



<p>Enhancing African Agribusiness</p>	<p><b>NGWALA INVENTIONS</b>  <b>KIBAHA, TANZANIA</b>  <a href="#">WEBSITE</a></p>
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### ABOUT NGWALA INVENTIONS

- Company status: Limited
- Year of registration: 2020
- Number of employees: 6



**Edmond Ng'walago, Founder and CEO**

Edmond is a climate smart agricultural professional and entrepreneur with six years of experience in sustainable agribusiness practices. In 2016, Edmond joined the International Institute of Tropical Agriculture (IITA) climate smart agriculture incubation programme. In 2022, he participated in the innovation and entrepreneurship course from the School of Engineering of the Stanford Centre for Professional

Development. From 2017 to 2018, Edmond worked as an agribusiness manager and development officer for the Technologies for African Agricultural Transformation Program (TAAT) and Enable Youth at IITA. Since 2018, he has been offering knowledge and mentorship to African youth on modern climate smart agricultural technologies as the solution to fight hunger, poverty, unemployment and climate change.

Edmond had received recognition in 2022 during the 27th Conference of the Parties (CoP27) and in 2023 from the French Development Agency (AFD).

## BUSINESS MODEL

Mission: To become the leading regional producer and distributor of organic pesticides and fertilisers through an innovative digital delivery system that supports rural farmers.

Vision: Organic agriculture in Africa is cost-effective and sustainable – facilitating agricultural solutions to hunger, poverty, climate, environment and health.

Business sector: Biotechnology and agricultural technology

Ngwala Inventions produces the organic pesticide-fertiliser solution, as well as designs, manufactures and deploys the solutions dispensers. It was created to tackle several issues linked to the use of pesticides and fertilisers in order to make farming more profitable and safer for African farmers, as well as more sustainable. Most of the pesticides and fertilisers available on the market are very expensive as they are imported to Africa and subject to high price volatility. The lack of distribution and marketing infrastructures account for additional costs that (smallholder) farmers bear when purchasing farming inputs. To make pesticides and fertilisers more affordable, Ngwala Inventions has developed a technology that enables the reduction of production costs and eases the distribution.

The company produces a high quality two-in-one organic pesticide and fertiliser solution from organic

waste (e.g. garbage, fruit peels and animal urine) that is collected from farms and households and mixed with botanical extracts. This waste valorisation reduce the (end-)costs of the farming input but also addresses the problems associated with the application of chemical inputs, which can lead to dangerous chemical exposures and harms the environment.

Ngwala Inventions also builds and deploys digital and solar powered dispensers that automatically (re-)fill containers with the pesticide-fertiliser solution. The dispensers are placed directly on farms to ease access to local farmers. Mobile payments can be made by card directly at the dispenser, which also enables access to credit.

The dispensers are also made available to other manufacturers of organic inputs. Ngwala Inventions' collects a 10% commission per litre of organic pesticide and fertiliser from manufacturers who offer their products through their digital dispensing system.

Ngwala Inventions is pioneering both the production and distribution of farming inputs in Tanzania and the East African region.

## STRONG RELATIONSHIPS WITH SMALLHOLDERS, COOPERATIVES...

Since its establishment, Ngwala Inventions has worked with over 200,000 smallholder farmers, including youth and women, from Tanzania, Kenya and Rwanda.

The digital and solar powered dispenser enables to deliver organic pesticide and fertiliser to smallholder farmers at the lowest cost and in a fast and reliable way.

## PRODUCTS AND MARKETS

Ngwala Organics is a high quality, organic two-in-one fertiliser and pesticide that increases plant and soil capacities to retain water and absorb greenhouse gases. The product has a higher concentration compared to other organic pesticides and fertilisers on the market. It has a shelf life of over two years.

In June 2023, Ngwala Inventions is also launching its newly registered product called Vuna Fresh, a bio-insecticide to manage African bollworms on tomatoes and cotton crops.

All of Ngwala Inventions' products, as well as other organic pesticides and fertiliser in liquid form, can be distributed with the company's dispensing vending machines. These machines decentralise the distribution of organic pesticides and fertiliser on refilling bases substituting the use of chemicals packed in plastic containers. They allow farmers to purchase the exact quantities of pesticide and/or fertilizer they need for zero wastage.

The machine also pairs with a mobile app, with which farmers can track expenditures, quantities and the impact of applying organic pesticides and or fertilisers to their farm. With the app, farmers can also scan their crops and determine pest and diseases inflicted upon their crops. Additionally, it allows for soil analysis to determine the nutrient deficiencies in their soil so that farmers can make educated decisions on the dosage of fertiliser required.

The dispensing system is solar powered and includes a USB-port that enables farmers to charge their phone directly on the fields.

Ngwala Inventions currently operates in East Africa, specifically Tanzania and Rwanda, with smallholder farmers (mostly aged 18-50 years) who live in rural areas and are growing vegetables and cereal crops.

Watch the demonstration of the Ngwala Smart Dispenser by clicking [here](#).



## INNOVATIONS: MILESTONES AND EXPANSION PLANS

Ngwala Inventions operates via a circularity approach to reduce the negative impacts of farming on the environment and on livelihoods. By valorising organic waste that would otherwise be discarded, the company enables the production of high quality farming inputs at a lower cost, thus enabling the sale of affordable products for smallholders. In fact, the product is directly sold to smallholder farmers for 7 USD per liter, which is 2 USD less than competitors.

By operating on an integrated value chain model, Ngwala Inventions is positioned to deploy their digital dispenser at a large scale to reach more smallholder farmers.

Ngwala Inventions aims to reach 100 million smallholder farmers in Africa by 2025.

## SUCCESS FACTORS AND LESSONS LEARNED

Ngwala Inventions enables smallholder farmers to increase their incomes by reducing their operating costs while increasing their production volumes. By selling their organic pesticide and fertiliser at a lower price than competitors, the company reduces crop production costs by 30%. At the same, the high quality and concentrated solution contributes to increasing yields from 1,5 to 3 tonnes per hectare.

The company has included its commitment to sustainability by protecting health and the environment in its business model. On the one hand, it offers a safe alternative to the use of chemical pesticides and fertilisers. On the other hand, it supports the transition to organic farming practices by making organic pesticide and fertiliser affordable, including for smallholder farmers with limited financial resources who can purchase these inputs on credit. This particularly empowers women and youth who face more difficulties in accessing financial resources. The company contributes to reducing plastic waste as farmers do not need to buy farming inputs in new containers but can refill their containers directly at the dispensers.

Moreover, by deploying dispensers in rural areas directly on farms, Ngwala Inventions reduces

transportation costs and time spent by rural farmers to purchase these inputs at agro-shops. It is estimated that the dispensers allow to save nearly 150 USD in transportation costs and 120 hours of travel time spent by a farmer each season when purchasing farming inputs.

The USB port included in the dispensing system promotes further accessibility to resources in isolated rural areas by allows farmers to charge their mobile devices right on the farm.

The company has worked directly or indirectly with over 200,000 smallholder farmers and contributed to creating over 120 jobs.

Ngwala Inventions is currently partnering the United Nations Development Programme (UNDP) to ensure that smallholder farmers in Tanzania are equipped with the knowledge on how to convert their organic waste into organic inputs, and the proper usage of the inputs to maximize yields. The company has also collaborated with other institutions such as the United Nations Framework Convention on Climate Change (UNFCCC) and the World Bank.

The impact of Ngwala Inventions on supporting biodiversity, food security, and the sustainability of smallholder farmer livelihoods have been acknowledged by several distinctions and prizes. Among other achievements, the company was a top 12

finalist in AgriHack 2021, and has received an award from the Tanzania Commission for Science and Technology (COSTECH). It was also one of the finalists accepted into the second cohort of the Conservation Finance Alliance (CFA) Incubator.



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