Biogas-powered milk chiller

Provides milk cooling on farm, off-grid, enabling smallholder dairy farmers to get more value for milk by storing, delivering and selling high quality milk.

Unique Selling Points

- Complies with the international milk cooling standard: from 35°C to 4°C within 3 hours; 7x faster than regular refrigerators
- Has a cooling capacity of 10L of milk; sufficient for >80% of all dairy farmers in East Africa
- With the amount of manure produced by a cow, enough biogas can be made to refrigerate her own milk.
- Durable and modern design with ‘Engineered in Holland’ branding and 2 years warranty
- Runs off-grid, on any type of domestic anaerobic digester, and uses the proven and reliable absorption cooling technology; it always works
- Affordable and easy payment with lease-to-own finance and milk payback scheme

Problem & Solution

In East Africa, the dairy sector is crucial for rural development, poverty reduction and food security. Its full potential remains unexploited today, as evening milk produced by smallholder farmers does not get to the market (in adequate quality). Farmers live simply too far away. The amounts retained at farm are estimated at 30-50% of produced milk. Further up the value chain, dairy processors operate at low capacity utilisation rates, while there is a growing domestic demand of milk.

The solution lies in small-scale off-grid milk cooling at farm level using a reliable and renewable energy source: biogas produced from cow manure.
Distribute 0-series of 50 units across Kenya, Tanzania and Zambia 2016

Distribute 1-series of 750 units across East Africa 2017 2018

Mass production and distribution across East Africa

Want to find out more? Let’s talk!

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SimGas completed testing of four prototypes in two regions of Tanzania. These tests proved that the technology enables off-grid cooling of 10 Litres of milk from 35°C to 4°C within three hours using biogas.

Currently, we are in the process of manufacturing the first batch of market-ready products. Soon, we will install the first 50 in Kenya, Tanzania and Zambia.

Integrated farm solution

Each day, the farmer nourishes the bacteria in the digester with manure from livestock and water. The biogas that is produced is a clean fuel that is used for cooking and milk chilling, and replaces wood fuel, charcoal and kerosene. Using biogas thereby lowers household energy expenditures. It also increases the income from evening milk and makes households independent of unreliable or non-existent power grids.

Biogas not only takes away the health hazards of indoor air pollution, cooling on biogas also eliminates milk spoilage and saves time.

The improved crop yield from slurry application enables better feeding of cows, leading to more milk and manure. This self-perpetuating cycle is enhancing businesses of smallholder dairy farmers and increases milk quality throughout the chain.

About the consortium

SimGas: R&D and sales of biogas systems in East Africa. Roles: product design, field testing, commercialization.

SNV: over 550,000 biogas systems installed in SNV programs worldwide. Roles: market analysis, training, promotion.

Mueller: specialized in milk chilling equipment in over fifty countries. Roles: technology provider, sector expertise, commercialization.

BoP Innovation Center: BoP strategy and multi-national corporation collaboration. Roles: consortium management, business strategy.