



ERITREA: MAIDEN NATIONAL DAIRY VALUE-CHAIN CONFERENCE

"A Platform for Ensuring Sufficient, Affordable, and Safe Milk and its Products"

The Eritrean Ministry of Agriculture (MoA), organized First National Dairy Value-chain Conference on the 21st and 22nd of February 2024 under the theme, "A Platform for Ensuring Sufficient, Affordable, and Safe, Milk and its Products."

Out of more than 200 conference participants, those from inside the country represented higher government officials including ministers and governors of administrative regions; ambassadors of several countries, director generals from different ministries; representatives of the relevant UN entities in Eritrea; executives of pertinent corporations; colleges deans; senior technical experts; representatives from local dairy farming/processing plants; as well as invited guests.

The event also witnessed participation of representatives from the DeSIRA Project; IFAD; FAO; TEAGASC (The Agriculture and Food Development Authority of Ireland); Vita-Ireland; ASARECA (Associations for Strengthening Agricultural Research in Eastern and Central Africa); GI Science Solutions, South

Africa; Indian Agriculture Institute; National Dairy Research Institute, India; and Value-Added Dairy Limited Kenya, among others. A total of eleven experts representing institutions from Denmark, Ireland, Kenya, Uganda, South Africa and India presented research papers at the conference. A video show depicting history and status of dairy value-chain in Eritrea was also displayed. Furthermore, nine research papers were presented by Eritrean experts in this conference which took place in Asmara, at Selam Conference Center of Hotel Asmara Palace.

At the onset, Dr. Tzeggai Tesfai, Chairman of the Dairy Value-chain Conference Organizing Committee, and Director of Livestock Research Division of the National Agricultural Research Institute (NARI), welcomed all participants and elucidated that the conference was organized in line with the national development goal, and with a view to creating a platform for knowledge and experience-sharing between Eritrean Experts and their counterparts from various institutions and countries. Dr. Tzeggai went on explaining that development of the dairy sub-sector in Eritrea can



H.E. Mr. Arefaine Berhe

have a paramount importance in relation to the national endeavours of eradicating malnutrition and poverty, ensuring safe and nutritious food; as well as creating job opportunities.

Delivering the keynote address of the conference, H.E. Mr. Arefaine Berhe, Minister of Agriculture, said, "Collaboration and partnerships are key to success. This conference provides a unique platform for stakeholders from government, industry, academia, and civil society to come together, exchange ideas, and forge alliances. By working hand-in-hand, we can overcome challenges, leverage opportunities, and drive sustainable growth in the dairy value-chain." (Full content of H.E. Mr. Arefaine's key note speech is



Dr. Tzeggai Tesfai



incorporated in this publication as a separate section on page 15).

Collectively, 20 scientific papers were presented in four sessions, while group discussions of selected technical experts and a high-level meeting were important elements of the conference. Moreover, conference participants from outside Eritrea had an opportunity

to tour some Art Deco Sites within Asmara city. Besides, field visits were conducted on the 23rd of February during which the conference participants toured farmlands of some exemplary dairy farmers in Debarwa sub-zone, prior to their stay in the NARI's livestock research site in Halhale.

This part of the event was a good opportunity for the conference

participants from abroad to make direct general observation on the on-going research undertakings, and for practical on-site discussions with Eritrean experts. The field trip wound up following a visit to Azieb Agro-industry's flourishing milk processing plant in Halhale. This enterprise served a cocktail of assorted cheese varieties and other milk products for all visitors.



**List of local papers presented at the conference vis-à-vis
the names of the presenters:**



**“The Eritrean Dairy Sector: Historical Development, Current
Status and Future Prospects”**

Presented by Mr. Kahsay Negash, Director of Crop and Livestock
Development Division, Agricultural Extension Division, MoA, Eritrea



**“Dairy Farm Entrepreneurship: Experiences from
Azieb Agro-industry”**

Presented by Mr. Abrham Michael, General Manager of
Azieb Agro-industry, Eritrea



**“Dairy Farming Systems in Eritrea: Challenges,
Opportunities, and Mitigation Strategies”**

Presented by Mr. Eskender Tesfay, Head of Animal Feed and Feeding
Research Unit, NARI, MoA, Eritrea



**“Pathways for Closing Yield and Gross Margin Gaps in Dairy
Farms: Insights from Eritrea”**

Presented by Mr. Tesfai Tsegai, Head of Sectorial Planning Unit,
Planning and Statistics Division (PSD), MoA, Eritrea



**“Safety and Quality Control of Milk and its Products in
Eritrea: Review of Experiences and Trends”**

Presented by Mr. Awet Russom, Head of Veterinary Drugs and
Biologics Inspection Unit, Regulatory Services Department (RSD),
MoA, Eritrea

“SMAP: Experience on Dairy Farm and Processing: Opportunities and Challenges”

Presented by Prof. Tesfay Haile, Managing Director of SMAP Institute,
Eritrea



“Dairy Value-chain Development in Eritrea: Prospects and Challenges”

Presented by Misghina Okbaslassie, Head of Agri-business
Development and Investment Coordination Unit, PSD, MoA, Eritrea



“Brucellosis Trend in Eritrea, and it’s Public Health Impact”

Presented by Ms. Soliana Binega, from the National Animal and
Plant Health Laboratory (NAPHL), MoA, Eritrea



“Prevalence, Aetiology and Associated Risk Factors of Bovine Mastitis in Dairy Cows in Anseba Region of Eritrea”

Presented by Mr. Bereket Habte, Veterinary Science Department of
Hamelmalo Agricultural College, Eritrea

List of Regional and International papers presented at the conference vis-à-vis the names of the presenters:



How to Empower Eritrea's Smallholder Dairy Farmers Towards a Sustainable and Profitable Future in Dairy Farming"

Presented by Dr. Jorgen Henriksen, CSARIDE Senior Livestock/ Dairy Research and Development Expert, Denmark



"Climate Smart Agriculture Research and Innovation Support for Dairy Value-chains in Eritrea (CSARIDE)"

Presented by Dr. Lance O'Brien, Coordinator, DeSIRA-CSARIDE Project, Ireland



"Role of TEAGASC (Research, Extension and Education) in the Development of the Irish Dairy Industry: Some Examples"

Presented by Paul Maher, Head of International Relations and Corporate Strategy, TEAGASC, Ireland



"Growth of India's Dairy Processing Sector: Lessons for Eritrea"

Presented by Dr. Narender Raju Panjagari, National Dairy Research Institute of India



"A Success Story of India's Milk Production and its Associated Challenges: Lessons for Eritrea"

Presented by Dr. Sanjay Kumar, Assistant Professor, Department of Livestock Products Technology, Negi College of Veterinary and Animal Science, India



**"Food Safety in the Eritrean Dairy Industry:
From Source to Store,"**

Presented by Dr. Steven John Schneeberger, GI Science Solutions,
South Africa



**"Promoting Agricultural Transformation in Africa: The
ASARECA Approach"**

Presented by Ms. Blaise Amony, Capacity Development Officer,
ASARECA



"Innovation for Value-added Milk Production"

Presented by Margaret Munene, CEO of Palmhouse Dairies Ltd., Kenya



**"Lessons Learnt From Implementing Dairy Development
Projects: IFAD's Experience"**

Presented by Dr. Charles Odhong, Country Technical Analyst –
Livestock, ESA

**"FAO's Support to the Dairy Value Chain to Strengthen Food
Security in Eastern Africa"**

Presented by Dr. Ricarda Mondry, FAO Livestock Development Officer
for Eastern Africa



**"Milestones in the Development of the Irish Dairy Industry:
Possible Lessons for Eritrea"**

Presented by Prof. Gerry Boyle, Climate and Food Ambassador Vita,
Ireland



Next to the conclusion of presentation sessions of research papers on the second day, a total of six exemplary dairy farmers and/or processors from the Central, Southern, Anseba and Gash-Barka regions of Eritrea were awarded for their outstanding performances.

Mr. Omer Yusuf, dairy farmer

Address: Keren, Anseba Region

- Started farming in 2014
- Currently owns 30 cows (Holstein-Friesian)
- Average milking rate: 24 litres/cow/day
- Depends on forage-based feed system
- Applies experts' advice
- Shares knowledge with other farmers
- Fully depends on artificial insemination (AI)



Mr. Andebrhan Arefe, dairy farmer

**Address: Akurdet,
Gash-Barka Region**

- Started farming in 2007
- Currently owns 26 cows (Barka, Holstein-Friesian, cross)
- Average milking rate:
- From Holstein-Friesian - 15 litres per cow, per day
- From cross-breeds - 12 litres per cow, per day
- From local/Barka breeds - 5 litres per cow, per day
- Emphasizes on forage production
- Applies experts' advice
- Shares knowledge with other farmers



Ms. Tiegisti Hintsa, dairy farmer

**Address: Beleza Village,
Central Region**

- Started farming in 2005
- Currently owns 20 cows (Holstein-Friesian)
- Average milking rate: 15 litres/cow/day
- Depends on forage-based feed system
- Applies experts' advice
- Uses artificial insemination (AI) service



SMAP Dairy Farm

**Address: Mendefera,
Southern Region**

- Started farming in 2013
- Currently owns 40 cows (Holstein-Friesian)
- Average milking rate: 15 litres/cow/day
- Produces forage through hydroponic farming
- Applies experts' advice
- Shares knowledge with other farmers
- Processes its own milk into different products
- Organizes trainings



Asmara Meat and Dairy Processing Plant

Address: Asmara, Central Region

- Started dairy farming 1999
- Started processing 25 years ago
- Total herd size: 200 cows
- Purchases nearly 1,000 litres of raw milk for processing
- Supplies safe processed products to the market
- Adheres to national agricultural regulatory guidelines



Azieb Agro-industry, milk processor

Address: Halhale, Southern Region

- Started dairy farming in 2007
- Total herd size: 150 cows
- Purchases up to 5,000 litres of raw milk for processing
- Supplies safe processed products to the market
- Transports forage from its farm in the western lowlands
- Adheres to national agricultural regulatory guidelines
- Constructing a new processing plant with international standards



Conference Remarks



As a crucial constituent of the conference, Dr. Charles Odhong, representing IFAD's Regional Office, Dr. Ricarda Mondry, representing FAO's Sub-regional Office for Eastern Africa, and Prof. Gerry Boyle, former director of TEAGASC, gave joint remarks which focused on the importance of:

- Adherence to climate-smart fodder and feed production;
- Promoting knowledge-sharing activities with farmers and encouraging organization of stable farmers' cooperatives;
- Application of available materials that increase feed digestibility;
- Focused policy-level interventions; enhancing solution-oriented research activities;
- Ensuring that farmers are beneficiaries of research outcomes;
- Encouraging investment;
- Fostering cooperation;
- Regular learning from good practices of other countries;
- Planning for robust and resilient next generation breeds



Outcome of the High-Level Meeting in a Nutshell

A high-level meeting, chaired by H.E. Mr. Arefaine Berhe, was also conducted on the 23rd of February 2023 with representatives of TEAGASC, ASARECA, DeSIRA Project, FAO, IFAD, KALRO, EIDP, India, VITA, SENSE, HAC etc. Participants of the meeting discussed and agreed on possible collaborations with regards to capacity building, Exchange of materials and technology as well as designing policy and strategy in the field of dairy sub-sector.



Personal Impressions of Regional and International Conference Participants

Dr. Ricarda Mondry



My name is Dr. Ricarda Mondry. I am Livestock Development Officer and work for FAO's Sub-regional Office for Eastern Africa.

The conference was such an excellent opportunity for all national and international participants to meet, exchange views, and share experiences. It involved a very diverse group of participants who are passionate about dairy and its potential for strengthening food and nutrition security and economic development.

FAO cooperates closely with the MoA. It is our key line ministry and we have already been discussing on joint projects of increasing fodder and feed production, as well as promoting food hygiene and controlling along meat and milk value-chain. FAO continuously extends support on animal health, particularly with more focus on trans-boundary animal diseases, zoonotic diseases, as well as related activities with higher economic impact, such as vaccination campaigns, training and laboratory equipment.

During the recent years, milk production has increased in Eritrea as a result of the MoA's engagement in supporting dairy farmers, importation of exotic dairy breeds, and strengthening of farmers' capacity, as well as that of other value-chain

actors. In Eritrea, I am always very impressed by the good extension system, and by the availability of many knowledgeable extension agents who work closely with farmers. This is an exceptional strong side and allows easy induction of specific inputs, for example, training master trainers who can transfer the knowledge they acquire through Farmers Field Schools. While the import of, and cross breeding with, exotic dairy cattle can increase milk production significantly, and has a huge development potential for countries, it is important to avoid indiscriminate cross-breeding, which could compromise the genetic integrity of local populations. Loss of local breeds could result in loss of products and services preferred by local people, limited future development options, and loss of advantageous genetic traits such as disease resistance and climatic resilience. Therefore, the conservation of local breeds must always be supported at the same time when exotic breeds are imported, and cross-breeding programmes should be carefully designed and monitored in harmony with this principle.

Of course, like in many countries of the East African region, there are some bottlenecks that need to be addressed steadfastly in order to ensure a sustainable, thriving dairy sub-sector development. For instance, producing sufficient feed in the country is not a straightforward undertaking, taking into account the region's vulnerability to climate change. However, if all partners present at this conference continue engaging together, I am confident that we can find ways and means to overcome this challenge. There are potentially pursuable strategies in this regards. Climate-smart fodder production and increased use of crop residues are some of these. Generally, the National Dairy Value-chain Conference was a great occasion for

all of us to meet and discuss how we can collaborate.

Dr. Narender Raju Panjagari

My name is Dr. Narender Raju. I think this dairy value-chain conference can be regarded as a landmark event in the history of Eritrean agriculture. It has been conceptualized to cover the entire dairy value-chain with speakers from different countries and international agencies: Sharing their experiences and giving the right platform for cross-learning. It is not only Eritrea that is learning about the key performance indicators of the dairy value-chain; but every participating country had the chance to pick the best practices to this effect.



This conference is of higher importance for Eritrea in improving its current dairy value-chain practice, i.e. by enhancing the productivity of the breeds, allotting adequate land for forage production, encouraging modern/scientific dairy practices, taking disease management system to the next level, adherence to more efficient procurement and processing methods, as well as boosting milk value-addition.

India is the world's largest milk producer and the success of the Indian dairy sector can be attributed to effective implementation of the Anand model of cooperative societies across the country. In this context, Eritrea can learn more from cooperative structure of dairy development. However, for this cherished goal to be materialized, several factors such as commitment of people, policy support, farmer-friendly regulations, appropriate extent and timeliness of investment, robust marketing constitute major prerequisite. Human resource development across the entire value-chain should also be another area of focus. I think, tailored course would be of much help in this regard.

I have just learnt that India and the State of Eritrea have entered into an agreement for cooperation in the area of agriculture and other fields. In connection with this, experts, students and research scholars may get advanced training in dairy processing, including the dairy technology, dairy engineering, dairy chemistry and dairy micro-biology sub-areas at my institute. As a way forward, my recommendation is that the Eritrean dairy sub-sector, especially the processing activities, focus on ensuring safety of milk and its products through effective thermal processing and packaging means.

Finally, I would like to point out some critical issues the MoA should give further attention to. These issues include the needs of conducting livestock census vis-à-vis demographic survey; securing first-hand information on milk production and consumption patterns; as well as formulation of sound marketing strategy in relation to the fasting seasons.

Mr. John Weakliam

My name is John Weakliam. I work for EIDP (Eritrea-Ireland Development Partnership), which is an organization comprising the MoA of Eritrea, TEAGASC, VITA, and Self-Help Africa. The National Dairy Value-chain



Conference has demonstrated that Eritrea has the potential of farmers, scientists, and partners to become self-sufficient in milk and dairy products, and an exporter to the region.

This conference is a step forward according to my personal observation over the past 20 years, i.e. in showcasing the modernization of the dairy sector. EIDP is currently Ireland's strongest organization of agricultural partnership anywhere in Africa. I look forward to furthered good collaboration. And I congratulate the MoA for organizing such a successful conference and recommend that more focus is given to building data system across the dairy value-chain.

Ms. Blaise Amony

My name is Blaise Amony. I work as Capacity Development Officer for ASARECA. The National Dairy



Value-chain Conference served as a good platform for bringing all stakeholders that are involved in the dairy value-chain. Matters of major importance in the value-chain were discussed well. I wish it should even be an annual event that can promote development of the dairy sector, because it is helpful in identifying, defining and tackling the challenges as well as opportunities of Eritrean dairy sub-sector by learning from the experiences of other countries.

As MoA is part of the governing body of ASARECA, our organization has had good cooperation with the ministry. The MoA has been supporting to my organization; and ASARECA, on its part, has partnered with the ministry in implementing some projects in Eritrea. I hope we can go through another facet of collaboration regarding the dairy sub-sector. I could learn that more needs to be done in this country to attract youths to dairy farming and processing practices, tackle feed shortage by encouraging application of new technologies, and ensure that greater land proportion is set aside for forage production. So, the way forward should target the identified challenges, and there is a need to draw a clear roadmap on how to address them, for Eritrea has a huge potential of dairy development.

Dr. Lance O'Brien

My name is Dr. Lance O'Brien. I am the Coordinator of the DeSIRA-CSARIDE Project. What we have done in this conference has laid ground for future collaboration. I am very pleased by its outcome. The research papers were rich and insightful, and their presentations were managed very well. There was also good interaction and exchange of views among the conference participants. The minister had also a special meeting with some of us. We discussed some ideas regarding how and when we follow, and who will be responsible. This was extremely good as well. It is a special thing that we stayed a little bit longer and have discussed about how things



could be done in the future. And the field visit was very fantastic. We visited two farms: Male and female farmers. Both of them are excellent. They have good animals and production system in place for subsistence. All I can see is that this model can be replicated in potential farmers all over Eritrea so that they can adopt that level of professionalism in their practice. Overall, I'd like to say that I am so pleased that I have been here, and about the conference. I look forward to seeing its results in the future.

Dr. Charles Odhong

My name is Charles Odhong. I work as Livestock Technical Analyst with the Regional Office of IFAD, which covers the eastern and southern African countries. First and foremost, I'd like to thank the organizers of the conference for inviting me to make a presentation on my organization's relevant experience of implementing dairy programs. I was very impressed by the organization of the conference. I can see that topics of interest for the country were selected carefully



addressing the cost milk production, experiences and technology required to manage livestock etc. And I feel that all the topics were well covered. We have come across a lot of information, as a result. We had further an opportunity to visit different farms. A lot of innovative activities are also taking place at the livestock research ground in NARI. One of the important things I saw is the intervention involving a special distribution system of exotic cows. What impressed me generally is that Eritrea is starting to work on its own to develop the dairy sub-sector by producing breeds and feeds in such a way that can ensure sustainability in the long-term. We have seen that investments are being done with more focus on the future. I can see that, especially those of us who came from Africa, it is time for us to do things by ourselves. This was particularly an eye-opener to me.

Prof. Gerry Boyle



My name is Gerry Boyle. I am the former director of TEAGASC Ireland. This is my third visit to Eritrea. I am delighted to be back to this beautiful country. At this conference, I made a presentation on the history of the Irish dairy industry. There is an extraordinary potential for dairy development here in Eritrea. We have visited some farms and toured NARI's livestock research activities. It is very interesting to witness the pathway several farmers in Eritrea are pursuing. It is very similar to what farmers have done in Ireland across

many years. We are indeed ahead of you but I have no doubt that, with the resolute governmental commitment, determination of entrepreneurs involved in dairy processing, and excellence of people involved in research and extension, the dairy industry of Eritrea will gradually develop in the same manner as that of Ireland.

Ms. Margaret Munene



My name is Margaret Munene. I am in the dairy industry in Kenya. I run a private dairy processing company, Palmhouse Dairies Ltd. This is my first time to visit Eritrea, and I am really happy for taking part in the conference. It was very organized and of diversified participants. Although the dairy industry of Kenya is a little bit ahead of that of Eritrea, I have learned a lot from the presenters. I was also impressed by a number of wonderful things you have been doing. I like the way you encourage your farmers in improving breeds and animal husbandry, because these two factors are very important. I am sure that the dairy industry of this country will continue to grow. I had also the opportunity to visit NARI and see how the livestock research undertakings look like, especially the cross-breeding of your indigenous cows with the Holstein Friesian cattle. We know that the outcome is vital in terms of promoting overall environmental resilience and productivity of dairy farms. The project where worthy farmers serve as a core of distribution of exotic breeds by passing on a heifer to their fellows is also an admirable one.

Discussion points and deliberations shared at the conference

- The most important points of the conference's overall discussions can be summarized as follows:
- Eritrea has a great potential for dairy value-chain development: Suitable climate, dedicated farmers, availability of sufficient land in the western lowlands, proximity to export markets, sectorial commitment to develop the dairy industry
- Promoting total farm recording scheme is vital ("If you can't measure it, you can't manage it"): Informed farm level decisions, informed sectorial strategies, tailored research outputs, and effective extension services
- Reliance on home-produced forage is crucial: Less expensive, more safe and of better quality, ensures resilience in the face of price and yield volatility, and Ireland's pursuance of this strategy and its progress towards being among the leaders of the global dairy industry was discussed as a model
- Promoting integrated dairy farming: Integrated farms can provide better solutions through reduced cost of feed, provide an opportunity of efficient recycling of dairy waste, and ensure greater share of revenues from the value-chain
- Research and innovation are key in addressing value-chain challenges: We need to continuously support farmers through research on cost-effective ration formulation (Nutrition), identification of drought-tolerant forages, economics of dairy farming, production of safe and quality milk, as well as adoption of climate smart innovations
- Strong dairy associations are prerequisite for dairy development cooperatives (no record of dairy development

without successful dairy): The advantages include economies of scale, pooled resources, common problems and common solutions, easy planning and resources management, as well as the fact that associations work very well in dairying as compared to other agricultural commodities

- Prioritization of public goods and services in the utilization of scarce resources: Education, research, extension and environment
- Integration of research, extension and training activities is critically important
- Empowerment of the Youth and women who are involved in the dairy value-chain: On the basis of ensuring credit access and training opportunities, as well as encouraging business start-ups
- Capacity-building is a key enabling factor in dairy development as it ensures science and technology-driven dairy production, selective breeding practices, entrepreneurship skills, data management, as well as competent dairy associations and processors
- Potential area of investment in the dairy value-chain: Specialized large-scale dairy feed production, provision of artificial insemination and veterinary services, supply of small-scale dairy equipment and tools, in addition to dairy processing with special focus on milk ingredients
- Breed and breeding issues: Conservation of indigenous breeds, and focusing on cows that are resilient to the local environment and management level, instead of high-yielding dairy cattle breeds
- Policy issues: The fact that policy should focus on how it sequences interventions was scrutinized.



For example, development of technology should be emphasized over price issues

- Top management should play a pivotal role with regard to ensuring food safety ("If it is not safe, it is not food"): Reducing public health risks along the dairy value-chain and thus promoting consumer confidence
- Eritrea's wide network of extension system was commended for being a great asset for dairy development. Effective utilization of such established system can contribute a lot to better advisory services. Besides, it makes things easy for stakeholders to give additional inputs
- Continuous communication and collaboration is important to make a difference for the realization of a better future
- Paradigm shift in advisory services: Advisory services providers need to learn from the successes and failures of other countries, we need to nurture a compelling conviction that farmers are partners, while understanding farmers' views and interests should be dealt as an important issue
- Ultimately, the conference was assessed as a well-organized and fruitful one.

H.E. Mr. Arefaine Berhe's Key Note Address on the First National Dairy Value-chain Conference



Mr. Chairman

Honorable Ministers, Governors and High Government Officials

Excellencies, Ambassadors, and Heads of UN Agencies

Deans of Colleges

Distinguished participants from TEAGASC, DeSira, Vita, ASARECA, IFAD, Research Institutes and Higher Education

Invited guests

Ladies and Gentlemen

All protocols observed.

It is, indeed, my rare pleasure to warmly welcome you all, and especially those coming from outside the country, to participate in this maiden conference on dairy value-chain. This gathering marks a significant milestone in our collective efforts to enhance and optimize the dairy industry.

The dairy sector plays a crucial role in our economy, providing livelihoods to millions of farmers and contributing to the overall growth and development of our nations. However, it is imperative that we recognize the challenges and opportunities that lie ahead in this ever-evolving landscape.