



Netherlands East Africa
Dairy Partnership

Dairy sector solutions

Working together to
transform the East
African dairy sector



Healthy and
affordable diets

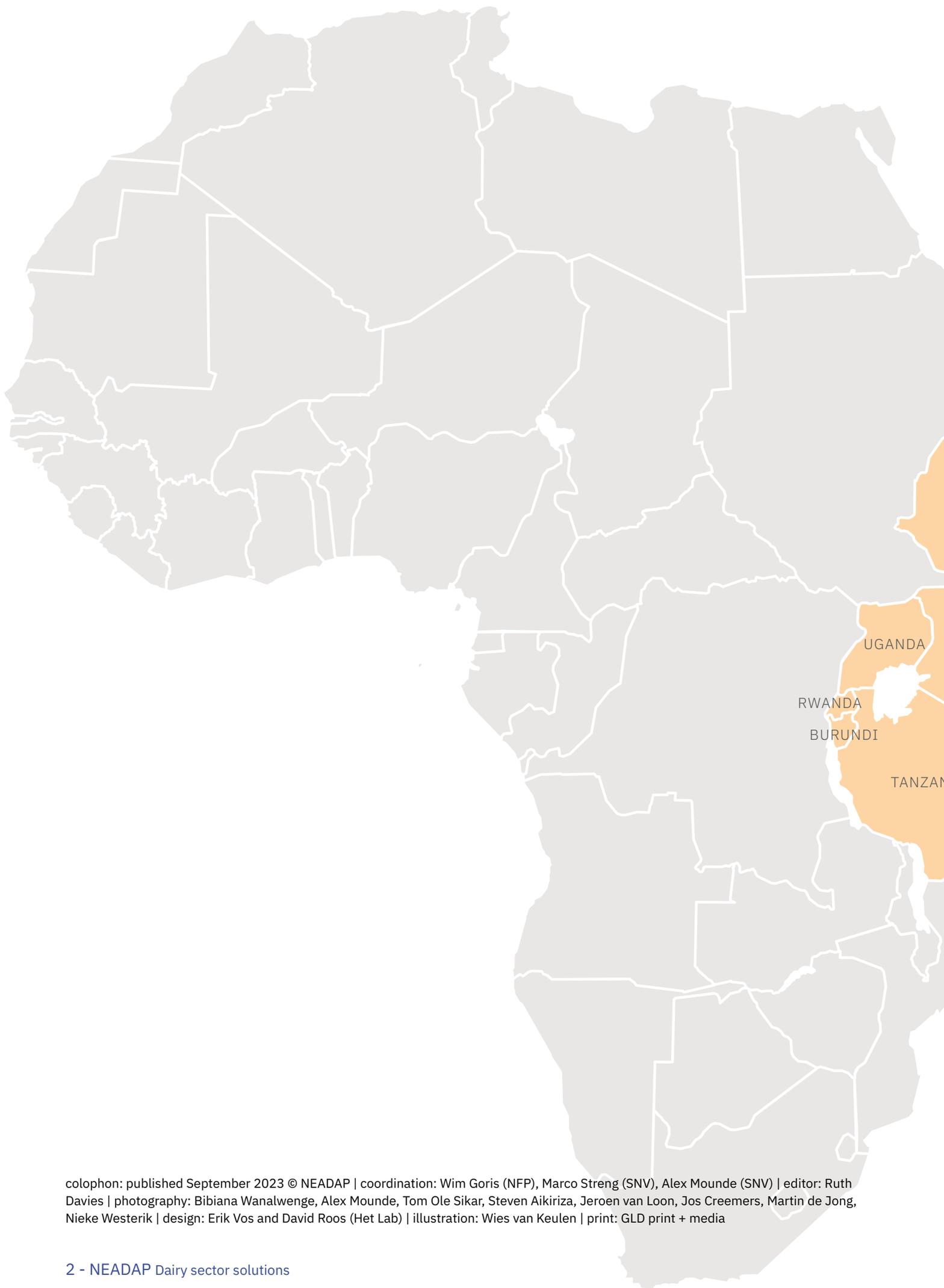


Sustainable
dairy farming



Young dairy
professionals





UGANDA
RWANDA
BURUNDI
TANZANIA

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Working together to transform the dairy sector in East Africa



Dairy is important in countries such as Kenya, Tanzania, Ethiopia, Rwanda, Uganda, and Burundi. In the East African region, dairy products are an essential source of micronutrients and high-quality proteins. A robust supply of dairy enhances dietary diversity for the people and substantially contributes to the economies of these countries, mainly through income generation and employment. In pursuit of a sustainable future, the dairy sector is actively exploring ways to counter the adverse effects imposed by climate change and reduce its own climate footprint.

The Netherlands East Africa Dairy Partnership (NEADAP) functions as a network for the exchange of knowledge and fostering collaboration to tackle the challenges and leverage the development of the dairy sector in East Africa. NEADAP builds on diverse dairy development initiatives in the region. Its focus centres on adapting and scaling specific solutions, including

parent-led school milk, quality-based milk payment systems, forage production, feeding, and manure management. This scaling occurs in collaboration with partners in the various countries. NEADAP also actively engages in policy and strategic discussions. Through this magazine we aim to inform you about ongoing initiatives in the region and offer practical tools for your daily work, whether you're a farmer, extension officer or policymaker. We also share our vision on sustainable dairy sector development in East Africa and invite you to join the debate during the [African Dairy Conference and Exhibition](#) or on our [online platform](#).

[> read more](#)



Marco Streng, NEADAP Regional Coordinator



Fostering collaboration among dairy actors

Leveraging partnerships to grow the East African dairy sector

The Dutch government has provided funding for various dairy development projects in the East African region during the past few decades. Recognizing the incidental connections among these projects, the NEADAP partnership was established. Its primary goal is to establish links between diverse initiatives, contextualize successful dairy development solutions, and facilitate their upscaling. Originally launched as a collaboration among Dutch organizations involved in the East African dairy sector, the network's character has swiftly evolved to encompass a more regional scope. This evolution is evident through the emergence of

communities of practice focusing on various topics. In our capacity as the donor of NEADAP, we value these advancements and actively endorse continued collaboration among stakeholders within the sector.



Erik Slingerland, First Secretary, Food and Nutrition Security at the Embassy of the Kingdom of the Netherlands in Ethiopia



Closing the gap in milk self-sufficiency in Tanzania



Rumen8 training in Tanga, Tanzania

Tanzania's dairy sector is essential to its economy, offering income, food security, and jobs. Despite having a large livestock population, the country faces a significant milk deficit. The latest budget announcement highlighted a shortage of 9 billion litres against a national requirement of 12 billion litres. Milk consumption is relatively low with 64 litres per capita. NEADAP is supporting Tanzanian partners to address key challenges in the sector through the following solutions:

- **School milk programme (SMP):** promoting the adoption of a parent led SMP model, to broaden the reach from fewer than 134 school to 5,000 schools by 2025. Fostering financial sustainability while enhancing the health and nutrition of a larger student population.

- **Enabling probiotic yoghurt businesses:** collaborate with small scale businesses to improve access to quality yoghurt, empowering women cooperatives to provide nutritious options.
- **Rumen8 software for ration optimization:** introducing Rumen8 software, which helps dairy farmers to optimize productivity and cattle welfare through balanced rations.
- **Dairy Sustainability Assessment Tool (DSAT):** enable stakeholders to discuss sustainability in the dairy sector. Major issues identified were poor animal care and an unfavourable business environment.



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Tom Ole Sikar, NEADAP country coordinator, Tanzania

A glimpse of transformative activities in the Ugandan dairy sector

The Inclusive Dairy Enterprise (TIDE) program, implemented by SNV in Uganda, has introduced multiple innovative tools and approaches to address critical challenges within the dairy sector. With a focus on knowledge exchange and practical interventions, it is making remarkable strides in enhancing the resilience and sustainability of the dairy industry. In synergy, NEADAP is partnering with TIDE to refine the various approaches and facilitate the widespread dissemination and adoption of these solutions throughout the East African region. Additionally, the TIDE program is also adopting solutions promoted by NEADAP from other countries.

Some of our key initiatives in Uganda include:

- **Empowering young dairy professionals:** developing a training programme for young dairy experts, equipping them with practical skills.

- **Climate-smart dairy development:** stakeholders discussion on sustainable dairy practices amid climate challenges, shaping a resilient future.
- **Cross-border knowledge exchange:** stakeholders from Rwanda and Kenya engaged in collaborative learning, promoting regional dairy development with a focus on forage, extension, and milk quality.
- **Pioneering manure management:** promoting manure management practices, drawing from successful models in Kenya.
- **Cultivating forage quality:** identifying and discussing bottlenecks in the forage seed market and developing a hand-held scanner for determining forage quality.

[> read more](#)



Training on manure management



Steven Aikiriza, NEADAP country coordinator, Uganda



Ethiopia's dairy industry: a growing market with promising investment opportunities

Ethiopia, renowned for its vast agricultural landscape, is swiftly emerging as a pivotal player in the dairy industry of the African continent. With a staggering 66.26 million cattle, Ethiopia is Africa's largest cattle-keeping nation, and local breeds constitute nearly 97% of the total herd. This livestock sector contributes 25.3% to the nation's GDP. However, as the year 2030 approaches, a concerning predicament looms due to an estimated deficit of approx. 3.2 billion litres of milk. To address this supply-demand imbalance, substantial

investments will be needed in Ethiopia's dairy industry. Our government has an ambitious 10-year plan (2020–2030) to increase national milk production from 4.3 billion litres in 2020 to an impressive 11.6 billion litres in 2030. This road map involves targeted interventions such as breed enhancements through advanced reproductive technologies and improved husbandry practices. With partners, we have already been working on pioneering initiatives to improve the dairy industry in Ethiopia. Noteworthy endeavours include the BRIDGE project by SNV that aims to contribute to sector transformation while improving the livelihoods of 90.000+ dairy farmers, the 'Yelemat Tirufat' programme, designed to enhance productivity across various

agricultural domains, and the Livestock and Fisheries Sector Development Project, financed by the World Bank to elevate productivity and commercialization within select value chains. Also of note is the African Dairy Genetic Gains initiative, supported by the Bill and Melinda Gates Foundation, promoting digital platforms for farmer-centric data recording and management feedback, among other projects. These projects and other industry developments are explored at the African Dairy Conference and Exhibition (ESADA), a platform that brings together industry stakeholders to explore investment prospects, networking opportunities and the promotion of regional dairy products. Recognizing this potential, the Ministry of Agriculture is open to hosting a future African Dairy Conference and Exhibition. As demand for dairy continues to rise due to population growth, urbanization and economic expansion, the Ethiopian dairy industry offers a compelling landscape for investors.

[> read more](#)

Ethiopian dairy: Ministry's drive for transformation

H.E. Dr. Fikru Regassa, State Minister for Livestock and Fishery Resources Development, Ministry of Agriculture, Ethiopia



NEADAP's position on dairy development in East Africa

To establish self-sufficient and sustainable dairy sectors in East Africa, support should focus on mixed crop–livestock farms where dairy in combination with cropping has a comparative advantage, where market access can be assured and where dairy farms are (or can be) clustered.



Amidst various challenges, dairy sector actors in East Africa face the question how dairy can contribute to a resilient food system. Considering local realities, jobs or food & nutrition security are likely to be prioritized over objectives that are more relevant in other regions of the world, such as reduced greenhouse gas emissions and other environmental impacts. Decisions on public and private investments in the East African dairy sectors need to balance these considerations. As a partnership linking East Africa and Western Europe, NEADAP aims to support this decision-making process.

In our view, to establish self-sufficient and sustainable dairy sectors in East Africa it is essential to focus support on mixed crop–livestock farms, intensifying production in geographic locations where dairy in combination with cropping has a comparative advantage, where market access can be assured, and where dairy farms are (or can be) clustered. This support should focus on enhancing productivity, profitability, and resilience, while also ensuring maximum nutrient retention on, or between, farms. Doing so will effectively address the increasing demand for dairy products at affordable prices, promote healthy diets, and generate economic opportunities in the region, as has been argued in [previous NEADAP papers](#).

In this article we present the main arguments and conclusions for our position. The complete position paper can be found on the [NEADAP website](#).

Meeting the demand

Demand for dairy products in East Africa will continue to increase over the next decade(s). Addressing this demand entails three potential avenues: expanding the livestock herd, enhancing productivity, or resorting to imports. The prospect of herd enlargement is not preferred, due to the associated strain on land resources and adverse environmental impacts. While imports remain an alternative, the prevalent foreign exchange difficulties in most countries diminishes their appeal. Nonetheless, the intra-regional option of imports within the East African Community (EAC) agreement could be considered, utilizing lower cost of production in countries such as Uganda. The optimal course of action lies in increasing the productivity of the existing herd, a preferred approach that strikes a balance between meeting increased demand and upholding sustainability concerns.

Why focus on dairy as part of mixed crop–livestock farming systems?

The mixed crop–livestock farming system is best positioned to support a self-sufficient and sustainable dairy sector in East Africa. All farming systems – agro-pastoralists, mixed crop–livestock and semi-intensive – are complementary and contribute to food systems objectives. Nonetheless, it is the mixed system that excels in both livelihood and sustainability goals. Given the substantial number of farmers engaged in this system, the potential to meet the growing demand for dairy products through enhanced productivity on these farms is evident.

Among the prime challenges faced by mixed crop–livestock farms is the subdivision of land due to inheritance, resulting in farms reaching economically non-viable sizes.



The mixed crop-livestock farming system is best positioned to support a sustainable dairy sector in East Africa

Resolving this predicament demands a suite of solutions encompassing reforms in land tenure policies, diversified employment opportunities and enhanced farm management practices. These combined measures culminate in increased productivity, improved livelihoods, and enhanced nutrient cycling.

Why focus on dairy clusters with sufficient land and potential?

The development of a thriving dairy industry is complex and depends on sustainable business cases. Adequate land is required directly on the farm premises or in proximity to facilitate forage production and efficient manure application. At dairy cluster level, trade between farms offers many opportunities for service enterprises. This, in turn, sets the stage for concurrent upgrading across the farm, market and contextual domains.

Conclusion

The populations of East African countries are steadily increasing, driving demand for dairy products. While dairy production in East Africa is growing, this is primarily through larger herds, with limited advancements in productivity. Farm sizes are shrinking due to subdivision after inheritance, and peri-urban farmers face threats from expanding cities, with the surge in population also contributing to the scarcity of land.

Due to their considerable number, mixed crop–livestock farms have the potential to meet the increasing demand for dairy products in the coming years, even with incremental change. A holistic strategy is necessary to both mitigate risks for farmers and curb the environmental



impact of dairy production. The diversified income streams of mixed crop–livestock farms enhance their resilience and amplify their capacity for retaining nutrients on the farm. Enhancing cow productivity should be aligned with improving other farm activities.

NEADAP will use the draft position paper and subsequent discussions to further sharpen its strategy towards development of sustainable dairy sectors in East Africa.

[> read more](#)



Dairy sector transform

Partnerships

Government organisations
International organisations
Academic, Research and training institutions
Development agencies
Agricultural organisations
Financial institutions
Farmer Cooperatives
Private sector
Farmers

Policies

Forage seed policy brief
School milk policy
Quality Milk Guidelines
NEADAP Position paper

The NEA

Working together to create

Healthy and affordable diets

Sustainable



Information in East Africa

Solutions

Parent-led School Milk Probiotic Yoghurt
Quality based milk payment systems
Extension services Manure management
Sustainable forage production
Ration formulation tool (Rumen8) Agri-contracting services
Longlife learning for dairy professionals
Dairy sustainability assessment tool (DSAT)
Skill development tools

Flexible approach:

Solution identification and testing
Collaborative contextualization and scaling

DAP Goal:

Identify and scale solutions

Improve dairy farming

Support young dairy professionals



School milk in East Africa

Authors: Pascal Debons and Frederick Kizito



School feeding programmes are vital for promoting education and nourishment in East Africa. These initiatives encourage families, particularly the most disadvantaged, to send their sons and – particularly – their daughters to school. These programmes ensure that children in school receive proper nourishment for effective learning. The impact of school feeding extends to education, health, inclusivity and local economies. The return on investment for every dollar invested in school feeding is estimated at \$3 to \$9 in economic return (World Food Programme 2016).

In low-income countries, only 18% of primary school children are enrolled in centralized school feeding programmes, and this number did not recover after the COVID-19 pandemic. In East Africa, the percentage of primary school children benefiting from school feeding varies from 0% to 26%, depending on the country. While parents typically provide food for their children, there is a need for more comprehensive support.



The parent-led school feeding approach

The parent-led school milk approach leverages parental investment in children's nutrition to enhance school attendance, learning readiness and diet diversity. It also benefits local farmers through increased market demand, offering a sustainable solution for school meals with stable budgets and enduring commitment.

Parent-led School Feeding Approach

The parent-led approach builds on parents' investment in their child's nutrition, and this investment can be stimulated, grown, and organized. In doing so, the approach will better attract pupils to school, ensure they are ready to learn, deliver better nutrition and diet diversification and allow local farmers to benefit from this new market.

In Uganda, The Inclusive Dairy Enterprise project (TIDE, SNV) introduced a parent-led school milk programme. Parents pay for the milk consumed by their children, creating a sustainable funding source. The project kick-started adoption through initial incentives and grants for schools that achieved enrolment milestones. Over 300,000 students in almost 1,000 schools have benefited from the

programme, which has generated over USD\$2 million for dairy farmers and the local economy.

In Ethiopia, Building Rural Income through Inclusive Dairy Business Growth in Ethiopia (BRIDGE) used a subsidy approach due to milk quality and affordability concerns. Probiotic yoghurt was prioritized, and parents

gradually assumed the cost after an initial period. Positive outcomes, including improved health, nutrition and academic performance, were observed.

Future Outlook and Next Steps

Looking ahead, the parent-led model for school milk shows promise and is being explored in other East African countries. In Tanzania, where malnutrition rates are high, the Ministry of Livestock and Fisheries aims to increase access to dairy products in schools. NEADAP's experience from Uganda continues to inform the pilot and adoption of the parent-led model in Tanzania. In Kenya, various school meal and milk initiatives exist, some government and donor-led and others paid for by parents. The Kenya Dairy Board is interested in parent-led school milk but requires further analysis. Similarly, there's interest from the World Food Programme in Burundi and regional processors. This highlights the potential for expanding successful school feeding initiatives.

"The parent-led model is a valuable supplement to our existing ASAS Dairies Ltd. school milk initiatives. The model could help us expand the programme's reach to more schools and families, as well as improve the programme quality and ensure its long-term viability. This model has the potential to improve the health and well-being of children in our community." – Mohamed Ally, ASAS Dairies CSR manager

In East Africa, school feeding initiatives are transforming education, nutrition and local economies. NEADAP highlights the sustainability of the parent-led model and explores ways to integrate it with other funding sources to achieve broader outreach and inclusiveness.

[> read more](#)

Parent-led school milk programmes adopted in the East African region

Steady market growth for probiotic yoghurt in East Africa

Author: Nieke Westerik

NEADAP partners with the Yoba for Life Foundation in catalysing the local production of probiotic yoghurt. This yoghurt has proven health benefits and a longer shelf life than raw milk. Also, it can be produced under low-tech conditions.

Yoba for Life trains entrepreneurs and cooperatives to produce yoghurt using a probiotic starter culture. In addition to covering technical topics, the training includes the basics of business administration, such as sourcing inputs, marketing, book-keeping and certification according to national requirements. Finally, Yoba for Life links the probiotic yoghurt producers to school feeding programmes.



Currently, 340 production units in Uganda, Ethiopia, Tanzania and Kenya produce 97,000 litres of probiotic yoghurt per week. This means employment for 1,500 small-scale producers and their employees; 51% of these businesses are owned by women. The estimated number of regular consumers is 400,000, among which are 40,000 school children who consume the product on a weekly basis.

These numbers show that probiotic yoghurt is a proven solution. NEADAP supports the scaling process via various strategies:

- Yoba for Life started a collaboration with Mellow Foods, which is headed by Philip Komolo, a social entrepreneur from Kenya. With Yoba's existing materials and experience, Philip developed a paid training for aspiring yoghurt entrepreneurs. Philip's training is now included in Kenya's Agricultural Sector Development Support Program, targeting cooperatives in various counties of Kenya.
- NEADAP and Yoba for Life also co-organized a symposium in Uganda with over 40 decision makers from relevant NGOs and government agencies. The symposium

presented the benefits of probiotic yoghurt and discussed the impact of Yoba for Life so far. As a result, probiotic yoghurts and the Yoba approach are now on the radar of various government institutions and major NGOs.

- A plan waiting for the next phase of NEADAP is to develop an interactive online course for training of trainers. Yoba aims to target new groups of entrepreneurs who are interested in learning about yoghurt production and basic business skills through videos, reading materials and quizzes.

While both consumption and production are on a growth path, NEADAP and Yoba are focused on the enabling environment. This includes the certification process by the relevant government bodies, who are responsible for monitoring producers and the quality of their yoghurt products. In addition, there is a particular focus on promoting yoghurt consumption in schools.

[> watch video](#)

What is probiotic yoghurt?

Probiotic yoghurt contains live beneficial bacteria known as probiotics. Probiotics are micro-organisms, typically bacteria or yeast, that are believed to provide health benefits when consumed in adequate amounts. These bacteria are considered to be "friendly" or "good" and can have a positive impact on the gut and overall health. Probiotic yoghurt is made by adding specific strains of live bacteria to milk before the fermentation process. During fermentation, these bacteria multiply and convert lactose (the natural sugar in milk) into lactic acid, which gives yoghurt its characteristic tangy taste and creamy texture.

"Mellow Foods trained us on how to produce yoghurt with a probiotic culture and they also linked us to input suppliers" – Bonnie Koome, CEO Dhabiti



Quality milk - from pilot to policy uptake

Authors: Dr. Catherine Kilelu and Philip Okech

SNV

In the growing dairy markets of East Africa, a key challenge is assuring quality throughout the chain. Past incidents with milk quality reveal the need for more checks and smarter incentives to guarantee healthy and safe milk and dairy products, from farm to consumer.

NEADAP and its partner SNV-Uganda have turned to an innovative market-driven approach: a quality-based milk payment system (QBMPS), that is, a bonus payment for quality milk. The QBMPS pilot was a joint effort by SNV TIDE, the Uganda Dairy Development Authority (DDA), three dairy processors and 10 (partly private) milk collectors. More than 1,400 farmers participated. The pilot successfully inspired coordinated actions by all actors along the value chain in the southwest of Uganda. It provided a combination of training, coaching and education as well as setting up a quality control system. This required support for setting up milk testing routines. Factories introduced a (recommended) 10% bonus over the base price for A-grade milk. Criteria were 0.0% added water and minimal fat and solids-not-fat (SNF) levels.

“With QBMPS, SANATOS has already reduced costs and increased quality”

– Sanatos Odhiambo,
manager of SANATOS Dairy

A variety of communication and training methods were used, such as classroom sessions and the distribution of leaflets and brochures. In the remainder of the pilot, about €100,000 worth of bonuses were paid out to farmers. Also, DDA converted the pilot procedure and parameters into national guidelines. This Guideline on the Practice of QBMPS is still in parliament to be ratified and is therefore not yet available online.

NEADAP organised exchange visits to promote the QBMPS approach. Teams from Kenya and Rwanda visited Uganda

Steps in the QBMPS raw milk testing procedure:

1. Farmers produce and deliver the milk to the milk collection centre (MCC).
2. Milk is tested at the MCC with a milk analyser, and the results are visible to the farmers.
3. A bulk test is conducted when the milk leaves the MCC, with the milk analyser test result recorded on a delivery note.
4. A bulk test is conducted at the factory gate, with the milk analyser test result recorded on a goods received note.
5. Verification occurs through comparison of the goods received note and delivery note.
6. Two-weekly reports on deliveries and receipts are shared between processors and the MCC.
7. Payments are made as per the agreement, usually every two weeks.

to learn about the approach. Dairy processors explained to the visitors that QBMPS resulted in reduced costs and improved quality (SANATOS) and increased milk production per farmer and fewer milk rejects due to adulteration (Pearl Dairies). Recent developments include the distribution of additional milk analysers and the incorporation of antibiotics testing. On the other hand, payments to individual farmers proved difficult since milk is bulked at collection centres. A dilemma for cooperatives is how to compensate farmers with local versus exotic breeds, as their milk has different contents. Competition between cooperatives was also a concern.

In all, Uganda’s successful introduction of a QBMPS demonstrates the transformative potential of prioritizing milk quality, fostering collaboration among stakeholders and leveraging valuable experiences that inspired across borders.

[> read the report](#)



Wayne Hutchinson / Alamy Stock Photo



Sustainable dairy farming in East Africa

Author: Geert Westenbrink



Sustainable dairy farming is gaining momentum across East Africa as the region recognizes the need to balance agricultural productivity with environmental conservation and social well-being. Sustainable dairy farming involves adopting practices that minimize negative impacts on the environment, ensure the welfare of animals and promote the economic and social well-being of farmers and communities.

Conventional practices have led to environmental degradation and reduced livelihoods for farmers. Sustainable dairy farming aims to balance environmental, economic and social considerations, and to enhance soil fertility, biodiversity

and resilience to climate change. One pivotal tool in this transition is the Dairy Sustainability Assessment Tool (DSAT), developed by NEADAP and Wageningen University & Research to help identify threats to sustainability and enable farmers to obtain a sustainability score.

NEADAP's sustainability efforts also include year-round feed and forage availability. Capitalizing on the groundwork laid by projects and organizations such as SNV KMDP-Kenya, TIDE-Uganda, BRIDGE-Ethiopia and CIAT ILRI,

NEADAP has formulated a strategy for year-round, high-quality forage availability. Working alongside CIAT, ILRI and local research organizations (KALRO, NARO, TALIRI) NEADAP aims to provide a comprehensive solution that not only enhances forage productivity but, more importantly, contributes to the sustainability and profitability of dairy farming systems.

[read more on the next pages](#) >

DSAT Tool: Navigating Dairy Sustainability for a Flourishing Future

Author: Asaah Ndambi

The Dairy Sustainability Assessment tool, or DSAT, enables stakeholders to discuss sustainability in the dairy sector. DSAT helps them to identify the main threats to sustainability in their context, from a list of 14 sustainability aspects. These range from human health and nutrition to (agro)biodiversity and profitability. The tool provides (a) a scorecard to assess the current sustainability situation of a particular dairy production system, and (b) a format for a stakeholder dialogue on improving the sustainability of this system. The tool has

been tested in various workshops and training sessions in Uganda, Kenya and Ethiopia, and is now ready for use. The facilitation of DSAT workshops in East Africa is with Asaah Ndambi, a researcher from Wageningen Livestock Research, based in Nairobi.

[> read more about the DSAT tool](#)

“The tool has got a very rich content. It gives you a lot of information if you want a sustainable dairy value chain” – Florence Musiime Umurungi, Rwanda National Dairy Platform



More and better forage, all year round: enhancing forage production in East Africa

Authors: Geert Westenbrink and Jos Creemers

In East Africa, the quest for the availability of year-round improved forage is central to enhancing dairy farming productivity, income, and resilience. This endeavour, however, comes with complexities, considering the diverse challenges within mixed crop-livestock systems spanning less than 3 hectares. The multifaceted nature of this effort incorporates factors like cash income, labour dynamics (including gender considerations), soil health and fertility, manure and compost utilization, food security, and climate change resilience. To address these challenges, NEADAP has developed an approach for fodder availability that involves promoting year-round access to high-quality forage for farmers within cooperative systems or from commercial forage

producers. It encompasses:

- encouraging farmers to cultivate high-yield/quality forages on their land,
- fostering commercial fodder production on non-dairy farms in the vicinity, and
- coordinating cooperative-led fodder production while supplementing from large-scale, commercial fodder producers as needed.

This strategy aims to ensure a reliable and diverse supply of forage, particularly during dry seasons.

[> read more about fodder availability](#)

How to improve manure management in dairy farming systems

Authors: Bram Wouters and Naomi Chepsuge



What is manure management?

Manure management involves efficient handling, treatment and application of animal waste to minimize nutrient loss, prevent environmental harm and enhance soil fertility in agricultural systems. NEADAP has identified options in a pilot in Kiambu County, Kenya: the use of covers, heap and pit composting of manure or bioslurry, and separate collection of solids and liquids.

NEADAP piloted these approaches in conjunction with two dairy cooperatives in Limuru and Kiambaa, Kenya, during both dry and rainy periods in 2023. While the final results are pending, initial observations offer insights:

- Covering manure heaps or pits curbs nutrient loss. Plastic sheets outperform banana leaves, and roofed structures require higher investment.
- Heap composting yields valuable compost, but demands vegetative materials and additional labour for regular turning. It produces weed-free, pathogen-free compost that can be packaged, transported and sold.
- Composting requires less space than drying but needs careful management of vegetative materials and moisture levels.
- Pit composting suits liquid manure types such as bioslurry, yet contributes to GHG emissions due to its anaerobic nature.
- Separating solid and liquid fractions proved effective in Limuru, with solid fraction spread for drying and land application. However, depending on moisture levels and speed, drying may result in nutrient loss.

Promoting optimal manure management hinges on raising awareness about manure's value, potential losses and proper handling at every stage. NEADAP is developing training materials for extension staff and farmers, with trainings already under way for staff from Kenyan dairy cooperatives and the Ugandan Integrated Smallholder Dairy Programme. Furthermore, NEADAP aims to create an advisory tool for extension staff, aiding farmers in selecting the most suitable manure management strategy. Ultimately, the goal is for farmers to perceive manure not as waste but as a resource for enhancing soil fertility, crop productivity, environmental health, and income.

[> read more](#)

The role of manure in sustainable dairy farming systems is very important. Manure is a valuable resource to enhance soil fertility, soil health and crop production while reducing the need for costly synthetic fertilizers. Good manure management from collection to application on land will save valuable nutrients. At the same time, it will reduce the negative effects of dairy farming on the environment, such as pollution of water and air and emission of greenhouse gases (GHG). The risk of spreading diseases will also be reduced.

However, small-scale intensive dairy farms practising zero grazing or semi-zero grazing struggle with managing manure efficiently, resulting in nutrient loss and environmental degradation. To address this, NEADAP, in collaboration with experts from Kenya Agricultural and Livestock Research Organization (KALRO) and the International Livestock Research Institute (ILRI) as well as Dutch professionals, has identified viable solutions for improved manure handling on these farms. These options include:

- Using covers such as plastic sheets, banana leaves or roofed structures to shield manure from rain and sun.
- Using heap and pit composting to enhance handling, minimize nutrient loss and yield high-quality compost.
- Separating solid and liquid components for land application.

“Before I was not farming with this manure, my Napier grass took long to grow, nowadays it takes only 45 days because I use manure as a fertilizer”

– John, farmer Limuru Dairy





Tools and Services



Forage Finder

This Excel tool is a new guide to help farmers and stakeholders select suitable forage varieties in Kenya. As demand for quality forages grows, the Forage Finder will support them in purchasing the forage varieties that best meet their needs. More and better forages are key to improving milk and livestock production and reducing costs. The team that developed the Forage Finder invites partners to share updates. The aim is to provide regular updates and scale the Forage Finder to other East African countries.

[> read more](#)

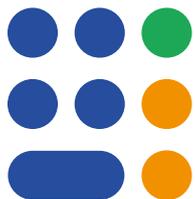


Rumen8

This is a practical tool for calculating dairy, dual-purpose and beef cattle feed rations, it uses a library of East African fodders. Farm advisors follow a 5-day training course to work with the Rumen8 software, so they can help farmers to achieve:

- Improved nutrition: balanced diets for increased production
- Improved profitability: higher margin above feed costs
- Reduced emissions of nitrogen, potassium and methane.

[> watch video](#)



Forage Cost Calculator

This Excel tool was developed with the support of professional dairy advisors, who put in years of practical experience. The tool systematically walks through the cost categories of producing hay or silage. It records the yields per cutting and calculates the cost in relation to dry matter, crude protein, metabolizable energy.

[> read more](#)



Agro-Contracting services

As the demand for dairy products rises, the traditional extensive grazing system is complemented with more intensive approaches like zero-grazing and semi-zero-grazing. However, a crucial hurdle stands in the way: the production of silage for the dry season, a practice that requires both expertise and costly machinery that most small-scale farmers can't afford. Hence the need for agri-contractors; offering silage-making as a service, bridging the gap between farmers and the technology needed for efficient silage production. In Kenya Nundoroto contractors and Bles Dairies East Africa offer the 'Maize Train' services in Nakuru, Uasin Gishu, and Trans Nzoia counties, while in Tanzania, NEADAP is working with the Animal Nutrition Innovation Centre to offer similar services. NEADAP is exploring partnerships with agricontractors in other countries in the region.

[> read more](#)

Agrocares handheld scanner

A groundbreaking partnership with Agrocares brings hand-held scanner technology to assess the nutritive value of tropical forages. The collaboration using NIRS technology, holds the promise of enhancing the outcome of the Rumen8 tool in regards of cost of formulated diets.

[> read more about handheld scanner](#)



Policy Initiatives

The role of dairy in sustainable food systems

This paper was introduced by NEADAP and partners at the COP27 in Sharm-El-Sheik. It presents food system objectives relevant for three typical dairy farming systems of East Africa. It is concluded that (dairy) cattle have a multifunction role and that dairy production can contribute to food system sustainability. Policymaking should have an eye for farming system-specific interventions and development of all these farming systems to optimize the role of dairy in sustainable future food systems in East Africa.

[> watch video](#)



Forage seed policy brief

NEADAP and its partners advocate to enhance farmers' access to improved forage seed in Kenya, Uganda, and Ethiopia. The regulatory framework around registering forage seed varieties is long and complex, and the standards for quality and performance are often not aligned with the attributes and characteristics of the specific forage seed that seed companies would be interested to introduce. This has made it difficult for the private sector to invest in the production and marketing of forage seeds. The policy brief aims to discuss and solve regulatory bottlenecks for the sector.

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School milk policy

School feeding programs in East Africa encourage families to send their children to school by providing meals, and ensuring proper nutrition for effective learning. These initiatives have positive effects on education, health, and local economies, with a potential economic return of \$3 to \$9 for every invested dollar. NEADAP is promoting the parent-led model, implemented in Uganda and Ethiopia in other East African countries like Tanzania, Kenya, and Burundi. NEADAP is actively involved in creating the school milk policy in Tanzania.

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Empowering the next generation:

The vital role of youth in the dairy industry

Author: Marco Strenig



Youth engagement holds the key to the future development of the dairy sector.

However, several hurdles – such as an ageing farming population, fragmented farms and the sector’s image – make it both challenging and imperative to present dairy farming as a promising career option.

To address this, NEADAP is proactively engaging with AERES, DTC, Eldoret Polytechnic, Baraton University and Meru University in developing on-the-job training trajectories to enhance skills and provide coaching for people beginning their careers in dairy farming or the dairy sector. Moreover, besides the on-the-job training for young professionals, NEADAP aims to explore ways to provide more extensive and better support to youth intending to take over family farms with dairy cattle.

To accomplish this, NEADAP is initiating three specific job profiles: a dairy farm owner/manager, an extension officer and a manager of a milk collecting centre. These profiles will be developed through close collaboration with partners, combining e-learning with hands-on practical assignments

platform of Delta Dairy Academy will serve as a valuable resource in this endeavour. Notably, during an identification mission, the boards of various dairy cooperative unions in Kenya and Uganda enthusiastically welcomed this initiative, requesting the participation of their staff members.

In addition to online training, the PDTFs in Uganda and centres of excellence – such as the one at the Rift Valley Institute of Science and Technology in Nakuru, Kenya – will play a crucial role in transferring practical knowledge to future generations of dairy farmers. The challenge here lies in delivering quality training to a large number of people at affordable prices. For dairy farming to become an attractive career choice, young farmers need to witness its potential to generate a stable and appealing income. Role models

East African Regional Network of Excellence in Dairy Training

This initiative enhanced institutional and individual capabilities in dairy production, processing and business through blended learning. By fostering collaboration among education, private sector and government stakeholders, it established a shared platform for formal and informal training, connecting East African partners in Ethiopia, Kenya and Uganda to drive regional dairy education.

demonstrating a successful and professional approach to dairy farming can play a significant role in changing the sector’s image positively.

While the challenges faced by the new generation of dairy farmers may not be easy to tackle, it is essential for the sector’s future to innovate and devise new ways of working to ensure their success. Only by doing so can we secure a prosperous and sustainable future for dairy farming.

Support for young farmers that take over the family dairy farm

and a series of interactive workshops. These workshops will enable trainees to exchange ideas and discuss and reflect on technical and economic key performance indicators specific to their farms or collection centres while sharing valuable experiences and learnings. Drawing on the successful work of the East African Regional Network of Excellence in Dairy Training (EARNED), NEADAP will collaborate closely with knowledge institutes in Kenya, Uganda and Ethiopia, along with practical dairy training farms (PDTF). The blended learning

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Enhancing dairy farming through extension services

Authors: Annabelle Daburon and Kevine Otieno

The dairy industry in East Africa is a vital contributor to the region's economy and livelihoods. However, its potential has often been limited by challenges such as poor access to knowledge, outdated techniques and inadequate market access. NEADAP has recognized the critical role of extension and advisory services in propelling the dairy sector towards greater productivity and profitability.

NEADAP's commitment to supporting dairy advisory services has led to a comprehensive exploration of extension models across the six countries it covers. Through partnerships with Agriterra and Wageningen University & Research, NEADAP delved into the diverse landscape of extension services, aiming to uncover success factors, areas for improvement and strategies to enhance the entire dairy value chain.

We began with a broad survey conducted from November 2022 to January 2023. The survey engaged stakeholders from various segments of the dairy sector, including cooperatives, input suppliers, consultants, processors, financial institutions and digital platforms. A total of 216 responses were collected, offering a comprehensive understanding of the challenges and opportunities that underlie the dairy advisory landscape.

Following the survey, NEADAP conducted in-depth case studies between February and April 2023. These studies focused on Uganda and Kenya, each examining three different types of advisory services. The studies utilized a "5 Capabilities" framework to assess constraints and critical success factors, shedding light on the nuances of effective extension practices.

NEADAP's commitment to collaboration was evident through stakeholder workshops held from March to April 2023. These workshops validated the survey and case study findings, offering a platform for

robust discussions and insights. Engaging a range of professionals from the dairy value chain, these workshops provided a collective space to identify opportunities for improvement and to share experiences.

The exploration revealed several key takeaways that are poised to reshape the dairy advisory landscape in East Africa:

- **Diversity in services:** Traditional dairy advisory services such as cooperatives, input suppliers and public institutions dominate, but innovative players such as digital platforms and financial institutions are emerging, especially in Kenya, Uganda, Rwanda and Burundi.
- **Fragility and strengths:** While experienced staff, networking and stakeholder engagement emerged as critical success factors, the overarching weakness of a fragile business model and limited resource access was evident. Strengthening these aspects could pave the way for more resilient and impactful advisory services.
- **Soft skills are key:** Communication of extension messages, fine-tuning business

models and expanding networks emerged as top priorities for further support. Developing these soft skills can bridge gaps and elevate the effectiveness of extension services.

Armed with these insights, NEADAP's future endeavours are set to focus on building an extension service ecosystem that facilitates collaboration, learning and coordination among various extension providers. By fostering a cohesive and sustainable network, NEADAP aims to propel dairy farmers in East Africa towards enhanced productivity and enduring prosperity.

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About self-sustaining extension services

Self-sustaining extension services are agricultural extension services that are designed to be financially and operationally independent from government or donor support. This means that they are able to generate their own revenue through the sale of products or services, or through the collection of user fees.





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