

Exploring dairy extension service models in East Africa



“Potential for collaboration and synergies in different approaches”

Colophon

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Dairy extension services

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Introduction

The East African dairy subsector supports millions of farmers who rely on their dairy cows not only for subsistence but also as an investment for wealth creation. Challenges like climate change and shrinking land sizes pose existential threats to the sector, yet significant growth in demand for dairy products (as reported in [Food Business Africa](#) pp. 48-52) presents an opportunity that dairy farmers can exploit for sustainability.

Advisory services play a crucial role in helping farmers increase milk volumes through productivity gains, rather than from large herd sizes. Understanding the nexus between modalities, challenges and opportunities requires asking critical questions such as: How does this ecosystem of dairy extension support farmers? Are there gaps, untapped market or conflicting messages? What are the interests of each actor? How can these diverse actors coordinate for the betterment of the sector?

To answer these questions, [NEADAP](#) surveyed dairy advisory service providers in six East African countries – Kenya, Uganda, Tanzania, Rwanda, Burundi and Ethiopia – to understand what these providers do, how they work and their impact on the local dairy value chain. The survey revealed a rich set of extension models, from which six were selected for case studies and later validated by stakeholders during stakeholder workshops held in Kenya and Uganda. The participating service providers outlined what they consider to be the critical success factors for a sustainable dairy advisory service in their areas of operation. The data collected was analyzed and the findings published in [six mini reports](#), one for each type of dairy advisory service.

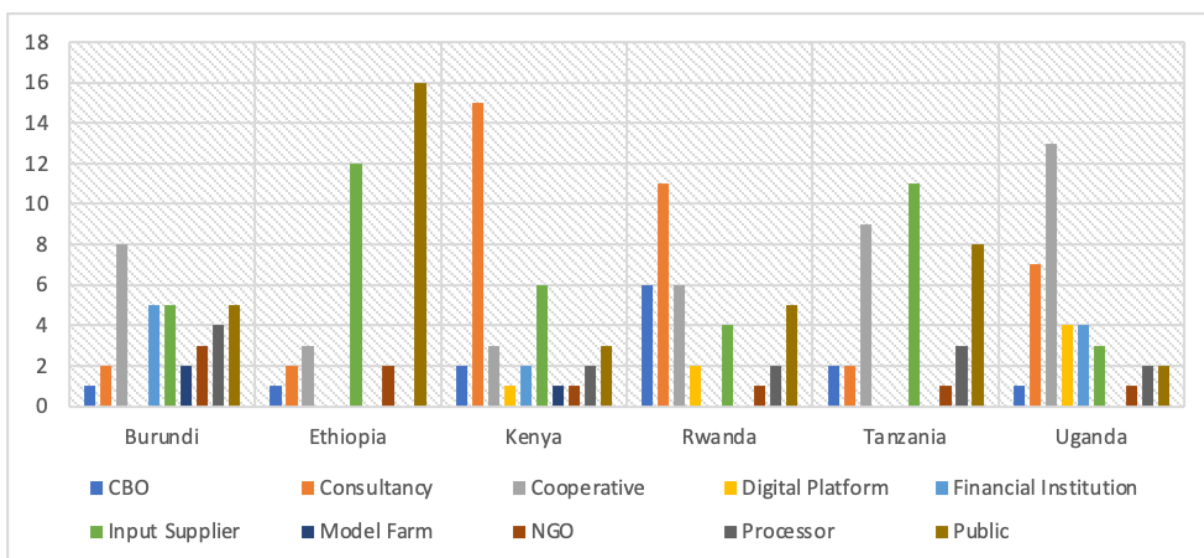
In this document, we look further at the implications arising from the survey findings and distil the characteristics of each extension model. Then we compare the models in terms of their critical factors before drawing conclusions that will support a more sustainable and inclusive dairy sector.

Overview of extension models

East Africa has witnessed the emergence of innovative extension models ([Kilelu et al. 2020](#)) designed to bridge the gaps of conventional extension services and provide more tailored solutions for dairy farmers. The models uncovered by our study include cooperatives, processors, input suppliers, financial institutions, digital platforms and consultants, each uniquely addressing specific facets of the dairy value chain. These models exhibit unique strengths, most notably their geographical proximity to farmers and remarkable adaptability to evolving circumstances, offering tailored services that

resonate with the needs of dairy farmers. Advisory services recognize that successful dairy farming requires context-specific solutions, and they are committed to co-creating these solutions with farmers. Yet, they grapple with substantial challenges, from inadequate business models to weak industry linkages and financial constraints, all of which directly affect service quality and the sustainability of advisory services within the region.

The survey results are by no means conclusive and do not paint a representative picture of the landscape, being limited to the dairy advisory service respondents as shown in the graph below. The distribution of types and services offered by these respondents across the six countries surveyed is captured in the [published overview report](#).



Characteristics of different extension models surveyed

After the survey, Kenya and Uganda were selected for case studies due to the wide range of fairly advanced dairy advisory service models present in those countries. The case studies and following stakeholder validation workshops revealed unique modes of operation of the selected models. Here is what we learnt in each case.

- a. **Input suppliers:** Input suppliers package their services differently, targeting distinct parts of the dairy value chain. For instance, Peniel Ventures Limited in Uganda is an input supplier that also offers advisory services around breeding, animal health and nutrition, and milk quality. It stocks veterinary supplies and dairy farm equipment and provides veterinary and animal health services to farmers. In contrast, Linkmash Uganda Limited concentrates its services around animal nutrition. It offers advisory services on feeds and fodder preparation, while selling pasture seeds and offering baling and silage-making services to farmers. In both instances, the input suppliers underscore the need for strong client relationships, which they implement through field visits and follow-up phone calls. The limited numbers of extension

staff deployed to farms and the reluctance of some farmers to pay for services constrain the revenue models that input suppliers can adopt. Input suppliers stressed the need for soft skill training to build the capacity of their teams to deliver effective dairy advisory service, especially considering the customer feedback. The input suppliers reported that facilitating collaboration and networking would help remedy some of their threats, especially capital resource constraints.

- b. **Cooperatives:** The majority of the cooperatives surveyed are involved in multiple activities across the dairy value chain. For instance, Tororo Dairy Cooperative in Uganda collects and processes milk and markets dairy products. It can increase the value of the milk collected and give farmers better prices because it considers better pricing a key success factor for the business. Other cooperatives are fairly young and only engage in one point of the value chain. For example, Ishongororo Town Cooperative Society (also in Uganda) was registered in 2019 to bulk milk from member farmers and sell it to a processor. The society has an inhouse extension agent to provide dairy advisory service to society members. In both cases, the cooperatives use the strength of membership as a bargaining tool to access a wider range of inputs and services for their members, especially in areas where they lack the capacity. They contract third parties to offer services, which the farmers then pay for through membership fees or deductions from payments for milk delivered. Overall, there is an opportunity for cooperatives to strengthen their business models for sustainable growth. The stakeholders underscored the need for soft skill training to build the capacity of cooperatives to deliver effective dairy advisory services. They also emphasized the need for a central platform that connects all the dairy value chain players to improve visibility and increase the opportunities for collaboration among various players.
- c. **Digital platforms:** Digital platforms are leveraging current technological shifts to create knowledge repositories, marketplaces and interactive forums for training and consultation. In Kenya, standalone web and mobile apps have sprung up to meet the needs of local farmers and disrupt the dairy advisory ecosystem. [Cowsoko](#), for instance, is a platform that allows farmers to buy and sell dairy animals across the country. The platform provides protection against fraud and offers advice to the farmer on how to successfully acquire livestock. Another popular app in Kenya is [Digicow](#), which provides learning materials for farmers and has consultations via live call so farmers can get advice when they need it. This platform also integrates a dairy herd fertility management system that alerts the artificial insemination service provider ahead of time to ensure that cows on heat get timely service. There are also a number of dairy farming Facebook groups (e.g. [Kenya Dairy Farmers Forum](#) with almost 300,000 members) where dairy farmers interact and exchange ideas. Coopers Kenya Limited has a [YouTube channel](#) where it provides digital extension. In Uganda, [iKnowFarm](#) and [eFarmu](#) are SAAS (software as a service) digital solutions for managing dairy farms. These platforms facilitate real-time interactions, enabling farmers to access timely reports, connect with

experts and seek solutions to immediate challenges. However, the adoption of digital extension still faces a number of challenges in the region ([Kansiime et al. 2022](#)), including high cost of acquiring digital devices, high cost of data for connectivity and the need for training to orient people to technological solutions. Another bottleneck to scalability of digital extension services is the ability to match peak demand with available human resources since enquiries traffic can peak unexpectedly.

- d. **Financial institutions**: Financial institutions have recognized the significance of dairy farming in East Africa and are stepping in to provide advisory services. Institutions like [Skyline SACCO](#) in Kenya work with cooperative unions to offer training on financial needs assessment that helps dairy farmers invest their money prudently. Its extension agents assess the risk at the farm, advise the farmer on how to mitigate it and develop a strategic plan to ensure better returns on investment. [Equity Bank](#) has been at the forefront of tailoring industry-specific financial products and advisory services as a package. The bank's agricultural field officers offer technical advice to the farmer and make regular visits to the farm during the life of the loan. Even though financial institutions are continually developing financial products – including credit, insurance and loans – for the dairy sector, the industry's high-risk threshold makes it less appealing for significant investment by bankers.
- e. **Processors**: By virtue of being the largest buyers of milk from farmers, processors are strategically positioned to control milk quality and offer advisory services to address the problems farmers face. In Kenya, [Brookside Dairy Limited](#) organizes field days where farmers come to learn the best practices for ensuring clean milk production through cow nutrition, animal health and post-harvest handling of milk. Brookside also has model farms where a selected local farmer is trained and equipped. The farm is then used as a demonstration unit where local farmers are brought together for training by observation and practice. This hands-on learning method helps farmers adopt best practices more readily, since model farms capitalize on their locality, ensuring that the solutions developed are attuned to the specific challenges faced by local farmers ([Kilelu et al. 2021](#)). Since processors are protecting their profit and growth interests, they create innovative revenue models (embedded services). For instance, the processor contracts service providers who offer their services to the contracted farmers without requiring upfront payment; the processor then pays the service providers at the end of the month and recovers the service fees through the farmers' milk supplies. Farmers who supply milk to the [New KCC](#) (also in Kenya) get to tap into the processor's large pool of networked service providers, where they are able to access services on credit by guarantee from the processor.
- f. **Consultants**: Consultants are flexible and can meet the needs of their clients more effectively because they deal with one client at a time. They may have their own model farm for demonstration where they offer training, as is the case with [Rubyerwa Dairy Investment Limited](#) in Uganda and [AgriDairy Innovations Limited](#) in Kenya. These consultancies tap into

their expertise and work with the farmer to design solutions better suited to their needs. However, they often encounter fund constraints and may lack visibility due to their small size. Opportunities stem from investments in the dairy value chain and increasing demand for their expertise. People getting into dairy farming are realizing the need to take a business approach, so they hire experts to help them bridge their knowledge gaps.

Comparison of different extension models

In evaluating various extension models employed in the East African dairy sector, it is important to understand how they interact and what opportunities therefore exist within the value chain. Our comparative analysis is anchored on the cross-cutting critical factors identified during the survey, including **business model, scope of service and geographical reach, and linkages and networking.**

- a) **Business model:** Input suppliers and cooperatives rely on client relationships and experience in service delivery. They can complement each other and improve the quality of their core businesses, for example, by cooperatives concentrating more on buying milk and guaranteeing payment of the services and products their members obtain from input suppliers. This model has been adopted by Mumberes Farmers' Cooperative Society in Kenya, which facilitates acquisition of farm inputs for its members on credit (deductible from milk deliveries) from selected input suppliers. Input suppliers can anchor their services around the products they sell, making it a complete package and increasing perceived value. Digital platforms utilize technology-driven models, capitalizing on the power of digital networks and the growing pool of tech-savvy people in the younger generation. Yet they grapple with funding issues, requiring substantial investment in technology infrastructure and content creation. Financial institutions primarily focus on financial literacy and inclusion, aligning their business models with providing credit, loans and insurance to dairy farmers. Processors, on the other hand, derive their business models from value addition, working closely with farmers for a consistent supply of raw milk. Consultants rely on their expertise, offering specialized services tailored to meet the needs of individual clients. By strengthening business models, service providers can mitigate financial constraints affecting their businesses and support their organizations for sustainability.
- b) **Service scope and geographical reach:** Input suppliers and cooperatives generally offer non-specialized dairy advisory services, from input provision to training and market linkages. However, their reach tends to be more localized, often serving specific regions or communities where they operate. This allows them to attune the services to meet local needs, giving them the competitive edge in service delivery. Digital platforms leverage technology to provide a broad scope of services, from knowledge dissemination to market access, often reaching a larger, more dispersed audience. The constraints of digital platforms include the need to train users on how to use the technology and the high cost of acquiring and running the digital devices needed to access the services. Financial institutions focus primarily on financial

services, which can span across regions but may not encompass the full range of dairy advisory. Processors are deeply integrated into the value chain and therefore offer services primarily related to milk collection and processing and to ensuring improvement in quality and quantity of milk procured within their operational areas. Consultants bring specialized expertise but typically have a limited geographic reach due to the nature of their services.

- c) **Linkages and networking:** Input suppliers and cooperatives, with their established client relationships, have a solid foundation for networking but may benefit from expanding partnerships with other stakeholders such as consultants to improve the scope and quality of service. Digital platforms inherently thrive on connectivity, leveraging technology to create extensive networks of farmers and experts. Collaboration with cooperatives can be an excellent entry point to introduce digital solutions. Financial institutions often have connections with various players in the dairy value chain (e.g. cooperatives and input suppliers), which they can leverage to increase reach. Processors have well-established links within the dairy sector, particularly with farmers, but there may be opportunities to extend their networks further upstream to collaborate with the other advisory service providers for sustainable service offerings. Consultants rely on their expertise to collaborate with other players in the industry, facilitating knowledge sharing and service offering as is the case with Peniel Ventures in Uganda, which collaborates with local cooperatives to offer veterinary services to their members.

This comparative analysis illustrates that while some models offer comprehensive services, their reach may be restricted; others prioritize wider geographical coverage but may have a narrower service scope. The business model adopted by a dairy advisory service provider depends on the type of service offered, local regulations, target audience and even the level of expertise required. In each case, the players mention challenges including financial constraints and inadequate business models and linkages to a wider pool of dairy sector players. Collaboration among these models can help bridge these gaps, delivering holistic, regionally tailored dairy advisory solutions.

Key conclusions

A sustainable and inclusive dairy sector in East Africa hinges on embracing diversity, addressing common challenges and fostering collaboration among advisory models. Several insightful conclusions emerge from the current analysis, shedding light on the path towards a more sustainable and inclusive dairy sector:

1. **Financial constraints as a common challenge:** Collaborative efforts to secure funding and investment opportunities can bolster capacity to deliver effective advisory services. Training

in business modelling is needed to help the extension models build financially sustainable dairy advisory service businesses.

2. **Coordinated approaches:** Synergy among these models can bridge gaps, leverage their respective strengths and offer holistic solutions to dairy farmers. Collaboration will also help the models improve the quality of their service offering as they will be able to focus on their areas of expertise, interest and strengths.
3. **Digital transformation:** Investment in digitalization and the creation of an enabling environment are crucial steps in this transformation. By enhancing access to digital services, farmers can stay connected to digital advisory portals and use the digital platforms to enhance market access for their products. The portals can then form access points to rich databases for up-to-date information that can be used for effective decision-making.
4. **Tailored approaches:** Co-creation of solutions with farmers and active engagement in decision-making processes are pivotal for effectiveness. The developed solutions should be institutionalized locally to ensure sustainability. Models must build resilience and adaptability into their advisory services to help farmers navigate these challenges effectively.
5. **Job creation:** This study established that extension service providers employ mostly youth and women, who are the most vulnerable to unemployment. Increased investments in the sector can facilitate creation of more jobs to mitigate unemployment in the region.

Through this study, NEADAP reiterates its commitment to supporting the East African dairy sector by addressing critical questions about the role of extension models in enhancing dairy productivity and sustainability and exploring the implications of these findings. We strive to contribute valuable insights to inform strategies and decisions that can optimize dairy advisory services for the benefit of farmers and the dairy industry in the region. To drive this vision forward, it is imperative that stakeholders across the sector actively engage in knowledge sharing, resource mobilization and coordinated efforts to empower the dairy farmers in East Africa.

Netherlands East Africa Dairy Partnership

The Netherlands East African Dairy Partnership (NEADAP) offers a platform for exchange of knowledge and experience to tackle current challenges and leverage further development in East African dairy. NEADAP core partners are Agriterra, SNV, Solidaridad and Wageningen University & Research (WUR), each with their own knowledge, expertise, networks, local partners and projects in East Africa.

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