Insect Farming Just Got Smarter with European bio-tech Nasekomo

Why this matters for the feed and food industries?

Marc Bolard, co-founder and CEO of the European bio-tech company Nasekomo

SOFIA, SOFIA, BULGARIA, April 1, 2025 /EINPresswire.com/ -- The European biotechnology company Nasekomo, being at the forefront of insect farming, has reached a major milestone in its industrial platform development. This winter, its proprietary Automated Insect Rearing Beds and Bots platform achieved 25% feed conversion ratio (FCR) – a performance level that sets a new benchmark for the profitability of the insect bioconversion industry.

The record, which is one-third higher than that of traditional crate-based solutions, was obtained in real industrial conditions at Nasekomo's facility near Sofia, Bulgaria. It confirms the viability of a zero-crate, fully automated approach to rearing Black Soldier Fly (BSF) larvae at scale. The milestone reflects five years of continuous development and optimization of the platform.

> While we're starting with insects, this business model can apply far beyond—greenhouses, mushrooms, poultry... you name it. But insects? They're the perfect place to start."
>
> *Marc Bolard*

"This is a key moment for our industry. The result shows how insect farming can truly scale and compete. At the current improvement rates, we aim at operating at this efficiency level or more in the short term, from 2026 onwards. Furthermore, our process has much lower mortality rates than in crate-based systems." said Marc Bolard, Co-founder and CEO of Nasekomo.

Reinventing insect farming

The Automated Insect Rearing Beds and Bots platform redefines industrial insect farming through deep-substrate vertical farming, robotics and AI-powered analyses, and full environmental control — all without the use of crates. "Our system allows us to monitor in real time the entire volume of the rearing substrate with up to 20 cm

height. We collect and act on data throughout the process, something crates simply can't offer," explained Kamen Vasilev, Head of Bioconversion and Processing at Nasekomo, adding: "The platform allows us interventions at any moment during the process".

The heart of the platform is a plowing robot equipped with integrated sensors, capable of adjusting humidity and temperature at every stage of larvae growing. Designed for adaptability, the robot supports a wide range of current and future needs — including mixing, watering, refeeding, cooling, heating, and real-time monitoring. This enables dynamic optimization of the conditions in the platform, thus ensuring stable development and maximizing growth through the whole process.

In fact, the record FCR was achieved with three times less ventilation capacity than traditional systems, thanks to a highly efficient heat exchange system built into the automated rearing platform. As Marc Bolard puts it, "The larvae self-regulate their environment at almost no utility cost thanks to synergies between growing batches, ventilation, robot operations and materials and structural designs."

Designed for the Future

Each platform unit spans up to 81 meters in length and 12 floors in height, with a processing capacity of around 16,000 tons of feed per year, potentially yielding up to 4,000 tons of larvae annually at the 25% FCR rate. It integrates advanced AI for monitoring, intervention, and optimization — ensuring a modular, energy-efficient, and profitable solution for the insect industry.

"We've taken millions of baby steps to get here — and we're just getting started. The platform is future-proof, and we'll keep developing it thanks to our partnership with Siemens, which brings industrial-grade precision and digital intelligence into insect farming," added Marc Bolard. Developed over five years and protected by 5 patents (with 18 more pending), the Automated Insect Rearing Beds and Bots is the industry's first modular and robotic platform that automates every step of insect rearing — from feed loading and neonates seeding to environmental monitoring, harvesting, and cleaning. Intelligent surveillance is possible thanks to the robotic system, capable of 24/7 autonomous operation and ensuring real-time decision-making. Fully compliant with Industry 4.0, the system is going to be integrated with production digital twins designed by Siemens software, ensuring future scalability.

Why this matters for the feed and food industries?

As the food industry seeks more sustainable, resilient supply chains, Nasekomo's breakthrough shows how insect bioconversion can unlock alternative proteins and fertilizers at industrial scale. By reaching a 25% feed conversion ratio with a fully automated, crate-free system, we're proving that insect farming can be efficient, scalable, and ready to support future food systems — from animal feed to regenerative agriculture inputs.

Founded in 2017 by the serial entrepreneurs Xavier and Olya Marcenac together with the biologist Marc Bolard, Nasekomo is a biotechnology company pioneering sustainable insect bioconversion through Black Soldier Fly

Nina Mircheva
Nasekomo EAD
email us here
Visit us on social media:
LinkedIn
