

CONVERTING WATER HYACINTH INTO ORGANIC ANIMAL FEEDS BY THE BIOFIT COMPANY IN KENYA

Since 2018 the [Biofit company](#), based in the Kendu Bay of Kenya, collects the water hyacinth that infests the Lake Victoria to convert it into organic and nutritious animal feed products. The approach of Biofit is to promote small scale farming through the provision of quality innovative agricultural products and services at the best competitive prices in a healthy environment.



[Jack Oyugi](#), the biotechnologist who created the [innovative production process](#) and founded the Biofit company, has been recognized as one of the 15 finalists at the prestigious [Africa Prize Award for Engineering Innovation 2019/2020](#) organized by the Royal Academy of Engineering (United Kingdom).

For decades, water hyacinth has been wreaking havoc on Lake Victoria in Kenya, covering vast swathes of its surface. The plant blocks out light, dramatically reducing the amount of oxygen in the lake and killing off fish. It also makes access to the open lake increasingly difficult for fishermen. Countries surrounding Lake Victoria have been heavily damaged by this fast-growing plant because it prevents fish from breeding, blocks tunnels, which leads to flooding, and clogs municipal water intakes, limiting communities' access to water. It also curbs tourism by preventing boat rides and fishing.



Lake Victoria annually produces 400,000 tonnes of freshwater hyacinth and the Biofit company contributes to solve the serious environmental problem enhancing a water hyacinth value chain, turning the plant into high-quality livestock feed products. The company is currently removing 2 tons of water hyacinth weeds a week from the lake surface. With this, they are able to produce 5 tons of livestock feed a month.



Once collected from the Lake, the water hyacinth is steam boiled, dried, crushed and fermented to make a protein-rich powder, which is then mixed with minerals and energy-rich materials like maize bran to make an affordable animal feed for poultry, dairy and fish farmers. The patented fermentation process uses a local fungus to increase the protein levels to 50%. The process also removes contaminants from the plant and softens the fibrous lignose that makes it tough to chew. All the processed products are safe and healthy for animals to feed up, due to the rigorous production stages it undergoes. They are free of any synthetic hormones or boosters that are often added to animal feeds. The productive process is Zero Emissions.



Biofit company manufactures the following [four products made from water hyacinth](#):

- *Aquaprotein*. Hyacinth cake is the main raw material used for feed formulation. This cake is also targeted at animal feed millers and farmers who make their own feed. The Hyacinth cake is safe and nutritious to animals and also reduces the cost of raw material for feed formulation by between 20-30%.



- *Finished Biofit Feeds.* Finished animal feeds like dairy meal, fish feed, pig feeds and chicken feeds are formulated out of hyacinth cake as per the animal nutritive requirement.
- *Biofit Mineral Salts.* Organic protein-rich mineral blocks are made by mixing molten water hyacinth weed and adding *Homa Lime* which is rich in macro and microelements. The composite is then cooled in a simple mould system and allowed to form and dry. Minerals are a vital component in livestock nutrition and hyacinth salts increases in animal produce and their good health.
- *Biofit Protein Supplements.* The protein is added to already made feeds to boost farmers' yield, compensating for the low amount of protein normally contained in livestock feed.

The Biofit company also offers after-sales services to livestock farmers that use their products, consisting in farm visits to advise on livestock production, nutrition and health and regular trainings and exhibitions.

In addition to control the proliferation of the invasive plant on the Lake Victoria, the company has also managed to generate the following benefits for the economic development in the territory:

- *Empowering Small-Scale Farmers.* The company's customers are poultry farmers, dairy farmers, fish farmers and animal feed millers dealing with the high costs of conventional animal feed prices. Biofit supports small farmers in the region by offering feed that's both cheap and nutritious, boosting the yields of meat, milk, eggs and other animal products by at least 15 percent.
- *Boosting Incomes.* The process involves harvesting of water hyacinth from the lake surface and Biofit has contracted fishermen to harvest the weed, creating a new source of income for them. The enterprise also boosts women's incomes by hiring them to do sun-drying of the plant.
- *Creating skilled employment.* The team of Biofit is composed by 30 full-time and temporary employees. The company is managed by 4 highly skilled professionals with a background in research and entrepreneurship. This company based in the Kendu Bay, which will be able to expand with the growth of its activities, represents a laboratory of training and future employment for young professionals motivated in the themes of green economy and environmental sustainability.

Since the conception of the innovative production process, through a pilot study in the Homa Bay region, the company Biofit has sought the collaboration of qualified structures, at the international and national level. The products have been conceived after research, development and testing activities realized with the support of Universities from Nairobi and Netherlands, in partnership with *SNV Netherlands Development Organization*. Since its establishment in 2018, the company has partnered with government institutions, universities, and NGOs in Kenya and across the world. Also, thanks to these alliances, the Biofit company is planning to expand his operations to other African countries plagued by water hyacinth, including Ethiopia, Nigeria, Tanzania and Uganda

The plans for the future of this innovative company are to remove 10 tons of water hyacinth daily from the surface of the Lake Victoria by 2023, processing it to 100 tons of livestock feeds a month. By achieving this ambitious goal Biofit will allow to restore the Lake Victoria by reducing the water hyacinth weed and by simultaneously providing affordable and sustainable livestock feed products for local small farmers.



To know more

[Biofit website](#)

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[Africa Prize Award for Engineering innovation 2019/2020 - Royal Academy of Engineering](#)

[SNV Netherlands video](#)

[Biofit in SNV website](#)

[Biofit in millionlivesclub.org](#)

[Biofit in farmbizafrica.com](#)

