

Insects as an alternative stockfeed

THE German start-up company Farmlnsect has developed a technology to breed insect larvae as protein feed for farm animals. Founded by graduates of the Technical University of Munich (TUM), the company plans to start a pilot plant at one of the largest fish farms in Bavaria within a few weeks.

The founders of Farmlnsect (Wolfgang Westermeier, Thomas Kühn, and Andre Klöckner) have developed their company based on the principle of using agricultural biomass in a circular economy. Accordingly, residues that accumulate in the region, such as harvest or peeling residues from an agricultural operation or residues from the regional food industry, such as spent grain or bread, can be used to fatten and feed insect larvae, which can in turn be used as feed for livestock animals.

The use of insect meal in European aquaculture has been legally permitted since the end of 2017 and an approval for use in poultry and pig fattening is expected in 2021, especially since feeding of live insects to chickens, pigs, and fish is already permitted.

“Our decentralised method of insect production offers the ability to feed the larvae live because there are no long transport routes. This stimulates the animals to beck and burrow (their natural instincts) more effectively and thus promotes animal welfare,” says co-founder and agricultural scientist Wolfgang Westermeier.

Producing feed locally from regional residues

Farmlnsect supplies insect breeding systems that can be integrated modularly into the infrastructure of any animal breeding farm. “The most difficult thing is to turn eggs into juvenile larvae,” says Farmlnsect managing director and co-founder Thomas Kühn.

Farmlnsect therefore breeds the young larvae of the Black Soldier Fly – a particularly undemanding and robust insect species



The black soldier fly is an especially robust and undemanding insect. (PHOTO: Farmlnsect)

– in its own facility and delivers them to farms on a regular basis and in accordance with the respective regulations.

In one week of fattening, the young larvae can grow to as large as 1.5 cm in a climate chamber and increase their weight by a factor of 1000. To produce their insect feed, the operators only have to fill a mixing pot with biomass and load the climate chamber with young larvae and then unload it with the adult larvae. The larvae can then be fed directly to farm animals – currently mainly fish, but probably in the future also to chickens or pigs.

When using regional residues as feed, the strict regulations of feed legislation must be observed. A special challenge is the complete traceability of their origins. “We have developed an IT platform to document this,” says Andre Klöckner, who is responsible for technical development and programming.

First larvae breeding in the laboratory

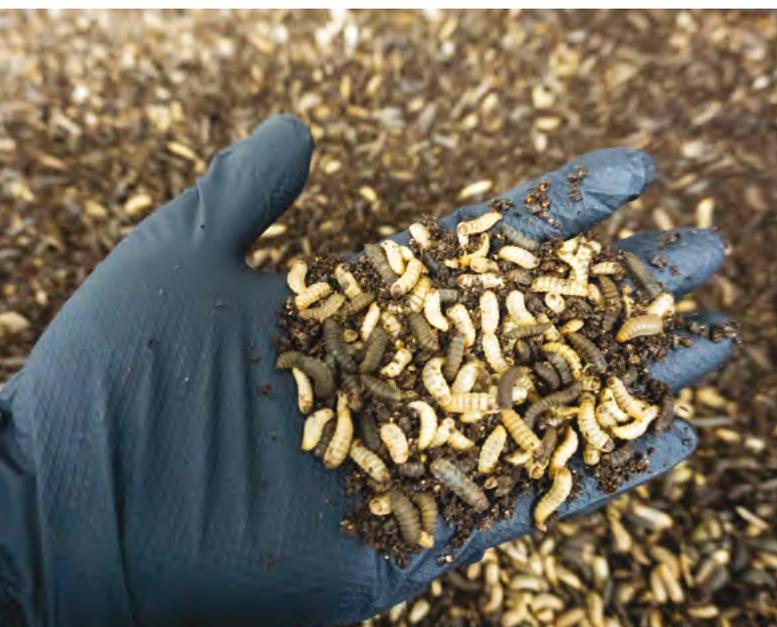
The founders are an interdisciplinary team from the fields of agricultural sciences, electrical and computer engineering, and economics, who got to know each other through projects at the TUM. “The decisive factor for us was that we were able to use rooms in the TUM’s food technology centre at Weihenstephan that were suitable for our first larval breeding,” says Wolfgang.

Pilot plant in a Bavarian aquaculture enterprise

Farmlnset has been supported by the Bavarian Ministry of Agriculture and the European Union (EU) since April 2020 as part of the “European Innovation Partnerships” program.

In the (northern hemisphere) summer of 2020, Farmlnsect was accepted into the EIT Food Accelerator Network of the EU as one of the most promising food and agritech start-ups in Europe. A pilot plant will be commissioned at one of the largest aquaculture enterprises in Bavaria.

The Technical University of Munich (TUM) is one of Europe’s leading research universities, with around 600 professors, 43,000 students, and 10,000 academic and non-academic staff. Its focus areas are the engineering sciences, natural sciences, life sciences and medicine, combined with economic and social sciences. TUM acts as an entrepreneurial university that promotes talents and creates value for society. See: www.tum.de



In one week of fattening in a climate chamber, the young larvae grow to over 1.5 cm and increase their weight by a factor of 1000. (PHOTO: Farmlnsect)