



BUSINESS PROFILE



MAYA MOUNTAIN RESEARCH FARM
BELIZE
[SITE WEB](#)

ABOUT MAYA MOUNTAIN RESEARCH FARM

- **Company status :** NGO.
- **Year of registration :** 2004.
- **Number of employees :** Between 4 and 8, 5 men and 3 women.



Christopher Nesbitt – Founder and Director

Christopher Nesbitt runs the Maya Mountain Research Farm with his wife, Celini Logan Nesbitt, since 1988. From 1997 to 2004, Christopher Nesbitt worked for Green & Black's, a British chocolate company. Since 2004, the farm is a registered NGO. The farm works on specific ways to draw down carbon, with an emphasis on food security, degraded land repair, multistrata agroforestry systems and staple tree crops. The work done at the farm clicks off on all 17 of the Sustainable Development Goals.

CONTEXT

Background

In 1988, when Christopher moved to the land, the farm was a degraded citrus and cattle farm. Over the years Christopher and his wife transformed the landscape into a productive multistrata agroforestry system with a focus on food security, degraded land repair and carbon drawdown.

Since 2004, Maya Mountain Research Farm has been registered as an NGO and focuses on climate change and income generation through the intersection of agriculture and ecology.

Business Model

The Maya Mountain Research Farm hosts over 500 native plant and animal species, using an agro-ecological approach that enriches the local economy with culturally appropriate products while supporting traditional indigenous lifestyles. Its methods mimic natural ecosystem functions, including carbon storage, soil and water conservation, and wildlife habitat creation.

A key feature of the farm is its 25-acre agroforestry system, where fruit, legume, medicinal, and timber trees provide shade for crops like coffee and cacao. Selected plants contribute both marketable goods and nutrient cycles that enhance forest productivity. This forest supplies much of the food for both humans and animals on the farm.

The farm's infrastructure is designed to be hurricane-resilient and minimally invasive, with renewable energy, mainly solar, powering the site. Water is

sourced from a spring using solar-powered pumps, which the farm community has also helped set up in nearby villages to reduce grid dependency.

The farm is also an educational hub, welcoming interns, students, and volunteers, and partnering with NGOs and educational institutions to offer courses on topics like renewable energy and permaculture design, fostering a dynamic environment for learning and knowledge-sharing.

Relationships

Agroforestry offers alternative ways to address the needs of farmers. Through design work that mimics the multiple stratas of surrounding native forests, the farm can create analogues to forests that meet the evolving needs of rural communities, with food, fuel, timber, medicines, fodder and, especially, marketable crops, while providing the ecosystem services that primary habitat provides. The trees also prevent soil erosion and retain moisture in the landscape, which makes it possible to grow crops even during the dry season.

Crops like cacao, vanilla, and turmeric bring in high value income to the poorest communities in Belize. In 2004-2006, Christopher and his wife established a producer group of 22 vanilla farmers. In 2023, 2024, and 2025, they worked with women's groups in indigenous, rural and former refugee communities with support of the Republic of Taiwan and the Government of Belize.



Cacao



Celini examining some vanilla

PRODUCTS AND MARKET

Main products

On the farm, many crops grow: breadnut, breadfruit, jackfruit, ramon nut, peach palm, coconut, avocado, banana, cassava, pigeon pea, chaya, chipilin, pineapple, sesame, papaya, vetiver grass, sweet potato, Canavalia, pride of Barbados etc.

Into the matrix of the farm's agroforestry system Christopher and Celini increase yields through taking advantage of physical or temporal microclimates. For instance, vanilla is naturally pollinated by the Melipona bee, which is in danger. They raise small colonies for the honey. Other marketable crops that exist under the canopy include coffee, cardamom, ginger, turmeric and bush foods, such as pacaya palm, the flowers of Calathea allouyi and the heart of Carludovica palmata

Bananas provide a quick source of food, biomass for mulching, and improve the soil structure. Cassava helps to break up the soil, and chaya gives a perpetual

yield of greens even in the rainy season when cabbage and other greens are not possible. All of these have some market value. By managing induced patchiness, making parts of the polyculture dominated by specific species, they increase rates of fruit set and make collecting easier.

The aim of the farm is to reach the point where the energy returned on energy invested ratio is favourable to the farm. Crops like the Artocarpus camansi, Artocarpus altilis, Bactris gasipaes, and coconut provide significant amounts of food at a favourable ratio of energy returned on energy invested, which they can eat, sell, process or use as fodder for animals, and provide food for wildlife who use their land as habitat.

Moreover, they make their own coconut oil and milk and use the partially defatted meat for their poultry.



Marlon Sutherland and Christopher Nesbitt collected this in a very leisurely 45 minutes' walk around one morning



Some turmeric Celini Logan and Amber Albee collected for Celini's aunt at the market in Belize City

Main markets

Maya Mountain Research Farm primarily sells high value subcanopy species into the local market. Crops like vanilla, cacao, cardamom, ginger, turmeric, banana, plantains, have huge potential for centralized purchasing and export from distributed production through cooperatives or farmers associations. The farm has raised pigs in the past and now raises Dorper sheep for the local market.

Main services

The farm sells vanilla, cacao, turmeric and ginger on the local market, as well as sheep. Off farm work include training, photovoltaic work and land use consultancy, and generate additional income.

INNOVATIONS: MILESTONES AND EXPANSION PLANS

Building up and refining an agro-ecological system that conserves natural resources and provides ecosystem services has been the main focus of the farm throughout its history. With that system now stable, productive and sustainable, the farm has taken on additional projects, including maintaining a seed bank of indigenous plant species and running educational programs to share the knowledge and skills of permaculture.

Moreover, Christopher and his team sustain their power needs with solar panels and biogas. Biogas is a useful element in the farm, providing clean burning

fuel, disposing of surplus food, fruit that may have fruit fly larvae and food scraps that have limited value, and creating high value fertiliser.

They have built multiple solar panels and installed them on their roofs. In the event of a hurricane threat, they can remove the panels. Also, they built dozens of small battery-based photovoltaic lighting systems in rural households, battery-based lighting systems in 15 schools, one clinic and 12 ranger stations in protected areas, and two village level photovoltaic water pumping systems.



Christoffer and Celini are training women in vanilla production to strengthen the economies of rural Belizeans.



Solar panels mounted on the roof of the third floor of the Main Building



Biogas digester

SUCCESS FACTORS AND LESSONS LEARNED

Belize, though the least populated country in Central America, is one of the region's fastest growing. As the population increases, sustainable food production methods will be crucial to preserving its unique ecosystem. The Maya Mountain Research Farm demonstrates a viable approach to this, adapted to the specific challenges of Southern Belize's humid, lowland tropical environment, with its extreme wet and dry seasons and hurricane threats. Additionally, the farm is designed to function independently despite limited local infrastructure, including minimal road access and scarce grid electricity, underscoring the importance of self-sufficiency.

In 2019, Maya Mountain Research Farm won the Commonwealth Secretary General's Innovations in Sustainable Development Award under the prosperity category.



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