

Portrait - Quakenbrück scientists research new technologies for sustainable foods

How can the ecological footprint of food be reduced? And which new processes guarantee safe and healthy food? This is what scientists at the German Institute of Food Technologies (DIL - Deutsches Institut für Lebensmitteltechnik e.V.) are researching. The institute in Quakenbrück, Germany is one of the leading European institutions for research for the food industry. Together with the Bühler Group and Air Liquide, the researchers are now working on the next generation of alternative protein-based products.



See great opportunities in cooperation for the development of alternative protein-based products: Volker Heinz, Director and CEO of DIL, Ian Roberts, CTO at Bühler (on screen), and Christoph Näf, Head of Business Unit Human Nutrition at Bühler, signing the partnership. (Photo: © Bühler)

Alternative protein-based products targeted

Over the past three decades, the DIL in Quakenbrück has developed into an internationally active institute with around 200 experts in food technology and food sciences. The non-university research centre operates in the areas of food safety and authenticity, structure and process engineering and sustainability.

One of the focal points at the DIL is the development and production of alternative protein-based products. Background: The rapidly growing market shares and product ranges in this area show that alternative proteins already play an important role in today's market: In addition to start-ups, multinational food companies and fast food chains have long since discovered the topic and included it in their product portfolios. Meat substitutes in particular are expected to play a key role in the food market of the future.

In addition: To meet the needs of the growing world population, more food will have to be produced on 35 percent less arable land in 2050. With an additional protein demand of 250

million tonnes per year, the pressure to find alternatives to animal proteins is increasing. Given the environmental impact of the current system, there is a growing consensus that the food industry needs to chart a new course immediately. Sustainable plant-based proteins have a significantly lower environmental impact, use less land and have a lower carbon footprint than the meat value chain. It is therefore essential to find alternative and as yet unexploited protein sources and to develop efficient technologies to convert them into attractive, marketable products.

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To accelerate this process and its research in this field, the DIL is cooperating with industry. One of the partners is the Swiss technology company Bühler. The common goal: New production technologies for healthy and sustainable food. The two partners are focusing primarily on alternative protein-based products that have a lower environmental impact than the CO₂-intensive meat value chain.

According to DIL Director Dr Volker Heinz, the cooperation comes at a critical time: "Within the boundaries of our planet, there is no more room for further expansion of animal protein and fat production." A fact that Ian Roberts, CTO at Bühler, also picked up on when announcing the strategic partnership: "We need to feed around ten billion people in 2050. In order for us to be able to do this at all and to slow down the advance of climate change, we need strong, purposeful partnerships. And in the areas where we can have the greatest possible impact."

Extrusion as a key technology

The DIL offers modern food safety laboratories, pilot plants and research capacities. One of the key technologies used in the production of meat substitutes is extrusion. Their versatility enables the production of textured proteins with different structures from different raw materials. Wet extrusion can be used to produce food products with a similar structure to meat from vegetable proteins.

Bühler is the market leader in this field of technology. "With Bühler's expertise in extrusion and other technological disciplines, such as milling, plant proteins and powder processing, we will be able to offer new and specific solutions for our customers and the rapidly changing market," says Volker Lammers, Head of Research Platform Process Engineering at DIL.

Joining forces for change

The rapidly growing market shares and product ranges in the field of alternative proteins show that they already play an important role in today's market. Numerous companies around the world are developing new or improved techniques or are working on scaling up to industrial-scale production. This is exactly where another cooperation between the DIL and Air Liquide comes in: In addition to developing new products from alternative proteins, the goals are to enable more efficient and technically optimised production processes. "Air Liquide's expertise in developing new production methods with technical and cryogenic gases, as well as its global presence with several innovation platforms, enable innovation in various international markets.

With Air Liquide, we have a competent partner with extensive experience and know-how in a wide range of food applications," says Dr Volker Heinz.

Additional information and contact

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