

More than meats the eye

A meat co-products workshop hosted by the ReValueProtein project team took place in **TEAGASC** Ashtown Conference Centre recently.

The ReValueProtein project recently hosted a one-day event exploring the area of animal (non-dairy) protein extraction from meat processing co-products, for high-value applications. Meat processing co-products include fifth quarter items (such as hearts, livers, lungs and kidneys) and blood; however, the project also looks at other secondary streams such as exudates, brines and wash water, which are mostly marketed at low values or disposed of as waste, despite their rich composition and potential value.

Over 55 participants from industry, academia and State bodies attended. The day provided an opportunity to share knowledge and ideas for innovation in the Irish meat industry and ReValueProtein researchers from Teagasc, University College Cork, University College Dublin, National University of Ireland Galway, and Institute of Technology Tralee/Shannon Applied Biotechnology Centre were on hand to discuss the various aspects of their work. The opportunity afforded to attendees to interact with researchers and network with relevant industry players and funding agencies was certainly the highlight of the coffee and lunch breaks.

Manager of the ReValueProtein project, Liana Drummond from Teagasc, pointed out the relevance of the workshop for the Irish meat industry, as the content and quality of the programme aimed to encourage the meat industry to realise its potential, and to promote industry-academia interaction, exploring opportunities and supporting a more sustainable meat sector.

The workshop, which was chaired by ReValueProtein project coordinator, Anne Maria Mullen from Teagasc, included a combination of talks and practical demonstrations, covering a variety of topics on innovative technological approaches and applications of proteins in the food, beverage, cosmetics, health and biomedical engineering sectors.

The fifth quarter – products and processes

Guest speaker Charis Galanakis, Research & Innovation Director at Galanakis Laboratories in Greece, provided an overview of the barriers and opportunities in food waste recovery. Talking about the potential for co-products and waste valorisation, Dr Galanakis noted that despite many high-quality studies and patented methodologies, the number of commercial products is still limited. He highlighted the need for the use of flexible technologies, which could better cope with the variable nature of most waste streams, and the importance of establishing definite applications for products prior to development.

Darling Ingredients' nutrition, regulatory affairs and market access specialist Carine van Vuure provided an excellent overview of the global market for processed slaughter co-products, showing just how much can be gained from fully exploiting all parts of the animal carcass. In her opinion, natural ingredients (clean and clear labelling), convenient products (in terms of food preparation and portion control), and products to meet specific nutritional demands (e.g., healthy ageing) are the current key drivers for the food market, supported by sustainable and optimal valorisation of slaughter products: the 'nose to tail' approach.

The potential for harnessing value from meat co-product-derived proteins was further explored by Carlos Alvarez from the ReValueProtein project based at Teagasc Food Research Centre, Ashtown. He provided the latest results on several work packages, including improved blood quality separation, functionality tests in lung and heart protein extracts, protein separation and concentration in waste and side streams (glue water and brines), bioactivity of blood and lung protein powders, and the generation of bio-based films. Many of the recovered proteins displayed good emulsifying, gelling



and water/fat-holding capacity properties, essential properties for foods such as pâtés, sausages, gelatin-based foods and sports beverages. Ciara McDonnell, Research Officer in the meat research group in Teagasc Food Research Centre, Ashtown, covered the area of techno-functional ingredients for meat products, and the use of emerging technologies to improve products and processes. Among these, ultrasound (US) technology and high-pressure processing (HPP) are already attracting considerable interest from the industry, due to satisfactory results in improving the quality, efficiency, shelf life and safety of treated products.

Consumer perception

A thought-provoking talk was delivered by Mary McCarthy, from University College Cork Business School of Management and Marketing, on awareness and understanding of consumers' perceptions in relation to products originating from the fifth quarter, for a successful commercialisation strategy. She shared results and valuable insights from a recent consumer focus group's activity where the main identified challenges were related to consumer acceptability of ingredients from offal, as many are perceived as inedible. Mary emphasised the industry role in transforming "unacceptable" into "acceptable", which she suggested could be achieved by enhancing familiarity through availability and by communicating benefits in a clear and open manner.

Legislation

From the Food Safety Authority of Ireland (FSAI), John Matthews presented a brief account of the legislative environment regarding the use of animal-derived products for different applications, such as food

ingredients, feed, pet food, biomedical and nutraceutical applications. He highlighted the role of the FSAI in clarifying what can be a muddled area for new products and processes, but also pointed out the industry's responsibility in engaging with the FSAI, to ensure compliance with all applicable regulations.

Interactive demonstrations

Delegates had the opportunity to join a hands-on demonstration session at Teagasc Ashtown food product development unit, where sample materials from the ReValueProtein project were showcased. Blood separation and processing, bio-based films, techno-functional properties of heart and lung protein powders, gels and emulsions, as well as collagen biomaterials, such as sponges and fibres for wound repair and tissue scaffolding, were demonstrated and discussed.

Acknowledgements and further information

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