Agritech

Ÿnsect hatches plan for food chain sustainability

The French start-up's insect protein for animal feed could ease environmental strain

Emiko Terazono 2 HOURS AGO

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When Antoine Hubert was growing up in the French Alps, he loved collecting butterflies and taking pictures of insects. Later, he took a degree in agronomy and studied the importance of insects and earthworms to soil biodiversity.

Hubert combined his fascination for insects with environmental activism: in 2007 he formed Worgamic, a non-profit organisation that focused on food sustainability, urban agriculture and organic waste recycling.

But, frustrated at failing to make an impact with his educational talks on these topics and the importance of insects in the food chain, in 2011 he set up Ÿnsect. The company, based in Evry near Paris, was co-founded with Jean-Gabriel Levon, Alexis Angot and Fabrice Berro, and turns mealworm larvae into fish feed, pet food and fertiliser.

From its beginnings in a small research lab, Ÿnsect now supplies protein produced from insects bred in a vertical farm in Dole, eastern France. Last year the company raised $125m, the largest ever agritech investment round outside the US. It is also preparing to scale up production to more than 25,000 tonnes of insect protein

a year with a new insect farm to be built near Amiens, northern France. With that, Hubert feels he is starting to make a difference. “It has been our ambition to make an impact,” he says.

The sustainability case for insects as sources of protein is a compelling one. To serve a global population that is expected to reach almost 10bn by 2050, food production needs to increase by about 70 per cent, according to UN forecasts, with demand for animal protein in particular increasing the strain on the environment. Analysts at Barclays, the UK bank, estimate the insect protein market could be worth about $8bn by 2030, up from less than $1bn today.

The company’s premium insect-based fertiliser

For now, Ÿnsect is focusing on producing feed for animal and fish consumption, rather than food for humans. Premium protein in feed, especially for fish, traditionally has come from grains and fish caught in the wild — principally off the coast of South America — at a time when fish stocks have been falling. One tonne of insect protein, however, could mean five tonnes of fish in the ocean are protected.

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Soyabeans and corn are also important feed ingredients, but large-scale farming of them has been blamed for soil degradation. Meanwhile, overuse of chemical fertilisers has caused dead zones in coastal waters, threatening fish stocks.

Containing high levels of protein, vitamins and minerals, insects are also seen as an environmentally friendly alternative to meat and

fish for animal and human consumption, reducing the stress on the food system.

French president Emmanuel Macron meets Antoine Hubert (centre) at a trade show last year

The appeal of insects as feed is that they are a natural part of the diet of chicken and fish, says Beyhan de Jong, an analyst in animal protein at Dutch bank Rabobank. Insects could also help solve the problem of food waste, she says, as they feed on by-products such as bran, distillers' grains, and unsold fruit and vegetables, as well as peel. "They are part of a circular economy," says de Jong.

The natural and sustainability angle is key for consumers: they appreciate it

Antoine Hubert

Hubert says the use of insect protein in feed, especially for fish, finds favour with environmentally conscious consumers. "The sustainability and natural angle, it's key for consumers and they really appreciate it," he says. He adds that using insects as part of the protein mix for feed is "not the sole solution — it's part of the sustainable supply of food".

Nevertheless, it could play a big role if research confirms some of the anecdotal evidence from customers, such as fish feed companies, that insects help animals and fish grow faster and make them healthier and less prone to disease, compared with other types of feed. "We are discovering the benefits of insects, although more research needs to be done," says Hubert.

An employee checks on the mealworm prior to protein production

As with many other agritech start-ups, Ÿnsect has been backed by investors that believe sustainability makes good business sense. The latest funding round, led by Brussels-based venture capital firm Astanor Ventures, brought the total raised to $200m.

Ÿnsect has patented more than 20 of its manufacturing technologies

London-based Talis Capital, an early-stage technology venture capital firm that generally invests €2m-€10m in companies, has put €14m into Ÿnsect, making the French company its largest investment.

Apart from the size of the animal and fish feed market — worth about $490bn a year, according to Talis — the venture capital firm was attracted to Ÿnsect's industry-facing model, which contrasts with consumer-focused plant-based protein companies such as Beyond Meat and Impossible Foods, says Matus Maar, Talis's co-founder and managing partner. "It's really difficult to find a company that has a really great business model but also is sustainable," he adds.

Ÿnsect mealworm at dffierent stages of growth

In this nascent sector, about 50 insect-farming companies have raised a total of $480m to date, according to Sifted, an FT-backed service that covers European start-ups. Since the European Commission approved the use of insects in fish feed in 2017, more than 5,000 tonnes of insects have been sold in Europe, according to the International Platform of Insects for Food and Feed, an industry association in the EU with more than 40 members.

Cargill, the leading US agricultural trader, last year added its stamp of approval to the sector when it announced a strategic partnership with another French insect company, InnovaFeed, to supply the animal feed market. Besides InnovaFeed, Ÿnsect's competition includes start-ups such as Protix of the Netherlands, Enterra Feed in Canada and AgriProtein of South Africa. "Competition is welcome. There is room for everyone," says Hubert.

He is confident Ÿnsect has an edge. The start-up has taken ideas from vertical farms that produce leafy greens and herbs. Mealworm larvae are stacked in a tower, while robots move them round the factory. But, like vertical farming, scaling production capacity and high costs present challenges for insect companies. Hubert says the use of robotics can bring costs down, and Ÿnsect has patented more than 20 of the technologies used in the manufacturing process.

Ÿnsect's mealworm powder goes into fish feed and premium hypoallergenic pet food, while the manure is turned into fertiliser. Customers include international fish feed company Skretting and Spanish winery Torres.

After the BSE (or "mad cow disease") crisis in the late 1990s, Europe clamped down on the feeding back of processed animal proteins to livestock; now only fishmeal may be used. Lobbying led to the relaxation of rules preventing insect-based protein being fed

to fish, and many of the insect feed makers are hoping their products will gain approval to be given to chickens and pigs.

Ÿnsect says it has signed a total of $100m worth of contracts with feed, pet food and fertiliser companies, and is in talks with other potential customers. The company is looking to build 15 factories around the world by 2030, in North America and south-east Asia as well as Europe, producing 1m tonnes of insect protein a year in total.

Although, according to the UN Food and Agriculture Organization, about 2bn people in more than 130 countries already regularly eat insects, Hubert does not see insects becoming a big part of the food supply for humans in western countries. “There will be some technical applications, such as sports nutrition and health supplements for people who need to take in extra protein,” he says.

The appeal of insects is limited for the western consumer, agrees de Jong at Rabobank. “It’s much easier for people to eat salmon that has consumed insects than to consume insects directly,” she says.