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Strategic interventions in dairy production in developing countries can help meet growing global demand for milk

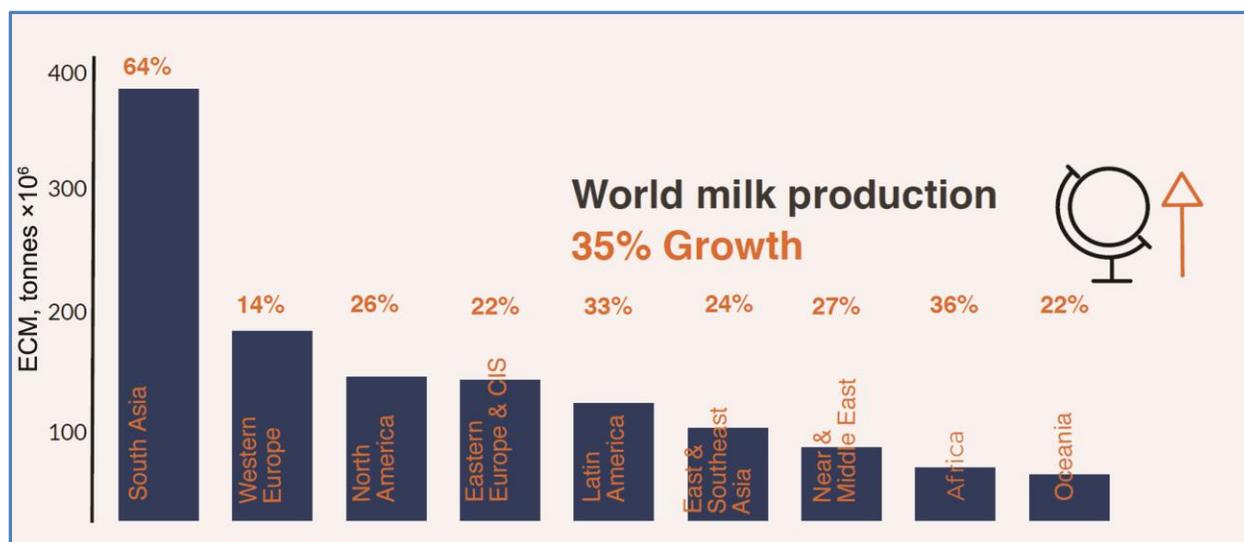
Dairy production in developing countries highlighted in November issue of the Journal of Dairy Science®

Philadelphia, October 15, 2020 – Low dairy consumption is common among low- and middle-income countries (LMICs); however, with the demand for milk in these countries projected to increase over the next few decades, there is an opportunity to improve the lives of millions of people from the nutritional benefits of dairy products. Feed the Future Innovation Lab for Livestock Systems hosted the “MILK Symposium: Improving Milk Production, Quality, and Safety in Developing Countries” at the 2019 American Dairy Science Association® Annual Meeting to address factors that cause low dairy consumption in LMICs and discuss strategies to address them. The [Journal of Dairy Science](#) invited speakers to submit articles on topics from the symposium to reach a wider audience.

“Dairy consumption levels are low in LMICs due to low affordability, accessibility, and availability caused by inadequate feeding, management, and genetics; poor transport, cooling, and processing infrastructure; uncondusive policy environments; and sociocultural and demographic factors,” explained Adegbola Adesogan, PhD, Director of the Feed the Future Innovation Lab for Livestock Systems at the University of Florida, Gainesville, FL, USA. “These papers collectively show how strategic interventions can lead to marked improvements in dairy production in developing countries.”

The symposium started by reviewing the importance of dairy foods in diets of infants, adolescents, pregnant women, adults, and the elderly. It provided current research evidence that dairy foods

consumption does not lead to an increased risk of cardiovascular disease and type 2 diabetes; rather, dairy products offer an important supply of nutrition and functionality that are of particular importance at certain life stages.



Caption: Projected volumes of milk (ECM, International Energy Corrected Milk) that will be produced by region in 2030 and percentage increase over 2017 levels (International Farm Comparison Network, IFCN, 2018) CIS = Commonwealth of Independent States: Bulgaria, Estonia, Latvia, Lithuania, Romania, Russia, Ukraine (Credit: Adesogan, A.T. and G.E. Dahl. 2020. *MILK Symposium Introduction: Dairy production in developing countries*. J. Dairy Sci. 103:9677-9680. <https://doi.org/10.3168/jds.2020-18313>).

Animal-source foods provide a high-quality and bioavailable source of protein and micronutrients that can help alleviate child undernutrition. In Nepal, children older than 60 months who consumed milk were taller and had higher weight for their age, and children 24 to 60 months had larger head circumferences, which is used as a measure of cognition.

The symposium highlighted the importance of resources and education to improve the quality and safety of milk in developing countries. It reviewed the causes of foodborne diseases from milk and the health and economic implications, followed by a discussion of educational and technological solutions to improve the quality and safety of milk production.

A technology training package to control mastitis was implemented successfully on dairy farms in Nepal with outcomes that suggested scaling the training across smallholder farms beyond Nepal. Training-of-trainers workshops based on needs assessments were developed in Rwanda and Nepal to help improve productivity, quality, and safety of milk. In southern Ethiopia, an intervention was designed to improve the hygiene and handling of milk that resulted in an overall increase in knowledge of best practices of the participants.

The final presenter emphasized the sustainability and environmental impact of dairy production in low-income countries. Sustainable intensification is an important strategy to address food security and climate change simultaneously. Improving genetic potential, balanced animal nutrition, and quality of feed are all promising strategies.

“The growing demand for dairy products in LMICs presents a tremendous opportunity,” Adesogan said. “These papers will ultimately contribute to meeting the growing global demand for milk and to

achievement of the United Nations Sustainable Development Goals related to alleviation of hunger and poverty, improvement of education and employment, and environmental stewardship.”

The symposium papers are published as part of the November issue of the *Journal of Dairy Science* at [www.journalofdairyscience.org/issue/S0022-0302\(20\)X0011-7](http://www.journalofdairyscience.org/issue/S0022-0302(20)X0011-7).

Notes for editors

The MILK symposium papers appear in *Journal of Dairy Science*, volume 103, issue 11 (November 2020), published by [FASS Inc.](#) and [Elsevier](#). It will be available at [www.journalofdairyscience.org/issue/S0022-0302\(20\)X0011-7](http://www.journalofdairyscience.org/issue/S0022-0302(20)X0011-7).

Companion articles in this issue are “*MILK Symposium Introduction: Dairy production in developing countries*,” by A.T. Adesogan and G.E. Dahl (<https://doi.org/10.3168/jds.2020-18313>). Adegbola T. Adesogan, PhD, University of Florida, Gainesville, FL, USA, corresponding author of this article, can be reached at adesogan@ufl.edu.

“*MILK Symposium review: The importance of milk and dairy foods in the diets of infants, adolescents, pregnant women, adults, and the elderly*,” by D.I. Givens (<https://doi.org/10.3168/jds.2020-18296>). D.I. Givens, PhD, Institute for Food, Nutrition and Health, University of Reading, Reading, UK, corresponding author of this article, can be reached at d.i.givens@reading.ac.uk.

“*MILK Symposium review: Milk consumption is associated with better height and weight in rural Nepali children over 60 months of age and better head circumference in children 24 to 60 months of age*,” by L.C. Miller, S. Neupane, N. Joshi, and M. Lohani (<https://doi.org/10.3168/jds.2020-18289>). Laurie C. Miller, MD, Department of Pediatrics, Tufts University, Boston, MA, USA, corresponding author of this paper, can be reached at laurie.miller@tufts.edu.

“*MILK Symposium review: Foodborne diseases from milk and milk products in developing countries—Review of causes and health and economic implications*,” by D. Grace, F. Wu, and A.H. Havelaar (<https://doi.org/10.3168/jds.2020-18323>). A.H. Havelaar, PhD, Animal Sciences Department, Emerging Pathogens Institute, Institute for Sustainable Food Systems, University of Florida, Gainesville, FL, USA, corresponding author of this paper, can be reached at ariehavelaar@ufl.edu.

“*MILK Symposium review: Microbiological quality and safety of milk from farm to milk collection centers in Rwanda*,” by J.B. Ndahetuye, K. Artursson, R. Båge, A. Ingabire, C. Karege, J. Djangwani, A.K. Nyman, M.P. Ongol, M. Tukei, and Y. Persson (<https://doi.org/10.3168/jds.2020-18302>). It is openly available. Jean Baptiste Ndahetuye, PhD, Swedish University of Agricultural Sciences (SLU), Uppsala, Sweden, and University of Rwanda, Musanze, Rwanda, corresponding author of this paper, is available at ndahetuyej@yahoo.fr.

“*MILK Symposium review: Improving control of mastitis in dairy animals in Nepal*,” by K. Sah, P. Karki, R.D. Shrestha, A. Sigdel, A.T. Adesogan, and G.E. Dahl (<https://doi.org/10.3168/jds.2020-18314>). Keshav Sah, Heifer International Nepal, Lalitpur, Nepal, corresponding author of this paper, is available at keshav.sah@heifer.org.

“*MILK Symposium review: Community-tailored training to improve the knowledge, attitudes, and practices of women regarding hygienic milk production and handling in Borana pastoral area of southern Ethiopia*,”

by K. Amenu, G.E. Agga, A. Kumbe, A. Shibiru, H. Desta, W. Tiki, O.K. Dego, B. Wieland, D. Grace, and S. Alonso (<https://doi.org/10.3168/jds.2020-18292>). It is openly available. Kebede Amenu, PhD, College of Veterinary Medicine and Agriculture, Addis Ababa University, Bishoftu, Ethiopia, corresponding author of this paper, is available at kamenu@gmail.com or kebede.amenu@aau.edu.et.

“*MILK Symposium review: Improving the productivity, quality, and safety of milk in Rwanda and Nepal,*” by A. De Vries, K.E. Kaylegian, and G.E. Dahl (<https://doi.org/10.3168/jds.2020-18304>). Albert De Vries, PhD, Department of Animal Sciences, University of Florida, Gainesville, FL, USA, corresponding author of this paper, is available at devries@ufl.edu.

“*MILK Symposium review: Identifying constraints, opportunities, and best practices for improving milk production in market-oriented dairy farms in Sri Lanka,*” by D. Vyas, C.D. Nelson, J.J. Bromfield, P. Liyanamana, M. Krause, and G.E. Dahl (<https://doi.org/10.3168/jds.2020-18305>). Dikwar Vyas, Department of Animal Sciences, University of Florida, Gainesville, FL, USA, corresponding author of this paper, is available at diwakarvyas@ufl.edu.

“*MILK Symposium review: Sustainability of dairy production and consumption in low-income countries with emphasis on productivity and environmental impact,*” by J.M. Tricarico, E. Kebreab, and M.A. Wattiaux (<https://doi.org/10.3168/jds.2020-18269>). It is openly available. J.M. Tricarico Innovation Center for US Dairy, Rosemont, IL, corresponding author of this paper, is available at Juan.Tricarico@dairy.org.

Full text of the articles is available to credentialed journalists upon request. Contact Eileen Leahy at +1 732 238 3628 or jdsmedia@elsevier.com to obtain copies. Journalists wishing to interview any of the authors of the papers should contact the journal at jds@adsa.org.

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