

Processing with purpose to bring meat and fish alternatives to market

The right texture for a better world. Let's talk about plant-based alternatives

The market for plant-based meat alternatives continues to grow, but that doesn't make gaining a foothold in this burgeoning sector any easier. It's still a huge step for many meat- or fish-processing companies, butchers and food industry suppliers, particularly those that don't have previous experience when it comes to providing vegan and vegetarian products.

What many traditional organisations don't know, however, is that producing plant-based alternatives isn't always as difficult as they think. Depending on the raw material, it's entirely possible to use alternative ingredients to create products that closely resemble conventional meat mixtures. This is something that GoodMills Innovation has taken to heart and is proud to be able to cover the entire supply chain and create value at every stage.

For example, with the Tower III, GoodMills Innovation hopes to make its Hamburg, Germany, site a centre of excellence for texturates and, at the same time, significantly increase its production capacities for plant-based products. What's more, as part of Europe's largest milling organisation — the GoodMills Group — GoodMills Innovation is positioned as a strong partner for the plant-based sector. This translates into security of supply, a certain resilience to fluctuations and the ability to overcome challenges such as crises, climate change, conflict and inflation. Reliable and financially robust thanks to owners such as Leipnik-Lundenburger Invest Beteiligung AG, the company's ongoing investments in technologies that promote plant-based nutrition also cascade down into sustainability benefits.

Vision and strategy

Working as a team, believing that everyone can have an impact and setting themselves high standards, for both people and the environment, GoodMills Innovation produces nourishing and natural products for tasty food that supports a better plant-based future. Looking ahead, the company wants to make a significant contribution to producing contemporary nutrition for people in Europe and strives to make natural, plant-based eating accessible. This is their way of making a brighter tomorrow possible.

To do that, GoodMills Innovation produces natural ingredients from plant-based raw materials,



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benefits from a lot of raw material/processing expertise and has a long history when it comes to texturing plant-based proteins. What's new is the mission to condense this pedigree into a New Purpose business model that incorporates the development of novel technologies to promote a sustainable future. Nowhere is this more evident than the Hamburg site, which combines all the necessary technical requirements in one location. An innovation driver for extrusion with a comprehensive pilot plant, the company has the expertise and equipment for a wide range of processing techniques.

An easy way to an authentic, meat-like texture

Plant-based protein is the meat of the future: it helps to protect the climate with its lower carbon footprint and better use of resources. A quick look at market reports makes this evident. Vegan, vegetarian and, especially, flexitarian diets have become megatrends and many consumers perceive plant proteins to be natural, healthy ingredients that are more sustainable to produce than animal proteins. With GoodMills Innovation's expertise, texturates made from wheat, soy and pea proteins can be used to produce authentic plant-based meat alternatives.

As Dr Gregor Peter, Managing Director at GoodMills Innovation, says: "We're imitators and proud of it. Our specialty is "meat mimicking" or imitating the characteristics of conventional meat products in terms of taste, texture and other

sensory properties. We work on it continuously, innovating, developing and using the know-how gathered from our long experience in dealing with plant proteins. The results make it easy for anyone to create meat and fish alternatives that keep on impressing your customers."



Dr Gregor Peter
Managing Director

With GoodMills Innovation's VITATEX® line of texturates, for instance, which are made from wheat, soy and pea proteins, this process is particularly straightforward. That's because the texturates have many similarities to a conventional meat mass; as such, manufacturers can use machines that are commonly used in the meat industry to produce plant-based ground beef, patties, nuggets or cutlets as they do for meat processing.

The texturates pre-swell with water. In a mixer, for example, the binding system, oil, flavouring and, if required, further water is added until a homogenous and pleasant-tasting mass is obtained. In a similar manner to minced meat mass, the mixture is processed in a cutter or mincer until it is the appropriate size for the final application. The resulting basic mass is now ready to be formed.

"As VITATEX® can be used to produce vegetable products in meat processing facilities, there's no need to invest in new machinery and, in addition, the manufacturer benefits from the



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processing know-how of the product developers and application engineers at raw material stage,” adds Dr Gregor Peter. “The range is suitable for various vegan and vegetarian applications, replicating the authentic sensory profile of conventional pork, beef, poultry and fish-based products.”

Why texture is key

“Texture is the key to an authentic meat alternative and decisive for the purchase behaviour of consumers. If the texture is not in line with expectations, the decision is clear: the product is not accepted as authentic and will not be in the shopping cart again. Don’t compromise on texture,” adds Jürgen Morawitz, Managing Director at GoodMills Innovation.



Jürgen Morawitz-
Managing Director

Consumers — especially flexitarians — still expect a realistic meat-like culinary experience from meat substitutes. The task for food manufacturers, therefore, is to authentically replicate the original product in terms of texture, sensory characteristics and appearance. There’s no room for compromise and special attention to the fibrousness of the components used is therefore vital for processors.

In the production of the VITATEX® range, GoodMills Innovation has drawn on more than 20 years of experience in the texturisation of

vegetable proteins. These insights are a crucial part of the company’s texturising expertise, such as when it comes to authentically recreating a chicken nugget with long fibres or a burger patty with short fibres. The bite and mouthfeel are completely different for each product and so, accordingly, the texturate used must be carefully selected.

Its fibrousness is determined in part by the properties of the protein, which affect elasticity, structure-forming capabilities and general texture. Some texturates are particularly suitable for short-fibred masses such as minced meat, whereas others are perfect for fibrous end products such as poultry or cutlets. Long-fibre protein structures are best achieved with wheat and soy proteins. Nevertheless, it is not just the starting material that’s important, as expertise in the extrusion process determines bite, texture and mouthfeel, which are all vital too.

Convincing results

“Even though VITATEX® texturates are particularly convincing with their texture and fibre-like mouthfeel, taste and appearance are also key,” comments Jürgen Morawitz. “That’s why it’s important to realise that the off-flavours of vegetable texturates can be a challenge. Depending on the raw material, cereal and earthy notes must be minimised or masked. VITATEX® texturates have a neutral to raw material-like taste. However, depending on customer expectations and product concept, this can be masked.”



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The careful preselection of raw materials enables higher product quality. GoodMills Innovation works with selected farmers throughout its projects to source the best raw materials with defined quality characteristics. Even so, an almost “real” imitation meat product will not work without flavour. Yet with carefully selected flavours and spices, convincing results can be achieved.

Whether food manufacturers choose the wheat, soy or pea variety, or a mixture, depends largely on the product concept and positioning they are aiming for. Wheat and soy extrudates are already established and the fact that the products are also available with EU origin brings obvious advantages. Peas combine regionality, sustainable cultivation and tradition, and are thus particularly suitable for a target group that makes its purchasing decisions very consciously. With all three raw materials, common meat and fish applications can be faithfully imitated.

Recognising demand, retaining customers

Demand for alternative products based on vegetable proteins has been rising steadily in recent years, and further growth is foreseeable. The most relevant target group is flexitarians — people who want to reduce their meat consumption for health, ethical or environmental reasons, but do not follow a consistent vegan or vegetarian diet and are open to new product concepts. Accordingly, in multi-person households, statistically there are almost always people who prefer to reach for plant-based alternatives. So, to offer the right solution for everyone at the dinner table, food and meat manufacturing companies should seriously consider expanding their portfolios to include authentic plant-based concepts.

Take-home message

Yes, easy handling is important, as mentioned previously. Processing VITATEX® is much simpler than you might think. You can even use your existing machines and no new investments are needed. Even better, they’re based on wheat, pea and soy. Compared with meat, these raw materials have a significant cost reduction potential and offer increased yields, so there are financial advantages too.

But that’s not all, GoodMills Innovation texturates are rich in protein, a key fact on the label of certain products. Your customers will also be attracted by properties such as low sodium, low saturated fatty acids and zero cholesterol. And, finally, VITATEX® texturates come with a very clean conscience. Non-GMO raw materials of European origin are used for all products, including the VITATEX® soy texturates. As such, they’re clean label-compatible, healthy, natural and sustainable.



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