

# Innovations in Zambia's dairy sector

MAY 2020

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*Cover image: Wankie Miyoba with fodder grown using hydroponic technology. "You just need seed, aluminum trays or plastic trays that are free from the effects of ultraviolet rays, clean water and a small green house, as well as shelves made from local materials."*

## TRIAL EXPLORES ALTERNATIVE WAY FOR FARMERS TO FEED THEIR DAIRY ANIMALS

Wankie Miyoba is a Dairy Extension Officer with Lactalis (formerly known as Parmalat), responsible for Lusaka and Central Province. He works directly with farmers, disseminating information and conducting trainings on milk hygiene, cattle feeding and other dairy-related matters. Wankie started a hydroponic fodder production project in Kabwe in 2018 in an attempt to come up with an alternative or additional way for small-scale farmers to feed their dairy animals, especially during the dry season.



## **TRIAL EXPLORES ALTERNATIVE WAY FOR FARMERS TO FEED THEIR DAIRY ANIMALS, CNTD FROM PAGE 1.**



*Above: A farmer involved in the hydroponic trial at the Lactalis depot in Kabwe.*

Hydroponic technology is a way of growing plants without using soil. Instead, plants are grown in water or a nutrient-rich solution in a controlled environment. Wankie says he is enthusiastic about the technology because it allows people to grow green fodder quickly and cheaply, “especially now that the country is experiencing high costs of production due to the high cost of stock feed”. Hydroponic technology allows for fast growth and early fodder maturity because the seed does not need a lot of energy or time to break the soil. Wankie has set up a training area at the Lactalis depot in Kabwe, where he introduces farmers to the technology before setting up at their places. “We are growing barley, white sorghum and orange maize, due to their high nutritive value,” he says. “Green fodder is an important input [in dairy farming] as it provides the nutrients and minerals required for milk production and the healthy maintenance of dairy animals.” Wankie says other benefits of hydroponic systems include avoiding soil-borne diseases such as bacterial wilts and nematodes, increasing the harvesting period and reducing the use of fertilisers, water and space. He says evidence also shows that fodder produced this way can increase milk outputs, improve cow fertility and boost the general immunity of animals. “For cows, the nutritive value [of hydroponic fodder] is at its peak at day 7 or 8. After that, the plant uses nutrients for its growth. It’s delicious for cows and they can eat everything, including the root system. You can also feed it to pigs, broiler chicken, laying chicken and rabbits.”



## GIZ ESTABLISHES PRACTICAL LEARNING FARMS FOR DEVELOPING ZAMBIA'S SMALLHOLDER DAIRY SECTOR

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Improving agricultural production in practical, effective and sustainable ways.

Dairy farmers in Zambia need to be trained to improve their agricultural production in practical, effective and sustainable ways, especially those living in remote areas. To do this in Southern Province, the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) is establishing three Practical Dairy Learning Farms (PDLFs) for members of dairy cooperatives in Magoye, Namwala and Zimba to learn from. Situated on land managed by the cooperatives, with the support of GIZ advisors, the PDLFs will be equipped with cow sheds, milking parlours, calf rearing areas and pasture plots. The PDLF in Magoye is already set up with animals and a solar panel as well as a rooftop rain-water harvesting system. All the PDLFs will be operational by the end of 2020. The idea is for extension officers from the cooperatives to demonstrate good practices to 'lead farmers' at the PDLFs through hands-on training, supported by district livestock and on-site officers. These lead farmers will then distribute this knowledge in their own communities, using 'farmer to farmer' approaches. Other organisations engaged in capacity development for dairy management are also welcome to organise trainings at the PDLFs. The plan is for the PDLFs to operate as sustainable enterprises, through the execution of well-formed business plans. For example, PDLFs will sell milk and collect a small fee for the trainings – either paid in cash or deducted from members' milk sales.

*For more information about the PDLF initiative, which is being implemented through GIZ's worldwide Green Innovation Centres for the Agriculture and Food Sector (GIC) Project, please contact project coordinator Stefan Fett ([stefan.fett@giz.de](mailto:stefan.fett@giz.de)) or PDLF advisor Gabriele Prinz ([gabriele.prinz@giz.de](mailto:gabriele.prinz@giz.de)).*

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*A cowshed, rooftop rain harvesting structure and small pasture plot at one of the PDLFs in the Southern Province of Zambia. Photo: Gabriele Prinz.*

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*Left: A dairy farmer from Kaziwa, a women's cooperative in Southern Zambia with 9,460 members, with a bicycle supplied through a pay as you go or 'PAYG' scheme established by Zambian social enterprise Onyx Connect.*

*Can the introduction of an incremental payment model for bicycles in Zambia lead to their increased uptake and benefit rural communities? That is the question a pilot scheme funded by the United Kingdom's Department for International Development (DFID)*

## SOCIAL ENTERPRISE AIMS TO GET BIKES OUT TO DAIRY FARMERS

DFID ran a pilot scheme through its Frontier Technologies Hub in partnership with Lusaka-based company Onyx Connect between September 2018 and April 2020, which resulted in the distribution of 140 high-quality Buffalo Bicycles to dairy farmers living in Zimba. As with elsewhere in the country, the vast majority of farmers living in Zimba (in Southern Province) lack easy or affordable access to motorised transport. That includes dairy farmers, who face issues like milk spoilage from walking extremely long distances with their vats in the heat. Headquartered in Lusaka, Onyx is a social enterprise that launched in 2018 and believes that bicycles provide a robust solution to many mobility challenges in Zambia, particularly people in lower income brackets living in peri-urban and rural areas. Founder and CEO Wyson Lungu says many farmers are unable to afford the capital expenditure required to buy bicycles outright, let alone vehicles. That's where the 'pay as you go' or PAYG pilot scheme came in. As part of the pilot scheme, farmers in Zimba were given bicycles on the condition they could pay the cost of the bikes off in small, affordable increments using mobile technology. Priority was given to female farmers and smartphones came with the bikes, as well as torches to ride safely at night and solar lamps.

### How it works

- Onyx offers flexible payment terms allowing farmers to pay for the Buffalo Bicycle over 3 to 14 months,.
- Farmers receive immediate access to their bicycles while paying them off.
- Farmers also receive insurance against theft and accident, limiting their risk against payment challenges.
- If a bicycle is stolen or involved in an accident that leaves the bicycle inoperable, farmers are insured against the full value of the bicycle.
- Onyx also offers a free local repair service.



## SOCIAL ENTERPRISE AIMS TO GET BIKES OUT TO DAIRY FARMERS, CNTD FROM PAGE 4.

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*“Our vision is to provide over 1 million bicycles by 2030 – this is the sort of scale we need to transform an entire country.”*

Wyson says the dairy farmers who received bikes experienced immediate benefits. For example, a study on the Palabana Dairy Cooperative in Chongwe District showed that travel times to the cooperative nearly halved, deliveries of milk increased by a quarter and overall those with bicycles earned 23 per cent more income per month than those without bicycles. “Incorporating a smartphone into the package also allows dairy farmers to find information on best agricultural practice, to check the market price of milk on the same day they are going to sell their product, or simply an ability to phone the milk depot.” Having proved the PAYG model’s success through the DFID trial, Onyx now intends to scale its operations and become a financially sustainable social enterprise in its own right. “The bicycle scheme is just a start,” Wyson says. “Our vision is to provide over 1 million bicycles by 2030. This is the sort of scale we need to transform an entire country,” he says. “We are putting our own sweat and capital into this because we believe in this vision. We are not politicians nor are we a charity; we are simply impact entrepreneurs who are trying to help people.”

*For more information about the PAYG project, visit [www.onyxzambia.com](http://www.onyxzambia.com) or email Wyson Lungu on [wyson@onyxzambia.com](mailto:wyson@onyxzambia.com).*



## MESSAGING SERVICE HELPS ORGANISATIONS CONNECT WITH FARMERS

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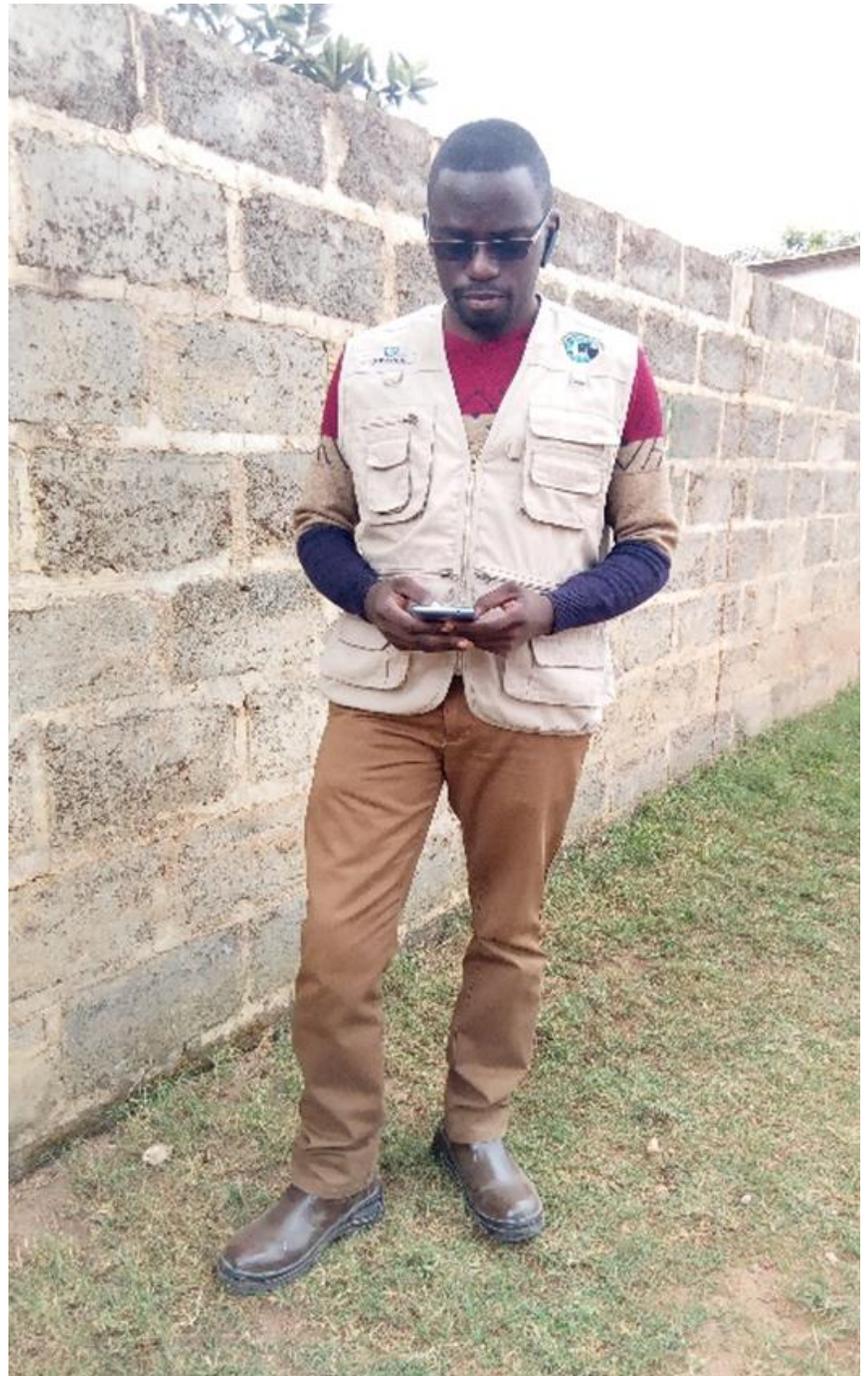
Nathan Mwanaumo is the Regional Field Facilitator for the Dairy Association of Zambia (DAZ) in the Copperbelt province and describes himself as “passionate about agriculture”. Based in Ndola, the 32-year-old set up one of the first dairy WhatsApp groups in Zambia in 2017. After seeing the benefits of enhanced communication “in all sectors of the economy” following the introduction of social media to Zambia, Nathan says he decided to tap into it for the benefit of farmers. He has worked for DAZ since 2014, after completing his University Diploma in Agriculture from the Natural Resources Development College. The group he set up on WhatsApp is still running and gives dairy farmers a platform to share knowledge and experiences. Members also comprise other dairy industry stakeholders such as extension officers from the Ministry of Fisheries and Livestock, DAZ and staff from the Zambia Dairy Transformation Programme (ZDTP). Information shared in the group includes expert advice on home feed production, life stage feeding, milk quality, reproduction, animal health, general management and more. Nathan says fact sheets shared by ZDTP staff have been well received by farmers. “The information [in the fact sheets] is simplified so that any farmer who has the ability to read can easily understand it.” Nathan says “e-extension” – that is, farm extension advice delivered by remote means – is important now more than ever amid the Covid-19 pandemic. “E-extension means we can continue giving much needed extension service to farmers whilst upholding public health recommendations,” he says. “It is my desire to see the platform grow and bring more expertise and farmers on board so as to bring extension services closer to the farmers and eventually make agriculture the mainstay of our country’s economy.”



*“E-extension means we can continue giving much needed extension service to farmers whilst upholding public health recommendations. It is my desire to see the platform grow.”*

In order to facilitate easy communication, the ZDTP also launched three of its own WhatsApp messaging groups earlier this year– one for farmers who are linked to Fisenge Dairy Business Cooperative Union, another for farmers linked to Kwanshama Dairy Union and a third for farmers associated with Mufulira Dairy Union. ZDTP Field Manager Kelvin Mulusa says fact sheets are being shared through the WhatsApp groups and farmers will be alerted to upcoming field days once restrictions on gatherings are removed. Kelvin says the WhatsApp groups also allow farmers to highlight challenges they are facing and for the ZDTP team to quickly provide support and information to a large group of farmers. Information is shared in both English and different local languages, e.g. Bemba, Nyanja and Tonga. “WhatsApp has made it easier for the ZDTP field extension team to disseminate information to farmers by the click of a button,” says Kelvin. “The system is proving to be convenient and quick as farmers are able to ask for advice/clarifications and are responded to almost immediately.”

***To join a WhatsApp group relevant to your area, please contact ZDTP Field Manager Kelvin Mulusa on + 260 96 372 3368 or +260 974480037, and he will connect you with the most appropriate group/s.***



*Above: Nathan Mwanaumo is the Regional Field Facilitator for the Dairy Association of Zambia (DAZ) and has set up a WhatsApp group for dairy farmers to give them a platform to share knowledge and experiences.*