

# New hit from the beetles

*Protifarm is a major innovator in the production of insect-based high nutrition derivatives for the food industry. "We believe insects will play an important role in solving the world's food problems," said CEO Tom Mohrmann. Colin Chinery reports.*



**G**lance at the trolleys of enterprising German supermarket shoppers and some unlikely items could be mixed in with the routine buys of the health-aware consumer.

Along with the yoghurts, green tea and daily five vegetables and fruits might be insect burgers made of buffalo worms, insect muesli, mealworm noodles, and salads with insect croutons.

And in less venturesome Britain, last year Sainsbury's became the first UK supermarket to stock edible insects; barbecue-flavour roasted crickets.

The high protein buffalo worms are the larvae of buffalo beetles, farmed and refined at Protifarm in the Dutch town of Ermelo, and produced for the food and pharmaceutical industries.

"Most insect breeding and farming is for animal feed," said Protifarm's CEO Tom Mohrmann. "But in the insects for human food consumption sector I know of no one offering ingredients on the same scale and availability as Protifarm."

"We are the first in the world to offer ingredients that can show functionality in recipes, and this sets us apart."

## A world first

The company history reaches back almost 40 years to 1981 and the founding of Kreca, one of the most recognised and respected insect producers worldwide. Formed in 2015, Protifarm acquired

Kreca the same year, and is currently scaling up its operations for the food industry.

With good nutrition a critical element of a healthy lifestyle, there is increasing awareness of high-quality natural food.

"At Protifarm, we understand this desire by producing high quality, natural and healthy ingredients from insects for human consumption," stated Mr Mohrmann.

In a world of food insecurity and hunger, insects are seen as an environmentally efficient source of nutrition. But instincts and perceptions make many immune to conversion.

## Overcoming consumer misconceptions

"The media is sending out a picture of people eating whole insects, and while that's possible, it's not what people in Western Europe are used to," said the CEO. "And this is still the perception in the food development and processing sectors."

But that picture said Mr Mohrmann, is misconceived and fundamentally wrong.

"We are not producing insects that can be eaten as a whole; we are producing valuable and sustainable ingredients out of an insect that can be used in regular food applications and diets."

"One of the most popular protein concentrates is collagen, which is made from the bones of dead animals. We make a powder ▶"

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out of insects, and many people would reject that while happily consuming proteins made from the bones of dead animals. I find this a strange contradiction."

To expand and grow, the insects-for-food industry must show clear benefits, said Mr Mohrmann.

"It's all about three things; what we make needs to be tasty, have a function in a recipe – and that can be enhancing or replacing – and it needs to be affordable. For a while, it will remain a little premium, but in scaling up we will become more affordable over and over."

A sports nutrition product with a soluble protein powder is one example of this functionality; a textured insect protein that can be added to enrich meat or used as an alternative is another.

"It can enhance a plant-based product otherwise lacking certain nutrients, proteins or certain amino acids, or replace part of it," Mr Mohrmann suggested. "It can also be developed as a stand-alone product – an insect burger for example."

While the sustainability issue is seeing consumers moving increasingly to plant-based food, there is a downside said Mr Mohrmann.

"In moving away from animal protein, people complain about the quality of the proteins they consume. So now we are offering a product that has the high-quality protein derived from animals and is even more sustainable than the plant-based solution. And this is where the magic is."

### Mind shift

With Protifarm delivering attractive and demonstrably functional ingredients, Mr Mohrmann is seeing "a huge mind shift, with companies now recognising the potential."

"The food industry had not been aware of these capabilities and products. But now with functionality awareness, along with high quality, availability and affordability, growth is taking off. It's a little bit like chicken and egg."

The insect ingredients-for-food credentials are impressive. Insects are easier to raise, require less water, and feed on waste materials. Delivering double the protein of beef, they also have an extremely short reproduction cycle compared to traditional livestock (weeks instead of months or years) and need less land, water and feed and produce less greenhouse gasses.

Then there is the state of origin factor. Many types of protein are derived from sources either grown or bred using chemicals and antibiotics and fed with modified fattening ingredients – all finding their way into the eventual protein, and so to the end-consumer.

Protifarm, said Mr Mohrmann, offers a 'clean' alternative.

"We take great care to produce healthy and clean products to maximise the effectiveness of the natural high-protein concentration in insects. Our insect products are free of any chemicals and antibiotics, making them an ideal and clean addition to a diet."

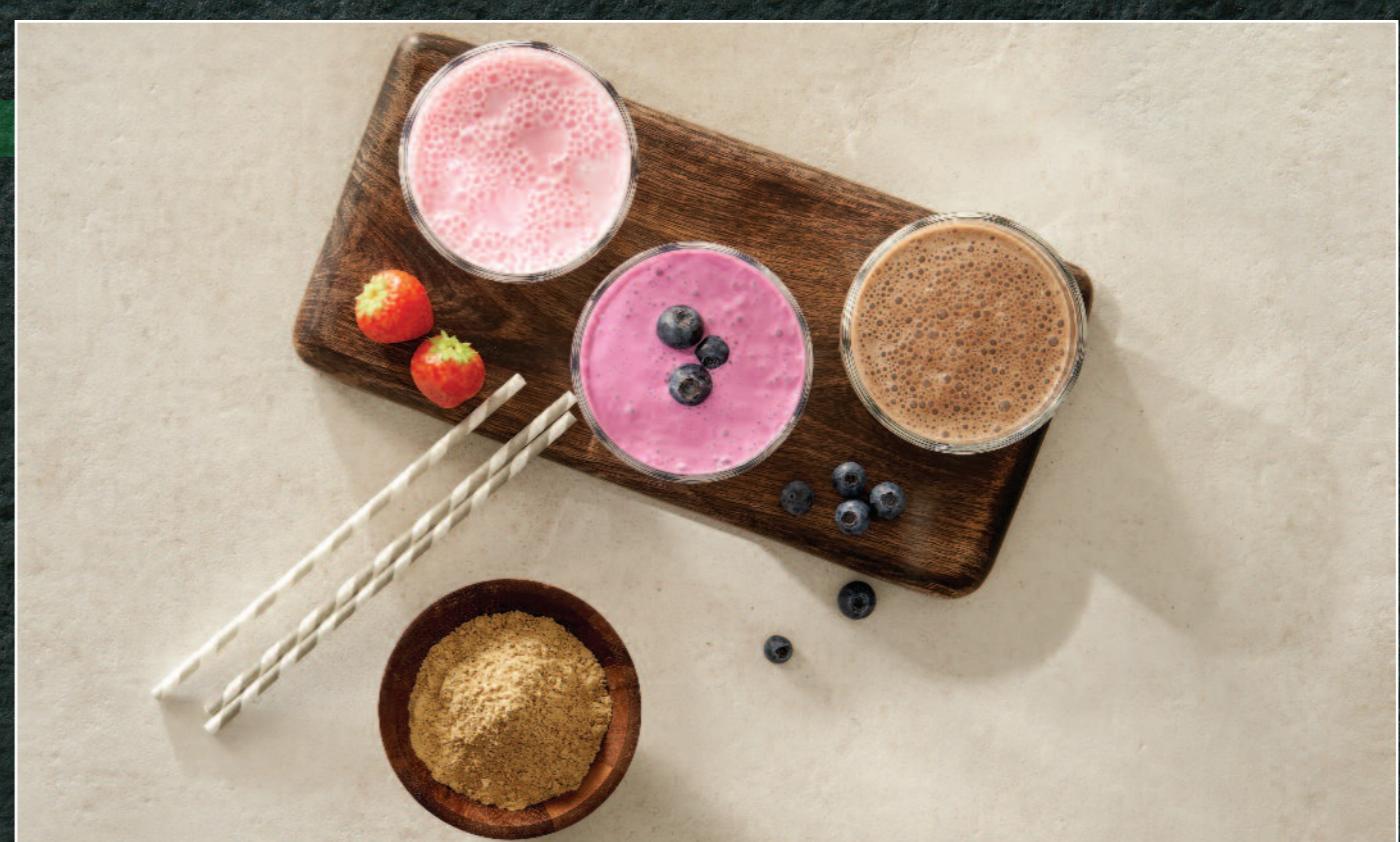
But while insects have long been one route in the search for more nutritious and environmentally sensitive foods, production has been hampered by relative low output and high start-up and manual labour costs.

### Cost break-through

Now Protifarm has made a major break-through, lowering costs and increasing output through upscaling and automation; technological advances that have enabled it to produce insects for the food industry on an unmatched scale.

In the fully automated Protifarm facilities, all breeding, feeding and handling processes are performed by software-driven robotics. In a two-operation 28-day process, insect eggs – later emerging as larvae – are bred and reared to produce a nutritional-dense profile before being moved to the adjoining processing facility. And with only minimal guidance from a team of dedicated operators, Protifarm has significantly reduced overall labour costs while increasing output.

Beetles are the most popular six-legged ingredient, and at the close of 2019, Mr Mohrmann said there will be "a continuously



scaling-up operation of hi-tech in combination with biology" aimed at producing thousands of kilos per day, Mr Mohrmann estimates there will be "more insects on our 2,000 sqm breeding site than there are people on the planet."

### Global growth – and a paradox

Protifarm is selling in Germany – a particularly promising market – the Netherlands, France, Spain, the USA and Canada. And with a developing footprint in Mexico, Protifarm is now in talks with companies in Japan and South Korea. But there is a paradox.



**Tom Mohrmann – CEO**

"In the European food market, the Netherlands, Sweden and especially the UK have always been ahead," said Mr Mohrmann. "In fact, here in the Netherlands we have looked at the UK which has been foremost with innovation, new products and so forth."

"But with insects, this has been a little bit different. Where are they? Why isn't there a big line up of products in Tesco or Sainsburys such as there is in German markets? This fascinates me."

If consumer reluctance remains a major hurdle to be overcome, the taste and benefits soft-sell is the best and only way to popular acceptance, said Mr Mohrmann.

"We don't need to develop or change consumer behaviour in a very strict way, we just need to supply people with solutions that they recognise and can fit into their regular diet."

"It all starts with tasty food. Then you can make big steps."

