

Production of Black Soldier Fly, an Innovative Approach to Sustainable Animal Feed, Climate Change Adaption and Environmental Protection in Rwanda

Malick Kayumba

Learning and Communications Specialist, and

Patrick Niyomugabo

Market Analyst, CASA Rwanda

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INTRODUCING MAGGOT FARM AND BSF

Maggot Farm Ltd operates in Kamonyi District in Rwanda's Southern Province. Established in 2019, the company is owned by two young innovators working hard to address a production gap in raw materials for animal feed whilst contributing to climate change adaptation and protection of the environment. Through a partnership under the poultry value chain, CASA supported Maggot Farm to expand their production capacity and provided technical assistance for the company to become investment ready. This partnership built on the extensive knowledge acquired by Maggot Farm through the earlier IMSAR (Improving Market Systems for Agriculture in Rwanda) project with the support of FCDO.

Rwanda continues to face the challenge of a shortage of raw materials for animal feed (including soya beans and fishmeal) imported at high cost from neighbouring countries. Maggot Farm's production of Black Soldier Fly (BSF) using local raw materials is benefitting the livestock value chain and being used as an alternative to soya beans in feed production.



Maggot Farm's four operational greenhouses

SCALING UP BSF REARING FOR SUSTAINABLE ANIMAL FEED PRODUCTION USING LOCAL RAW MATERIALS



Mr Francis Kavutse, CEO of Maggot Farm

Mr Francis Kavutse, one of the co-founders and the current CEO of Maggot Farm, is a professional aquaculturist who studied insects. He came up with the innovative idea of producing BSF after he kept hearing during his consultancies that fish and poultry farmers always face a big challenge of high cost and availability of imported protein and feed. Mr Kavutse is confident to say that the partnership with CASA between August 2024 and June 2025

has been a success, in that Maggot Farm increased production of BSF from 1.6 tonnes per month to 4.3 tonnes, and from 5 tonnes per month to 12 tonnes of organic fertiliser for sale to smallholder farmers. He commented that this is because they managed not only to get financial support to increase their equipment capacity for higher BSF production but also because the technical support allowed them to access loans and grants, thus enabling them to manage the business in a professional and profitable manner.



Research and training centre



Organic compost store and waste treatment unit

Mr Kavutse revealed that – before partnering with CASA – only one greenhouse was fully operational and two were run down. Today, however, there are four fully functioning greenhouses, including a brand new one granted by CASA with all the equipment (crates and shelves). Maggot Farm invested in renovating the other two greenhouses. They have increased by 3,000 the number of crates and shelves for two of the three greenhouses. He also added that the CASA support in those areas enabled them to prioritise their own resources to complete the rehabilitation of the farm, including the installation of water tanks and electricity. They also increased the capacity of the hammer milling machine in their new milling section, constructed and equipped a research and training centre, and an organic compost store, and brought in a new milling machine to process dried BSF larvae.

Of the partnership, Mr Kavutse said, “CASA has done a lot for me; they came from the connection with IMSAR and everything you see here is either from IMSAR or from CASA. I also added my money mostly for renovation work and processing, but the big part is from them, including the technical assistance by hiring consultants who worked with me to put in strong financial and management systems. I am confident to say that I now have proper bookkeeping and other electronic financial management systems, and a business plan that I am proud to take everywhere to request for loans or grants. I have also just secured a £90,000 grant from LuxDev which will also help secure a £26,000 commercial loan from I&M Bank and this was an effort led by the support provided by CASA on investment readiness.”

In terms of their production capacity after the implementation of this strategy, the CEO of Maggot Farm added, “We are currently able to produce from 2.5 tonnes to 12 tonnes of fresh BSF larvae for every cycle of 45 days from the four greenhouses. I am planning to add more layers in each greenhouse to be able to quickly reach 15 tonnes per cycle and maybe soon we will be able to satisfy the current demand on the market which goes up to 70 tonnes per month.”

Maggot Farm owners have invested over 80 million Rwandan Francs (£41,016) in the company since they started, and the CEO says he is ready to continue because they are now investment ready and they are doing this as a serious business that has to make a profit. Mr Kavutse emphasised that the company has contributed 19.5% more than was originally committed in the project plan agreed with CASA, because they now have a clear business plan that shows what they want and where they want to be in the next five years. He shared that, “We are not doing this based on milestones but because we take this as a business and we need to be profitable. We are excited because we are now ready for investment.”

MAGGOT FARM CONTRIBUTION TO CLIMATE CHANGE ADAPTATION AND ENVIRONMENTAL PROTECTION

When Maggot Farm started its work in Kamonyi, it was not easy for the community to understand why the company was breeding flies and spreading bad smells. After providing them with training on climate change and how all together they can protect the environment, they became Maggot Farm partners. He said, “Today, a large number from that same community bring here anything they have as organic waste from their homes. I buy it and feed my maggots, which decompose it and when they come back, I give them organic compost to use in their garden. That means they are getting double benefit from this company because I save them from being contaminated with waste; we protect the environment, and at the same time they get money from the company.”

He added that there is another specific group of people from that same community he trained, who have begun farming maggots in their backyards, and after the company buys the product from them to increase its capacity. He shared that today up to 60% of the community members (around 140 people from surrounding villages) have already understood climate change and the fact that any waste can be of additional value for them. The company’s target is that by the end of September 2025 they will be able to

cover all villages located in the sector Maggot Farm is operating from in Kamonyi District.

Feed production is among the biggest contributors to climate change and BSF feed can increase the quality of the chicken meat due to an increase in weight gain of 23% and a growth rate increase of 37%. BSF feed can also result in an increase in the quantity of eggs by 62%, according to research by the International Centre of Insect Physiology and Ecology (ICIPE). BSF larvae are fed with organic waste from households or industries. Food waste treated with insects is widely recognised as an environmentally friendly approach for recycling waste. Using waste as a resource to produce high-quality protein BSF reduces dependence on expensive protein sources including fishmeal and soya.

IMPACT OF THE MAGGOT FARM ACTIVITIES ON THE SURROUNDING COMMUNITIES

Mr Kavutse is happy to share that many smallholder farmers from the community surrounding Maggot Farm who used to withdraw from poultry farming – due to high cost associated with animal feeds – are coming back because they now have easy access to cheap, quality feed. From using fishmeal that was costing them up to 2,000 Rwandan Francs per



Ms Christine Uwababyeyi

kg when available, they can get 1 kg of BSF for 800 Rwandan Francs. With the newly constructed research and training centre, Maggot Farm aims to train farmers, starting with those from the surrounding community, and then give them what they need as start-up to be able to produce maggots in their yards. Maggot Farm

will then buy their larvae, process them and sell them to feed factories as feed additives. Mr Kavutse said that it is part of the Maggot Farm solution to help meet the demand which is still high because they do not yet have branches around the country to boost production.

Since July 2025, 125 farmers from five cooperatives are buying BSF products from Maggot Farm, benefiting from more affordable and readily available surplus production. Additionally, for home use, Maggot Farm started marketing BSF powder through a network of 320 agro-dealers and poultry farmer promoters from Kamonyi, Muhanga, Huye and Nyamagabe districts, ensuring that BSF powder will be accessible to smallholder farmers to support the rearing of their small flocks.

Maggot Farm currently works with up to 150 smallholder farmers, among whom 45% are women. Most of them are young, including single mothers interested in rearing BSF. Now, Maggot Farm has trained 30 of them on BSF rearing techniques and provided them with BSF eggs as well as the nets to start their own small home BSF production units. Christine Uwababyeyi, one of the neighbouring smallholder farmers, received training in BSF rearing techniques and was supported with “seed” eggs and a net by Maggot Farm to establish a small home-based BSF production unit (see photos below). This initiative, piloting an out-grower model, not only contributes to increasing Maggot Farm’s productivity but also creates new income opportunities for Christine. She currently produces 8 kg of BSF larvae per cycle, which she sells back to Maggot Farm at RWF 600 (£0.32) per kg. Encouraged by this progress, Christine is now determined to expand her production capacity and further improve her livelihood.





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