



# RUSSELL FINEX

Global Sieving & Filtration Specialists

## Organic waste is converted into renewable resources with the help of the Russell Eco Separator®

### Millibeter utilizes a Russell Finex screening solution to optimize the production process and increase screening capacity when upscaling production to a pilot plant

Tons of organic waste, such as fruit and vegetables, are thrown away by the retail sector every day. Johan Jacobs, Founder and Fly Master of Millibeter, sought to address this issue and found a natural process to reduce organic waste while generating sustainable raw materials.

Founded in 2012, Millibeter breeds the *Hermetia illucens* (Black Soldier Fly) to feed on organic waste. This fly was chosen as it only eats when it is in larvae stage, preventing the spread of diseases and bacteria. In addition, the larvae consists of chitin, fat and protein, making it suitable for use in many applications including agricultural, industrial, pharmaceutical and chemical processes. As part of the overall process, the fully grown larvae need to be sieved before they are packed. Millibeter initially sieved the larvae manually but could not meet the capacity or sieving accuracy needed when upscaling to a pilot plant. The company therefore turned to Russell Finex for a sieving solution.

#### Breeding and production process

A few days after the *Hermetia illucens* flies have bred, they lay eggs which hatch after two days. These hatched larvae are then fed organic waste, mainly unsold fruit and vegetables collected from supermarkets or farmers. The larvae will eat up to three times their weight, and with 5 million larvae being processed at one time, up to 500kg of organic waste is consumed every day. Once the larvae have grown to 1.5cm, they are sieved and processed before they pupate, and are then packed and supplied for research projects or to be processed in industrial applications such as the production of detergent, soap and lotions, or biodiesel.

The sieving process consists of the larvae being screened into four fractions. The first fraction contains the grown larvae which are ready to be packed, while the second fraction consists of smaller larvae which still need to be fed



Figure 1. The Russell Eco Separator® installed to screen larvae into four fractions

- Suitable for wet or dry applications
- Accurately grades material on up to five predetermined fractions in one operation
- Easily adjustable to provide absolute control of material movement on the screen surface

to grow larger. The third and fourth fractions are remaining organic waste and oversize waste such as stones and twigs.

Millibeter initially used a manual process to sieve the larvae, which proved to be labor-intensive as well as a bottleneck in the production process. With the introduction of the pilot plant, the company sought a new, more efficient solution, and turned to Russell Finex, global leaders in separation technology.

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### Screening solution

Following an in-depth consultation, Russell Finex offered to trial the Russell Eco Separator® at their own specialized testing facility in Mechelen, Belgium. With the trial generating successful results, an onsite trial at Millibeter's site was also provided. Jacobs comments "We were very satisfied with the service Russell Finex offered us. By trialling the machine at both the Russell Finex facility and at our site we were confident that the machine was the right one for the job." Subsequently, the company purchased a 30" Russell Eco Separator®.

The Russell Eco Separator® is a **high performance, versatile separator** which is commonly used to grade wet or dry materials, but is also suitable for other separation methods such as dewatering, dedusting or product recovery. The machine was chosen for this application due to its ability to accurately grade material on up to 5 fractions in one operation. This allows Millibeter to quickly and efficiently screen the larvae into the required 4 fractions. The design of the separator also ensures ease of operation and quick and easy cleaning, significantly reducing downtime.

With the installation of the Russell Eco Separator®, Millibeter has been able to prove the scalability of their concept, allowing them to envisage processing up to 40 tons of organic waste a day in their upcoming production facility. Jacobs states, "With the Russell Eco Separator installed not only have we been able to upscale our production to the capacity we need, but we have also saved a lot of time which had previously been spent on the manual screening process".

Jacobs concludes "Russell Finex has helped us achieve our mission to increase the amount of renewable resources generated from the tons of organic waste which would otherwise end up in landfill". Millibeter is now able to grow approximately one million larvae a week, and hopes to upscale production even further in the near future.

For over 80 years Russell Finex has manufactured and supplied **sieves, separators and liquid filters** to improve product quality, enhance productivity, safeguard operator health, and ensure liquids and powders are contamination-free. Throughout the world, Russell Finex serves a **variety of industries** with applications including food, pharmaceuticals, chemicals, paint, coatings, metal powders and ceramics.



**Figure 2.** Johan Jacobs, Founder and Fly Master of Millibeter, demonstrates the larvae screening process.

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