

Zambia Dairy

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ZAMBIA DAIRY TRANSFORMATION PROGRAMME (ZDTP)

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Seven years of targeted support for Zambian dairy farmers celebrated with emotional event



There were tears, cheers and hugs as the Zambia Dairy Transformation Programme (ZDTP) wrapped-up with an end-of-programme symposium.

In a speech at the symposium held in Lusaka last month, Programme Director Angus Davidson said it was amazing to have the entire Zambian dairy value chain represented at the event. He applauded the courage it took every participant in the programme to “embrace change and champion a new approach to dairy farming”. Mr Davidson said a month-long study of the Zambian dairy industry in 2016 made it clear “transformative change was clearly needed” rather than a business-as-usual approach. “We set out to change many of the long-standing practices adopted from the European dairy industry,” he said. “We introduced practices and technologies that were readily applicable to – and affordable for – Zambian smallholder farmers.” Mr Davidson said a big challenge was people’s initial reluctance to adopt change; however, this was addressed through gaining trust and demonstrating (and proving the benefits of) new approaches and concepts with farmers, cooperatives and even ZDTP team members themselves. “We focused on building cooperatives’ capacity and capability, and, at farm level, we hard-coded the concept of ‘farming as business’ through things like demonstrating the importance of record keeping through the Real-Time Monitoring scheme.”

Continued on page 2.

Continued from page 1.

“We also worked alongside our friends and colleagues at MFL to develop enabling livestock and animal health polices including the Livestock Development Act,” Mr Davidson said. A major highlight was a study tour to New Zealand by 16 representatives from the Zambian dairy industry.

Mr Davidson said the final phase of the ZDTP was about “expanding our practices and technologies across the wider industry”, including heading into Southern Province. “In the past two years, we’ve worked hard to embed our success across the industry, reaching more than 90 per cent of all dairy farming areas across the country.”

While the programme was leaving “a solid foundation behind for an industry with a bright and sustainable future”, some critical challenges remained to address and overcome, such as the need to adapt to the effects of climate change.

In closing his speech at the symposium, Mr Davidson said: “Thank you for having us on your land and in your industry.”

Guy Redding, the Lead Adviser, Industry and Innovation from the Development Economy Division of the New Zealand Ministry of Foreign Affairs and Trade (MFAT), which funded the ZDTP, said the programme had achieved its goal of sustainably strengthening dairy value chains by increasing the quantity and quality of milk produced by smallholder and emergent farmers.

Key to this success was the practical approach adopted in the programme’s first five years, Mr Redding said.

“ZDTP focused on working directly with Zambian dairy farmers, empowering them with knowledge – not the type of knowledge that requires many words or theories, but very practical knowledge that can easily be transferred to anyone with a passion for dairy farming,” he said.

As a result of ZDTP interventions, more Zambian dairy farmers had started thinking of dairy farming as a business, Mr Redding said. “This means, for example, ensuring that there is enough highly-nutritious fodder for cattle, and that cows’ teats are treated with teat dip to prevent mastitis. Simple practices like this then improve dairy yields and the quality of the milk, leading to higher prices from buyers.

“Dairy farmers have also been encouraged to think about their costs of production, to document these and then take steps to reduce their per litre costs and become more efficient. As a result, many more dairy farmers today are turning a profit than were before.”

Mr Redding said the two-year extension phase, from 2021-2023, made the ZDTP the longest-running dairy development programme in Zambia so far.

The extension phase followed a different approach to ensure sustainability of gains made between 2017 and 2021, “ensuring that the successful agricultural practices introduced by ZDTP are taken up by as many dairy farmers in Zambia as possible... and not just those that were supported in the first phase”.

From here, Mr Redding said, there was a need for stakeholders such as MFL, dairy cooperatives, dairy companies and other international development partners to continue collaborating, exchanging views, sharing lessons learnt and identifying future opportunities for the dairy industry to grow.

“ZDTP has trained extension officers from these stakeholders in improved practices, so that they can then train farmers in their networks, sharing this knowledge with thousands of farmers across the entire industry,” he said.

“ZDTP has also been working with dairy cooperatives to improve their finances and commercial sustainability.

“Several cooperatives have put in place their own extension officers to train their members in improved practices, and also earn them valuable income which is reinvested in the cooperative.

“In addition, the extension phase has seen a stronger focus on advising farmers how to adapt to climate change, as well as reduce adverse impacts on the environment.

“All of this support has been centred on partnerships, and building links between the farmers, the government and the private sector. After all, a sustainable and competitive dairy industry needs everyone to work together.”

The goal of the ZDTP was, 'Sustainably strengthening emerging dairy value chains by increasing the quantity and quality of milk produced by smallholder (and emergent) farmers for commercial sale'. So how did the team do? Check out the highlights video that kicked off the symposium in Lusaka to see for yourself at www.youtube.com/@zambiadairy. Thanks to the New Zealand Ministry of Foreign Affairs and Trade for funding this important work and to the Ministry of Fisheries and Livestock in Zambia for partnering with us on it.

Towards a sustainable dairy industry beyond 2030

Below are some images and highlights from the ZDTP end-of-programme symposium, presented with sincere thanks to everyone who has been a part of the ZDTP journey from 2017 to 2023. The facts and figures are taken from a video screened at the symposium in November. To see the video, go to www.youtube.com/@zambiadairy.



Improved milk quality from better on-farm hygiene and mastitis testing

On-farm mastitis testing using Sunlight detergent increased from 15% to 58% over a four-year period. In the same period, mastitis incidence (one or more cases of mastitis per year) reduced from 28% to 12% due to improved on-farm hygiene. As a result, fewer milk rejections at MCCs led to improved farmer profits.

Innovative dry season feed solutions

New methods of dry season feed production were widely adopted across ZDTP target areas, such as hay making, on-farm silage making and home-made concentrates. The share of ZDTP farmers producing silage increased from 1% in 2017 to 40% in 2021.

Increase in farmer incomes from treating 'dairy as a business'

From 2017 to 2022, the percentage of smallholder and emergent farmers who made a net profit from dairy farming increased from 32% to 60%. Record keeping amongst ZDTP farmers increased from 50% in 2017 to 71% in 2021 through the paper-based 'Real-Time Monitoring' (RTM) initiative. After the success of the paper-based RTM, the ZDTP launched digital tool 'Farm4Profit' in 2023. Early data indicated that 70% of farmers using Farm4Profit were realising a net profit compared to just 35% of those who weren't using the app.

Continued on page 4.

Continued from page 3.

Increase in cooperative incomes through better governance and improved business management

Two cooperatives experienced increased milk volumes (of 60% and 260%) over a two-month period following the pilot of a commercially-delivered cooperative extension model. The cooperatives also experienced significant improvements in milk quality, up to Grade A, earning them up to ZMW 11.20 per litre.

Increase in climate-smart agriculture practices

Use of climate-smart agricultural practices increased 69% to 77% between 2022 and 2023, while use of good environmental on-farm practices increased 71% to 77%. Examples include rotational cropping, spreading manure as fertiliser, potholing to reduce water wastage and avoiding soil/manure run-off. Other practices include conserving animal feed for the dry season and building shelters to protect animals from the wind, sun and rain.

Outreach and accessible knowledge

More than 50,000 fact sheets were distributed to 52 cooperatives and monthly newsletters have been distributed to 1,300+ people. Almost all participating cooperatives (90%) have now become knowledge hubs, providing dairy farmers with access to hardcopy factsheets and newsletters. There are also more than 60 instructional videos available on YouTube, with 450 subscribers and English, Bemba, Tonga, Nyanja versions available. Through all this information and extension training, the adoption of one or more improved dairy practices increased from 42% of dairy farmers in 2018 to 79% in 2023.

Policy development

ZDTP supported the development of a draft Animal Health Policy for Zambia as well as a Dairy Strategy. ZDTP also provided technical input into the Dairy Industry Development Act (now known as the Livestock Development Act).

ZDTP Case Study: Liteta Dairy Cooperative Union, Central Province

Farmers from Liteta Dairy Cooperative Union have been working with the ZDTP since the programme's inception in 2017. Gilbert Mweemba, the Chairperson of the Cooperative, says it has been transformative. "When we started this cooperative, we had a challenge because we didn't have an extension officer to help us. Production was not good. We were not improving. We were seeing the same mistakes all the time." Extension Officers from the ZDTP taught farmers how to look after their dairy animals through better animal husbandry and feed production. The support also helped the cooperative improve its dairy breeds through an Artificial Insemination (AI) initiative. These improvements have resulted in better milk volumes overall. Garren Kalemba, a Field Extension Officer with Zambeef, says he has been involved with Liteta Dairy Cooperative Union for a long time "and I can tell you, the ZDTP has made it possible for the to be where they are". A major milestone was the development of a new collection centre, which was something all member farmers could be proud of. Gilbert says previously, during the dry season, animals belonging to cooperative members died with hunger. It was terrible. However, he is optimistic the cooperative's positive trajectory will continue despite the end of the ZDTP because it now has its own private Extension Officer, as a result of the programme's successful private extension officer pilot scheme. "It will continue because now the service is in our house. Why am I saying so? Because our Extension Officer is one of us, living with us." Check out a video on the Liteta Dairy Cooperative Union at www.youtube.com/@zambiadairy.



Liteta Dairy Cooperative Union's new Milk Collection Centre.

ZDTP Case Study: Mungaila Dairy Cooperative, Southern Province



Mungaila Dairy Cooperative's Milk Collection Centre (MCC).

Mungaila Dairy Cooperative is one of the cooperatives the ZDTP started working with during the two-year extension phase of the programme. Linda Moono, the ZDTP Regional Extension Officer for Southern Province, was the initial point of contact for training and information. As time went on, the cooperative agreed to be part of the programme's private extension officer pilot scheme. Gift Shanzuwa was brought on board as a Private Extension Officer and, after the ZDTP ends, will continue working with the region's 1,000-plus dairy farmers. Cletus Mungala, the Business Manager for Mungaila Dairy Cooperative, said the cooperative was sceptical about the financial sustainability of a private extension officer at first (as the role is subsidised by the cooperative itself). However, after trialling it, the cooperative found it to be a gamechanger. Farmers appreciated being able to contact Gift at any time to seek support and advice, Cletus said. Now, he wants to encourage other cooperatives to "accept this idea because it's working and giving us positive results". For example, last year, during the dry season, the cooperative's farmers were producing about 15,000 litres of milk. This year, the figure was "not less than 30 to 40,000 litres". The changes have come from improved farming practices, such as starting to use dry stovers (previously thrown away as waste) for on-farm silage production and adopting more hygienic milking practices. Gift said she utilised fact sheets developed by the ZDTP in her work, as well as demonstrations. "We are able to show our farmers [new techniques] in a practical way for them to easily get the concept of what we really want as a cooperative." Linda said previously a lot of Mungaila farmers' milk was rejected due to their animals suffering from mastitis and the farmers also struggled to feed their animals in the dry season. "But now that they've learned good management practices, they are no longer facing these challenges." Kelvin Mulusa, the ZDTP Field Extension Manager, said Mungaila was a good example of what a cooperative could achieve in a short period of time. "This is testament to the farmers, their willingness to change their situation and their willingness to try out new things," he said. Check out a video on Mungaila Dairy Cooperative at www.youtube.com/@zambiadairy.



A dairy farmer from Mungaila milking a cow.



Mungaila MCC worker testing for mastitis.



Reflections from outgoing ZDTP Field Extension Manager Kelvin Mulusa

Before joining the ZDTP, Kelvin's main background was in large-scale, commercial farming, with an emphasis on raw crops, livestock and mechanization. Prior roles included managing a tobacco farm, a poultry farm and working on a commercial dairy farm as a section manager, sometimes managing workforces of more than 300 people. He has also been involved with outgrower schemes targeting small-scale farmers. When he joined the ZDTP, his first time working with a development programme, Kelvin says he had some experience in the dairy industry, but no way near as much technical knowledge as he does now. "How time flies. It has been an amazing journey. I was already used to working with different people from different backgrounds; very similar to the people we worked with under the ZDTP, but what was different was that I was used to the commercial side of things, whereas the programme was more about capacity building and the like."

Kelvin Mulusa has been with the ZDTP since 2017, initially as an Extension Officer, providing dairy farmers with face-to-face advice and on-farm demonstrations of new technologies, and later as the programme's Field Extension Manager, providing a logistical link between the HQ in Lusaka and the programme's field extension team. Kelvin says the programme's staff, made up of enthusiastic and hard-working Zambian nationals with a variety of backgrounds, helped it achieve what it did. Together they were able to establish strong relationships with farmers and cooperatives. He also credits Tania Thomson, the Programme Country Manager between 2017 and 2021, for her empathetic leadership in building such a strong team environment from the get-go. But, he says, the farmers themselves are the biggest heroes of all. Farmers who were willing to try new things, and who stuck with the programme despite it being focused on knowledge and capacity building rather than "free stuff", enabled the ZDTP to get established and to get more farmers onboard, because the more reluctant or sceptical farmers in their communities were able to see positive change "and it compelled them to join in and experience [it] as well", he says. "What happened is all those [farmers] that were not interested at first started coming back, because they saw the changes [being enjoyed by their peers]. Those farmers who stuck with us and never gave up ... are the real heroes, because we were getting into a space where farmers were used to handouts – free stuff, like expecting cows, milking machines – whereas the ZDTP didn't provide that and [it was causing us] problems navigating through. So, I want to thank those farmers, the heroes, they helped us to get established, they made our lives easy ... even when we didn't give out any material things." Kelvin says his time with the ZDTP has made him personally very passionate about the dairy industry, despite his background in commercial farming. "Dairy is still underdeveloped, and I can see lots of potential [for it] to really improve household incomes. I think that's where the magic lies, in smallholder production. "I was joking with somebody a few years back that I am almost sure that during my retirement I will become a dairy farmer myself." He is proud that he can now walk onto any smallholder dairy farm in the region, as a respected dairy advisor, and "things will just come out of my mouth, without referring to any book ... [the knowledge] is stuck in there". He also has a better understanding of the development sector as a whole, including what works and what doesn't. "I'm proud that I have become very technical in my [dairy] knowledge base ... but also in how to work with people, how to build capacity in people [and] in appreciating what can come out of a programme like this."

Continued on page 7.

Continued from page 6.

Despite his enthusiasm for the sector, and belief that “dairy development is happening”, Kelvin says he wishes things would move faster. But, he says, external factors such as farmers’ difficulty accessing credit and low milk prices still need addressing. “I am proud to be associated with the ZDTP and think the impact on the ground is there for all to see. The impact on me has also been transformational. It has been a transformation for the smallholders, and it has been a transformation for me.”



Parting comments from the ZDTP’s outgoing Programme Country Manager Marnix Sanderse

Collaboration and coordination between the Government of Zambia, responsible Ministries, smallholders and the private sector is key to further the development of Zambia’s dairy industry, says outgoing ZDTP Programme Country Manager (PCM) Marnix Sanderse. Fortunately, the recent end-of-programme symposium in Lusaka was the perfect forum to kickstart many important conversations, Marnix says. “I don’t think we’ve had that opportunity to have all the stakeholders of the dairy industry in one room [before]. It led to some very rich discussions about challenges in the sector, all along the dairy chain, which could really help towards actual change. And it wouldn’t have been as successful if you’d had the symposium at the beginning of the ZDTP, without the years of hard work,” he says. “I have every confidence that the gains made by the ZDTP at farm level will be sustainable; the important thing now is ensuring that Government and industry stakeholders implement sector policies that create a stable, enabling environment for dairy farmers going forward. For example, there is [currently] a gap in extension support and that’s something we’ve been talking about for the past two years with the processors and the Government. They agree there’s a big gap.” Marnix says while the Ministry of Fisheries and Livestock (MFL) may not always have enough resources to reach all farmers, coordination and collaboration with other industry players would create efficiency by avoiding duplication of efforts and leveraging the benefits of other extension providers in the sector. This could mean, for example, coordinating and collaborating with extension personnel from processors or other public, private or nonprofit organisations, such as privately-sourced extension officers attached to dairy cooperatives – a concept successfully piloted by three cooperatives as part of the ZDTP).

Marnix joined the ZDTP more than 18 months ago to manage the extension phase of the seven-year programme. Having met former Programme Country Manager Tania Thomson (2017-2021) through the dairy stakeholder group organised by donor-funded dairy programmes (in a previous role), Marnix says he was drawn to the ZDTP’s highly practical and business-oriented approach. “We bonded over our programmes’ shared approach and vision. We often see donor programmes that have a really holistic process, and want to do all these things, but they really miss out on the simple stuff like extension support. Whereas the practical interventions introduced through ZDTP extension support over its first five years, like improved record keeping, demonstration plots for new crops, silage making, sustainable business models and other tools, actually created tangible results that farmers felt in their pockets.” Marnix says the past two years has been “all about engaging industry members to take up and continue the work that we have done [in the field] in a sustainable way”.

Continued on page 8.

Continued from page 7.



A farmer in Mungaila, Southern Province, preparing food for his dairy animals.

“At the moment, an extension officer might visit a farmer and the next day another extension officer from another organisation comes to visit. First of all, the farmer is confused because the message may be different and, secondly, it is a waste of resources. Farmers acknowledged at the symposium that this is something that actually happens. The suggestion is to pool resources, so this doesn’t happen.” Another important factor is the quality of extension support on offer, because advising and training people, including farmers, is a skill in its own right. “A trainer may know the technicalities of the subject – like dairy farming –

but imparting that knowledge to a varied audience is not always easy. Some farmers are quick to take up new practices; others may just not want to or don't understand,” Marnix says. Zambia training Zambia, with a Zambian approach, is also “key for sustainability” and something other development programmes don’t always get right. A

source of pride for Marnix is the connections the ZDTP made with other dairy-related programmes run by GIZ and SNV, as well as private company Seed Co, during its two-year extension phase. Big improvements have also been made in relation to lenders’ understanding of farmers’ needs, he says. “Access to finance remains a big challenge across the agricultural sector. The risk perception remains high among financial institutions, but there are also several financial institutions that have come closer to the farmers. The understanding has



Dairy cows happily eating dry feed in Southern Province.

increased, both ways. Farmers understand a bit better about what the financial institutions need for them to get access to credit.” However, credit remains expensive, “and I think the bottom line is when the interest is beyond 20%, it just doesn't make business sense [for smallholders] to take a loan”. Another big source of pride for Marnix is the success of the private extension trials conducted at three cooperatives: Fisenge, Liteta and Mungaila. “It was amazing to see the difference [in milk production and cooperative incomes] and now, for them to be like, ‘OK, why didn't we do this before?’ Of course they had a bit of support from the ZDTP (like a motorbike for the officer to use), but the fact that in just over two months that bit of support had such an impact... that was amazing... and also the fact that cooperative members have continued to use the services of private extension officers beyond the ZDTP’s support.”