureus and Escherichia coli micro-organisms.

References are available on request from [info@ph-liquid.com](mailto:info@ph-liquid.com)



# Complete new slaughterhouse project for Belarus



*Waiting area with air-conditioning for livestock.*

EMF GmbH have finalised their 7,200m<sup>2</sup> slaughterhouse building and livestock waiting units in Babruysk, Belarus. Delivery consisted of 33 truckloads for the building and internal structures, 25 truckloads for the slaughter and by-product equipment and a further 50 truckloads for the sandwich panels, doors, gates and ventilation/cooling system including an air washer unit for the waste and by-product sections.

Currently the slaughtering lines can handle 120 pigs per hour and 50 cattle per hour. The installation includes complete downstream processing lines for all by-products (white/red organs, heads and feet), including 14 pneumatic material transport systems, edible fat refining and blood processing.

The system will be completed at the outlet of the slaughter lines by a newly developed robot controlled system for contamination reduction of the pig and cattle halves.

[www.emf.de](http://www.emf.de)



*Cattle de-bleeding conveyor.*



*Trim platforms with pneumatic gun station for fat trims to fat line.*



*In feed of empty cattle shackle hooks to elevator.*



*Transfer platform.*



*Cattle roll de-skinner.*





**Back side platform.**



**Head removal/wash station.**



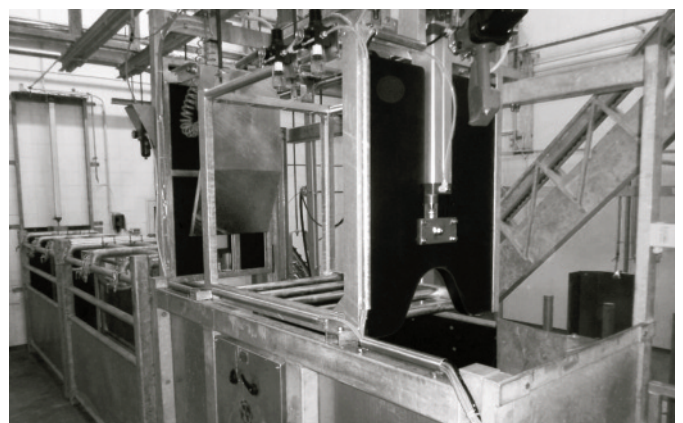
**Pouchcasing package removal station.**



**Pouchcasing package inspection belt.**



**Conveyor system for red organs and empty hook in return.**



**Stun trap with head fixation and push forward shield for smaller cattle.**



# International NEWS



Bufferglucose Syrup from PH Liquid Belgium NV is an up to date and improved healthy processing system for the curing of salami. This new application system has 50% less sodium chloride and 50% less nitrite (KNO<sub>2</sub>) in the finished product.

✉ info@ph-liquid.com

## Compact X-ray system



Loma Systems has launched its latest compact model with the X5c (Compact) X-ray unit. Responding to the growing demand for a more cost effective yet highly functional X-ray machine, the X5c is aimed at food manufacturers, processors and packers running multi-product, retail ready lines keen to make the switch to X-ray technology for the first time.

With retailers' Codes of Practice and the latest BRC Global Standard for Food Safety Issue 7 increasingly specifying the use of X-ray over other methods of contaminant inspection, Loma's revolutionary X5c reduces the cost of ownership of X-ray inspection technology by an industry beating 30%.

It represents significant investment by Loma in developing a fully specified system that offers high quality contaminant and product integrity inspection using a number of well-proven tools in a streamlined, extra slim design.

In line with CFR21 part 11 traceability, Loma's new X5c is multilevel password protected for improved data management, which means the system can log events against individual operators. Produced from brushed stainless steel, it also offers an ultra-hygienic design for easy cleaning and low maintenance and serviceability. A quick release belt can be completely removed without the need for tools or the belt tension can be eased for cleaning. The X5c also has sloping surfaces to stop food particles and washdown droplets accumulating in crevices and to reduce drying time.

Ideal for the detection of glass, cal-

cified bone, rubber, stone as well as ferrous, non-ferrous and stainless steel metal in various packaging. Loma's X5c operates at line speeds up to 50m per minute and measures just one metre in length. It is capable of handling products up to 100mm (height) x and 300mm (width) but weighing no more than 3kg – making it ideal for the inspection of ready meal lines in particular.



With significant energy saving benefits and providing the best balance of processing power to inspection, the X5c incorporates a detector array with 0.8mm diode pitch offering a low power and self-contained high efficiency X-ray generator. A simple, effective cooling mechanism ensures long tank life.

✉ enquiries@loma.co.uk



### Management acquire company

The management of Vaessen-Schoemaker bv has recently acquired the majority holding of the Schoemaker family.

Vaessen-Schoemaker, founded in 1946, and specialist in functional ingredients for the red meat, chicken and fish industries, is currently experiencing strong growth.

The takeover of these shares by the management means the company can continue to pursue its set goals. The company's core values – client satisfaction, partnering, innovation, growth and continuity – will remain central to the business.

✉ a.de.haas@vaessen-schoemaker.nl

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## Demand for thin cut steaks



With the increasing demand from consumers for thin cut

steaks, Interfood Technology is highlighting the potential for automating the cutting process with the use of dedicated fresh meat portioning systems.

AHDB Beef & Lamb, the organisation that promotes beef and lamb in England, has conducted research with consumers and has now introduced a dedicated campaign to demonstrate the key opportunities that thin cut steaks provide.

The focus of the campaign is on the butchery techniques required to create a range of beef steaks developed from cuts which are traditionally only used for stewing or other slow-cook methods.

However, as Mark Bishop, Joint Managing Director of Interfood Technology recognises, the potential for thin cut steaks is not confined to hand-cut methods. "Thin cut steaks are increasing in popularity for a number of reasons. They offer a leaner option for increasingly health conscious consumers, they are good value and for the busy lifestyles that are typical of modern living, they are quick to cook.

"As the sole distributor in the UK and Ireland of the TVI range of meat portioning systems, we can offer the capability to produce these so called 'minute' or 'sandwich' steaks via an automated process which ensures best presentation with maximum yield and minimum give-away."

The TVI range features the GMS 500 singlecut and the GMS 1200 multicut which can portion all types of red meat.

For thin cut beef steaks, for example, they can accommodate all types of cut, from sirloin and ribeye to silverside and thick flank.

The rump steaks are the most impressive as this is traditionally a profile from which it is particularly difficult to maximise yield. Not so with the unique pressing-while-

slicing from the gripper-less TVI system.

Richard Nethercot is Product Manager at Interfood responsible for the TVI range. "We can achieve an exact thickness for the steak, with a minimum slice thickness of whatever is required by the customer – well within the five millimetre maximum specified for thin cut steaks.

"The beef is pressed and sliced at the same time so it achieves a very consistent shape, with no gripper involved in the process to ensure higher yield.

"The machines are also highly versatile, with options available to shingle the steaks if required. And, we can achieve minimal or no trim – a real benefit in thin cut steaks where no fat or gristle is important in meeting the healthier option that these cuts offer," Richard told International Meat Topics.

✉ [info@interfoodtechnology.com](mailto:info@interfoodtechnology.com)



### Moy Park's £20m investment

Top UK food company Moy Park is celebrating 40 years of operation at its Dungannon facility. This milestone coincides with the completion of the first phase of a major £20m investment at the facility, significantly enhancing production capabilities to become one of the most advanced processing plants in Europe.

This investment programme has seen production increase significantly at Dungannon from 1.3m to 1.8m birds per week; a figure which will increase to 2.3m birds per week upon full completion.

✉ [enquiries@moypark.com](mailto:enquiries@moypark.com)

Please mention  
**International  
Meat Topics**

when sourcing further information.

## New Interceptor conquers product effect in meat inspection

Conquering the longstanding challenge of 'product effect' caused by moisture and minerals, the Interceptor from Fortress

Technology is specifically designed to inspect conductive applications including meat and fish, helping to eliminate false rejects.

Increasing stainless steel detection by 100%, in contrast to recent metal detectors, Fortress's latest technology splits the frequency signals. This means that the machine can clearly differentiate between the signal generated by the product as a result of moisture or mineral content (for example salt that is prevalent in bacon) and any metal contaminant; putting a stop to a potential stainless steel signal being 'swamped' by product effect.

The sensitivity of the Interceptor means it can pick up metal contaminants half the dimensional size previously identifiable. Detection depends on the size, shape and orientation of metal particles.

Although a test sample sphere is not a real world contaminant, halving the test sample sphere size to 0.5mm equates to picking up a wire length contaminant of 25mm.

On raw meat processing lines, products are exposed to a variety of processes. Although stainless steel contamination in products is a rare occurrence, the metal is prevalent in industrial meat preparation equipment. Whether you are slicing cooked meats, mincing beef or handling raw meat which is a reactive product, the use of knives and meshes are widespread and this means that there is a risk of tiny fragments entering the production chain.

### No background interference

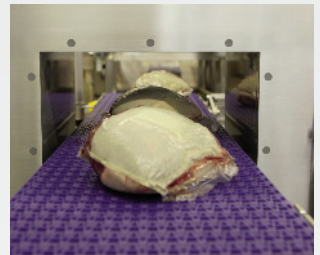
The Interceptor builds upon the cutting-edge Simultaneous Multi-Frequency Technology introduced by Fortress some six years ago. This works by carrying out a real-time analysis of a low-frequency and a high-frequency signal simultaneously. Using an advanced algorithm the Interceptor is able to split the product and metal detection signals and then link the readings back together.

Compared to the traditional approach where specific frequencies would be tuned into, this new method means we can identify the

product effect (most noticeable at lower frequencies) and eliminate it from the higher-frequency signal, where the potential effect of the metal is more prominent. For ease of use, the system learns and recalls the signature of any given product with just one pass.

Already available on Fortress's Phantom and Stealth models, this makes the manufacturing process much simpler for production staff and reduces the time spent introducing and checking operational protocols.

The combination of 100% increased metal detection sensitivity, reduced false product rejects, single pass product learning, and straightforward upgrades go a long way to boosting overall equipment effectiveness and quality assurance for food processors and manufacturers, as well as safeguarding consumers.



Being IP69K rated, the new range is resistant to water ingress, ensuring long-term reliability and performance heavy washdown meat processing environments.

Made to order in the UK, Interceptor units can be customised and deployed in different checkpoints on the meat production and packing line. For products with minced meat, such as sausages, pipeline configurations can also be incorporated.

Moving ever closer to the performance of X-ray but at a much lower capital investment, the Interceptor also reliably detects the range of ferrous and non-ferrous metals, including aluminium.

With the Interceptor, producers can challenge traditional expectations when it comes to detection inside metallised film. Many meat applications, especially bulk cuts, pose a challenge to X-ray because of the variation in density. Here, the Interceptor will be the only sure option for the detection of metal contaminants. ■

[www.fortresstechnology.com](http://www.fortresstechnology.com)

# International NEWS



Stock.com/Juanmorino



A multi-species single-test has been developed by Leatherhead Food Research that allows for the detection of unknown and unsuspected cases of adulteration or mislabelling of meat products. This means that one test can now be used to immediately detect the presence of any meat adulterant or contaminant that could be present. Using samples of beef, spiked with horse, pork, chicken, turkey and duck, Leatherhead's test shows a detection limit of 1% for each DNA target. The test can be used for cooked and raw meats and for processed meat-based products. Previous methods meant that a series of tests had to be run where the possible causes of adulteration must be named in advance and individually tested for. Such methods using real-time Polymerase Chain Reaction (PCR) techniques can result in 'false positives' caused by the presence of pseudogenes (these are created when DNA sequences are multiplied during the testing process).

✉ [fmcpherson@leatherheadfood.com](mailto:fmcpherson@leatherheadfood.com)



## Superchilling shelf life

Research carried out by Campden BRI has shown that superchilling can safely extend the shelf life of chilled foods without any loss of sensory quality. Superchilling reduces the temperature of food products to around -2°C so they become partially frozen. The products are stored at that temperature until being released into the chill chain.

The greatest extension in shelf life was achieved with prawns. The laboratory research showed that superchilling could increase the shelf life of cook-chill prawns to 22 days. This offers a potential 120% increase on the 10 day chilled shelf life subject to the protocol being implemented commercially. Campden BRI also looked at the effects of superchilling on poultry and gammon.

In addition to extending shelf life, they demonstrated that superchilling can also reduce energy use and waste. Campden BRI calculated the energy required to produce and distribute both superchilled and chilled farmed salmon. Although superchilling fish requires more energy during manufacture, more fish can be packed into each vehicle – because superchilling negates the need for ice during transportation – so fewer journeys are required.

The extended storage life also provides the opportunity to make chilled product to stock rather than to order, limiting waste from overproduction that is not immediately dispatched.

Further advantages identified by the industrial partners in the consortium included a longer Minimum Life On Receipt (MLOR) for retailers, reduced start-up and shut-down losses due to the possibility of longer production runs, and a reduction in overtime payments from reducing weekend workload.

The research was conducted by Campden BRI as part of a defra-funded project in conjunction with industrial partners Marks and Spencer, Pinguin Foods, Lyons Seafoods, The Scottish Salmon Company, Tulip and Moy Park.

✉ [tim.hutton@campdenbri.co.uk](mailto:tim.hutton@campdenbri.co.uk)



## The future of Australian beef

Given the recent record years for Australian cattle slaughter, herd inventory and production are expected to drop significantly in the coming years.

Of the major export markets, China is expected to see the most

## Solutions for traceability



IT solutions for optimising production, providing automated data capture and ensuring full traceability for many different types of food products were key highlights of the CSB-System stand at the recent Process Expo in Chicago.

The company demonstrated the capabilities of its Manufacturing Execution System (MES) which provides full control of production in real time, and the benefits of an integrated traceability system that links all areas of operation – from raw material procurement, processing and packing to onward despatch – through a single central database to monitor and report back on the progress or



whereabouts of a product at any time.

Also on display was the company's CSB-Rack industrial IT workstation for automated data capture that combines picking, weighing and price labelling in a single operation.

The CSB-System MES initiates, responds to and reports on all activities taking place in production, providing up-to-date information such as machine utilisation, stocks in hand and throughput times. This enables companies to react quickly to changing circumstances and reduces non-value adding activities, leading to optimised production and process flows. MES also helps to meet secure batch traceability requirements, and the ability to retrieve quality-related process data eliminates the need for any sub-systems.

✉ [info@csb-system.com](mailto:info@csb-system.com)

opportunity for growth with the implementation of the free trade agreement (FTA), while exports to the US are expected to ease as their herd and productive capacity rebuilds.

In live exports, the Indonesian market is expected to remain strong, pending any potential political influences and quota setbacks, while the Vietnamese market is seen as a strong growth prospect.

Based on the strength in global markets, the indicative Australian cattle price (EYCI) is expected to trade in a range between AU\$5/kg and AU\$6/kg cwt range over the next 12 months, 40-70% higher than the five year average.

✉ [angus.gidley-baird@rabobank.com](mailto:angus.gidley-baird@rabobank.com)



## Fighting against food contamination

Anritsu Industrial Solutions Ltd, one of the leading manufacturers of product quality assurance systems in the world, has announced a strategic partnership with BST Detectable Products, pioneers of metal detectable products, to offer a comprehensive food safety service.

The new collaboration between two of the leading companies in the battle against foreign body contamination in food will offer customers Anritsu's cutting edge metal detection and X-ray technology, coupled with BST's industry renowned product support.

Co-operation between the two companies will see Anritsu test and provide calibration guidance and advice on BST's range of metal detectable and X-ray visible food processing items, while in return BST is able to offer bespoke, detectable product solutions compatible with Anritsu's market-leading inspection systems.

Anritsu's UK sales manager, Glen Oxborough, is confident the joint venture will prove a success for both businesses because they often share the same customers, which means they will be able to complement each other's services.

Protecting consumers from contaminants in the food chain is paramount for both the retailer and supplier alike – finding the smallest fragment of metal, stone, plastic or bone in processed food products can be seriously damaging both financially and to a company's reputation.

✉ [www.anritsu-industry.com](http://www.anritsu-industry.com)





## Bone free solution

Three Ishida IX-G2 Dual Energy X-ray inspection systems are providing effective quality control for chicken breast fillets and deboned thigh meat produced at the Haerland factory of Norway-based Nortura, an agricultural co-operative and the largest supplier of meat in Norway.

Where ordinary X-ray detection equipment obtains an image using X-rays of one energy, the IX-G2 uses rays of two different energies to produce two images. These are then compared, which helps to eliminate the background effect caused by the product itself and improves the detection of low-density contaminants such as bone fragments.



While cutting equipment for poultry has become more and more accurate over the years, there is still a need to ensure maximum quality and safety, as Nils Olaf Vikmark, Process Engineer at Nortura explains:

“If the cutter removes a piece of the wishbone along with the breast, then we need to be aware of it: to find it and remove it. If left in, either arm of the wishbone is long enough

and strong enough to cause trouble for anyone swallowing it.”

Other ‘floating bones’, which can include the scapula (shoulder blade) or even pieces of rib, may present a lesser danger, but would certainly lower the quality of the product in the mind of the consumer. These too Nortura can now consistently pick up, down to a size (for fully calcified bone) of 3mm or 4mm.

Breast fillets, with their consistent-density fibres all running in the same direction, do not present as great a challenge to X-ray inspection as deboned thighs, whose muscle and fat vary considerably in density.

A single IX-G2 is enough to monitor the combined output of deboned thighs at Haerland, ensuring that they are fully up to standard.

At Haerland, a full truck load of birds undergoes processing and packing in just 20 minutes.

This is reflected in a belt speed of 25m per minute on the fillet lines and is well within the capacity of the G2.

Nortura also considers the Ishida X-ray system, with its width of just 800mm excluding reject systems, to be reasonably compact.

✉ [torsten.giese@ishidaeurope.com](mailto:torsten.giese@ishidaeurope.com)

opportunities for both Chinese and foreign companies in the further processing sector.

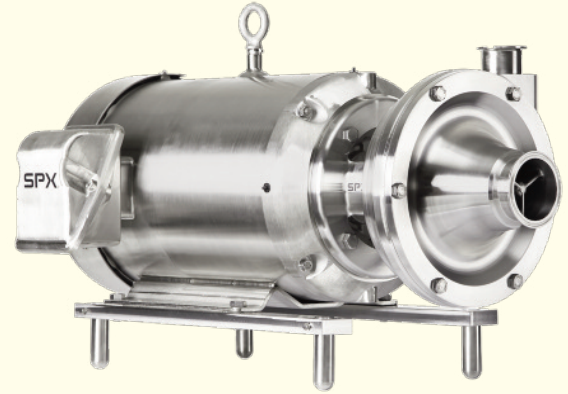
Chinese beef companies aim to participate in the whole supply chain – from farming to processing – in order to not only secure resources such as grassland, but also to take a strategic step to integrate the whole value chain. During the process, both big companies and medium-sized companies will be actively participating in cross-border investments.

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### Metalquimia's new corporate structure

Metalquimia has made several changes in its corporate governance with the aim of boosting the Girona



The new EcoPure pump from SPX is engineered to provide increased efficiency, reliability and safety in traditional hygienic centrifugal pump applications through the use of high-powered drive magnets and extremely efficient impellers in a design that does not include mechanical seals. With no need for seal maintenance or risk of product contamination through seal failure, the pump delivers significant benefits in enhanced food/product safety, reduced maintenance requirements, improved reliability and increased pump availability. It further helps a plant's ability to reduce waste water streams associated with seal flushing. The pump uses heavy duty forged and machined wetted components to ensure durability in demanding process environments.

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company into a new business dimension, while taking advantage of the new opportunities arising from a rapidly growing and evolving global meat sector.

Narcis Lagares, founder and main shareholder of the company since 1971, will now hold the position of Honorary President of the Metalquimia Group.

Josep Lagares, who has held the position of General Manager for the past 19 years and has been the main architect of the company's growth over the past decade, will occupy the Executive Presidency (CEO).

Llorenç Freixanet, who has held the post of Intelligence Manager for the past 16 years, will now occupy the position of General Manager, thereby assuming maximum responsibility for the daily operational management of the company.

At the same time Ricard Vilà will take over as Manager of the Intelligence department to continue providing Corporate and Competitive Intelligence services to all organisational units within the company.

With these organisational changes, the Lagares family, which holds 100% ownership of Metalquimia, aims to strengthen its global leadership position, renewing its creative mechanisms to transform the way the world processes meat.

✉ [www.metalquimia.com](http://www.metalquimia.com)



### Inspection systems launched

Eagle Product Inspection has launched three new additions to its portfolio of advanced X-ray inspection and fat measurement technologies.

The new technologies have been designed to help meat, bulk and pumped food manufacturers adhere to food safety regulations, maintain in-line inspection capabilities and keep a competitive edge through optimised production and consistent product quality.

● Eagle FA3/M – this inline fat measurement and contaminant detection technology discriminates between fat and lean meat products in cardboard cartons, plastic crates, and vacuum-packed frozen blocks to better than  $\pm 1$  Chemical Lean (CL) accuracy.

● Eagle Pipe – A pipeline X-ray inspection system for contaminant detection in liquids, slurries and solid products, provides contaminant detection prior to further processing and packaging.

● Eagle Bulk 540 PRO – An X-ray inspection system for inspection of high-volume, loose flow foods, providing thorough identification of physical contaminants with precise rejection and capable of withstanding rigorous hygienic demands.

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### China's role in global beef


Chinese investors will play an influential role in the global beef market over the next decade, according to Rabobank's latest report.

China's beef demand will grow an additional 2.2 million tonnes by 2025. Driven by the weak domestic production, but with strong demand, the beef sector will likely become the first agricultural sector where China has high integration with the rest of the world and Chinese investors are expected to play an influential role in the global beef market.

In addition to the volume gap, China's beef market also demonstrates potential for value-added and branded beef products. Strong demand from the food service and retail market channels provides

# International NEWS



 The stabilising systems that Hydrosol offer for poultry products are centred on solutions for reducing the cost of making poultry sausages. In addition to reducing the amount of meat without sacrificing quality, this also means developing customised formulations that are suitable for processes like co-extrusion with edible, alginate-based casings. The company also offers solutions for the special requirements of halal products, such as compounds for emulsifying vegetable oil in cooked sausages or for making diceable fat analogues.

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## Testing for histamine in fish

 R-Biopharm has created a new safety test for the UK fishing and fish processing industry providing a faster and more efficient way to detect toxins in fish.

The R-Biopharm diagnostic test kit, which can pinpoint minute quantities of histamine, is significantly more sensitive than tests already on the market and detects lower levels of the toxin which can produce symptoms similar to an allergic reaction.

The kit will be of major importance to the vital fishing sector. It has been hit by publicity surrounding histamine reactions, which have affected thousands of people round the world and hundreds in the UK alone. The new test now uses a hot water extraction which makes detection more efficient and, since it has fewer steps, it is faster.

"The kit we are offering to the market has considerable advantages over current offerings, and will be of interest to all parties engaged in safety within the fishing industry.

"With this new test kit, all reagents are ready to use instead of requiring preparation such as dilution and it offers more tests in a pack.

"Elements such as spiking solution are included instead of having to be bought separately – allowing testers to validate results easily at no additional cost.

"The results can be easily calculated using our software, making it a first choice for companies and laboratories which are charged with compliance with European legislation regarding histamine levels," Simon Bevis, Managing Director of R-Biopharm Rhône, told International Meat Topics.

✉ [info@r-biopharmrhone.com](mailto:info@r-biopharmrhone.com)

## Ishida strengthens support in Denmark

Ishida Europe has signed an agreement with leading Danish systems integrator Sealing System A/S for Sealing System to provide full sales and service support throughout Denmark for Ishida's range of packing line equipment including multi-head weighers, checkweighers, X-ray inspection systems and tray sealers. The deal reunites Ishida with its long-term partner TH Consult, which became part of Sealing System in 2012.

Established in 1998 by Rolf Tange and Kjeld Østergaard Jensen, Sealing System specialises in end of line packing, primarily for the food industry. In addition to Ishida, the company handles the sales and service for several other leading companies

in the packing industry including Meurer, CPS, Lantech and Niverplast.

Sealing System also designs and manufactures its own range of equipment, including robots, palletisers, conveyors, and feeding, transport and control systems, all of which can be integrated with other packing line equipment to provide complete line solutions for customers.

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## Comprehensive test for swine flu virus

Pork producers now have access to a comprehensive diagnostic kit designed to test production animals

for swine influenza virus (SIV) subtypes with the launch of the VetMAX-Gold SIV subtyping kit, the industry's only US Department of Agriculture (USDA) approved, real-time PCR test of its kind.

When used in combination with MagMAX Pathogen RNA/DNA kit and VetMAX-Gold SIV detection kit, the VetMAX-Gold SIV subtyping kit provides veterinary diagnostic laboratories with a complete screening and subtyping solution that is both rapid and cost effective.

The SIV detection kit provides a detection rate of more than 95% in positive samples, and can return results in less than a day.

This robust molecular subtyping solution provides information used to monitor and control the disease.

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# Diary

## 2015

**SUFFA**  
18-20th October  
Stuttgart, Germany  
[www.messe-stuttgart.de](http://www.messe-stuttgart.de)

**SME**  
22-24th October  
Shanghai, China  
[www.chinaexhibition.com](http://www.chinaexhibition.com)

**Meatmania**  
11-14th November  
Sofia, Bulgaria  
[www.food-exhibitions.bg](http://www.food-exhibitions.bg)

**Mefa**  
21st-25th November  
Basel, Switzerland  
[www.mefa.ch](http://www.mefa.ch)

## 2016

**IPPE**  
26-28th January  
Atlanta, Georgia, USA  
[www.ippexpo.com](http://www.ippexpo.com)

**ProPak Vietnam 2016**  
1st-3rd March  
Ho Chi Minh City, Vietnam  
[www.propakvietnam.com](http://www.propakvietnam.com)

**Dairy & Meat Industry**  
1st-4th March  
Moscow, Russia  
[www.md-expo.ru](http://www.md-expo.ru)

**CFIA**  
8-10th March  
Rennes, France  
[www.cfiaexpo.com](http://www.cfiaexpo.com)

**IFFA**  
7-12th May  
Frankfurt, Germany  
[www.messefrankfurt.com](http://www.messefrankfurt.com)



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