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Eggs: harnessing their power for the fight against hunger and malnutrition

About this document

This document summarizes the online discussion *Eggs: harnessing their power for the fight against hunger and malnutrition*, held on the FAO Global Forum on Food Security and Nutrition (FSN Forum) from 23 October to 13 November 2018.

The discussion was facilitated by Saul Morris from the Global Alliance for Improved Nutrition (GAIN) and Tim Lambert from the International Egg Commission. It aimed to explore the role that eggs can play in effectively tackling malnutrition by looking at the following questions:

- ▶ What are the best production and distribution mechanisms?
- ▶ How can egg consumption be encouraged in a sustainable way?
- ▶ How can the interests of better nutrition be balanced with concerns about smallholder livelihoods?

The discussion also introduced a special supplement titled “Eggs: A High-Potential Food for Improving Maternal and Child Nutrition” (published in the journal *Maternal and Child Nutrition*) which summarizes a wealth of additional information on the value of eggs and feasible ways of increasing access.

Over the three weeks of discussion, participants from 20 countries shared 42 contributions. The topic introduction and the questions proposed, as well as all contributions received, are available on the discussion page: www.fao.org/fsnforum/activities/discussions/eggs-nutrition

The importance of eggs

Participants largely agreed that eggs play a very important role in human nutrition, being important sources of amino acids, energy, essential trace elements and vitamins (Gerhard Flachowsky). Including eggs in daily diets, especially of young children and pregnant/lactating women, can generate

substantial cost-effective benefits in terms of nutrition and health (Teopista Mutesi, Taylor Wallace, Colleen Farrell). Eggs also form the basis of traditional medicine, infant formulas and special foods used during convalescence (Stella Kimambo).

However, the consumption of eggs is not particularly widespread in many developing countries, and has in some cases even decreased during the last decades. The yearly per-person egg consumption in India, for instance, amounts to only 66 eggs, while it reaches 300 eggs in neighbouring

China ([Maresh Chander](#)). Reasons for the decreased egg consumption in rural populations include a decline in backyard poultry farming, the high cost of eggs, and lack of nutritional knowledge ([Wajid Pirzada](#)).

The challenges of egg production and consumption

The discussion highlighted multiple challenges that affect both egg production and consumption.

The affordability of eggs

One of the main issues preventing eggs from playing a bigger role in the diets of poorer people is their high cost ([Dick Tinsley](#)). In conditions of poverty, people tend to purchase food based on quantity, and are often forced to sacrifice nutritional quality ([Mary Odusegun](#)). These compromises in the nutritional value of their food are especially significant for individuals who engage in manual labour, for which they need to consume large quantities of energy-rich food ([Dick Tinsley](#)). Participants mentioned situations in which even poultry-farming households do not consume eggs, choosing instead to use the proceeds from their sale to buy different and often less nutritious food ([Rabiu Auwalu Yakasai](#), [Peter Kingori](#), [John Cheburet](#)).

Making eggs available and accessible to the poor can be very difficult when relying only on small-scale producers. The reasons for this are the high cost of fodder and the high mortality of livestock, due to diseases such as Newcastle disease and avian influenza ([Olutosin Otekunrin](#), [Rose Hogan](#)). Egg quality is also an important concern, as it is needed to gain the trust of consumers and ensure a stable income for producers, thus allowing them compete with imports from abroad that might undercut local prices ([Kazungu Rauben](#)).

On the other hand, large-scale production – which can bring egg prices down to a level that the poor can afford



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– introduces new challenges linked to animal well-being, antibiotics, environmental costs (due to fodder production), and the livelihood challenges for those smallholders who are crowded out of the business ([Cedric Charpentier](#)). These issues have led some participants to warn against an overreliance on eggs ([Hart Jansson](#), [Cedric Charpentier](#)).

Misconceptions about eggs

Another challenge highlighted relates to misplaced perceptions that consumers in some parts of the world have about eggs and their consumption. There is, for instance, still a widespread belief that due to their cholesterol content and outdated science, eggs increase the risk of cardiovascular diseases ([Hélène Delisle](#)).

In some developing countries, eggs continue to be seen as a luxury good that is too precious to be eaten. This leads to cases in which eggs are used as currency to buy basic household utilities and staple foods ([Lawrence Matolo](#)).

In certain cultures, eggs are also considered taboo for children and pregnant women. This can lead less educated people, who often are also at higher nutritional risk, to avoid consuming eggs altogether even when they might be available ([Hélène Delisle](#), [Abdou Yahouza](#)).



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Improving consumption

Over the course of the discussion, participants identified a series of approaches and measures that could help foster the uptake of eggs by the poorer part of the population.

Nutrition awareness and education

One of the most important measures is to increase public awareness of the nutrition benefits of eggs, especially among vulnerable households. These efforts should be carried out in schools, but it is also important to use mass media tools like radio, television and social media, as well as participatory events such as agricultural shows and exhibitions. Local universities and research institutions can provide the scientific basis for the information (Santosh Kumar Mishra, John Cheburet, Peterson Kato Kikomeko, Rabiou Auwalu Yakasai).

At the same time, it is important to counter existing preconceptions against eggs, such as the belief that their consumption can cause illnesses, as well as the cultural food taboos found in some societies (Kuruppacharil V. Peter, Colleen Farrell, Mahesh Chander).

School feeding programmes

Many governments have implemented schemes by which schoolchildren are provided one egg per day as part of their school lunch. In addition to the positive effects on children's nutrition and in shaping healthy eating habits, such schemes – when coupled with local procurement schemes – can have important impacts on the consumption patterns of entire communities and help the development



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of local egg production (Rabiou Auwalu Yakasai, Vethaiya Balasubramanian, Wajid Pirzada, Olutosin Otekunrin, Sarah Wanene, Akhila Vasan).

Including eggs in local cuisine

Training women on how to incorporate eggs into their recipes holds significant promise for alleviating diet-related health conditions especially of children and pregnant and lactating women (Rabiou Auwalu Yakasai).

To increase the demand for eggs, it would be helpful to take into account cultural and flavour preferences and use community elders/leaders/religious heads to support related initiatives. In Uganda for instance, the government is promoting consumption of the "Rolex", an egg omelette wrapped in a chapatti, as a healthy and nutritious street food (Peterson Kato Kikomeko, Kazungu Rauben).

Nutrition at the Center

As part of an innovative approach to substantially and sustainably improving nutritional outcomes for mothers and children, CARE has implemented the Nutrition at the Center (N@C) project in Bangladesh, Benin and Ethiopia. N@C is a five-year global intervention aimed at reducing anaemia in girls and women (ages 15–49) and stunting and anaemia in infants and young children (up to 23 months) by integrating maternal, infant, and young child nutrition (MIYCN); water, sanitation and hygiene (WASH); food security; and women's empowerment. The project focuses specifically on homestead gardening, poultry farming and egg production, with the goal of increasing egg consumption to improve dietary diversity and the overall nutritional status of mothers and children.

Key strategies to increase demand for eggs include:

- ▶ utilization of improved chicken breeds and varieties that are resistant to disease and produce more eggs;
- ▶ utilization of low-cost, locally available chicken production systems combined with adequate disease control and health programmes under the supervision of agricultural extension service experts;
- ▶ facilitation of cooking demonstrations to share new and locally acceptable recipes that include eggs;
- ▶ advocacy for changes in social behaviour in communities with existing taboos about egg consumption (Colleen Farrell).

Improving production

Different production models

Participants argued that whether or not to apply small-scale or large-scale egg production depends largely on context and on how to integrate the poultry industry with the local economy, as both approaches can support increased access to eggs (Akhila Vasan, Santosh Kumar Mishra, Christian Ciza).

Small-scale and household farms for instance can be a means of women's empowerment, while large-scale production can make it easier for governments to subsidize eggs for those in need (Akhila Vasan).

A cooperative model similar to the one used in the dairy industry could also be implemented. Smallholders continue to produce eggs and deliver them to bigger storage and distribution entities; this facilitates access to markets and economies of scale, which can then help to lower prices (Akhila Vasan). However, feed costs must also be kept low, as procuring fodder is one of the main drivers of cost for smallholder producers.

Governments could also strengthen public procurement efforts to stimulate local egg production for entities such as office canteens, national airlines and security forces. While such measures could cause prices to rise in the short term (as has reportedly happened in several Nigerian states), in the medium term prices should fall as businesses reap the benefits of economies of scale (Saul Morris).

Innovative methods, such as reusing by-products (bones, shells, feather, manure) and converting them into poultry feed, can have beneficial impacts on production costs and help establish more sustainable production models (Vethaiya Balasubramanian, Jean-Laurent Bungener).



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Involving relevant stakeholders

Participants highlighted that regardless of the production and distribution method, there is a need to involve a wide set of stakeholders in the planning and implementation process. Solutions should be devised in joint consultations, especially by involving community-level stakeholders including consumers and producers (Santosh Kumar Mishra, Wilma Freire Zaldumbide).

Using the right breeds

Another aspect is the breed of chicken used. Participants noted that chicken breeds are often not suitable to local conditions and are thus subject to high rates of mortality. Yet organizations still distribute chickens (often fragile exotic breeds) to individual households without studying the disease history of the particular location (Rose Hogan).

Adopting local, sturdier breeds should be encouraged, as this would also benefit local poultry-farming businesses (Boniface Mangeni). Some participants argued that in some cases it could be advisable to focus on different species altogether, such as guinea fowl, which may be better suited to certain local conditions (Abdou Yahouza).

Animal welfare

Animal welfare was also mentioned as an important element of sustainable egg production. Here, awareness raising and producer training constitute the first level of intervention to uphold the care and wellbeing of hens, especially when done at a large scale. Extension and advisory services need to be involved as part of wider community development communication and outreach. Consumers can also play a role in supporting animal welfare by buying eggs from farms that treat their birds well (Olutosin Otekunrin, John Cheburet).



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Providing support to young entrepreneurs

Young people interested in engaging in the poultry and egg business should have access to financial and technical support such as grants, training and improved feed (Mary Odusegun, Teopista Mutesi).

Technology and research

Current developments in technology open new possibilities for real-time automatic monitoring of animal welfare and health. Sensors can monitor physiological parameters and animal behaviour, thus helping to prevent and manage health problems (Santosh Kumar Mishra). Technology and research can also help develop new and more efficient feed that, in addition to adding to the eggs' nutrient content, can also improve their durability (Jesper Møller Nielsen). Likewise, some studies suggest that similar effects on shell thickness, albumen quality and storage potential of eggs can be achieved by using certain local herbs as a feed additive (Mohamed Salih).

Chicken disease prevention on a geographical and administrative areas basis can also be a very cost-efficient way to facilitate the survival and multiplication of the poultry stock poor rural people already have (Rose Hogan, Abdou Yahouza).

The Nigerian experience

The government of Nigeria has implemented the Home Grown School Feeding (HGSF) Programme, which focuses on providing food to schoolchildren (i.e. a food-based safety net programme) and indirectly helping to improve food security in beneficiary households. The preparation of meals includes the supply of protein-rich foods including poultry products (such as chicken, meat and eggs). Demand for eggs has increased in the areas where the programme has been implemented.

Children benefit from a hot, nutritionally balanced school meal; farmers benefit from improved access to school feeding markets; and communities benefit from new jobs across the supply chain such as those in catering, processing and food-handling. Besides these direct benefits, HGSF is intended as an important catalyst to drive (a) agriculture and nutrition policies, given the direct nutritional components of HGSF menus; and (b) smallholder market participation, with spillover effects on broader public agriculture commodity procurement (Olutosin Otegunrin).



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RESOURCES SHARED BY PARTICIPANTS

- Ben Sassi, N., Averós, X. & Estevez, I.** 2016. Technology and poultry welfare. *Animals (Basel)*, 6(10): 62.
- Blackstone, N.T., El-Abbadi, N.H., McCabe, M.S., Griffin, T.S. & Nelson, M.E.** 2018. Linking sustainability to the healthy eating patterns of the Dietary Guidelines for Americans: a modelling study. *Lancet Planet Health*, 2(8): e344–e352.
- Colorado State University.** 2018. Integration: Differentiating Research/Extension from Development Officers – Science vs. Art of Farming. In: *Smallholder Agriculture* [online]. Fort Collins, USA. <http://smallholderagriculture.agsci.colostate.edu/integration-an-under-appreciated-component-of-technology-transfer>
- Colorado State University.** (no date). Hard Choices: Compromises in Quality Nutrition. In: *Smallholder Agriculture* [online]. Fort Collins, USA. <http://smallholderagriculture.agsci.colostate.edu/1028-2>
- FAO.** 2015. *Egg facts* [online]. Rome. www.fao.org/assets/infographics/FAO-Infographic-egg-facts-en.pdf
- FAO.** 2017. More than just chickens: improving nutrition in rural Rwanda through poultry project. In: *FAO Rwanda Newsletter* [online]. Kigali. www.fao.org/3/i8878en/I8878EN.pdf
- FAO.** 2018. Involving more young people in agriculture has created more employment opportunities in rural Rwanda. In: *FAO in Rwanda* [online]. Rome. www.fao.org/rwanda/news/detail-events/en/c/1158410
- Flachowsky, G., Halle, I., Schultz, A.S., Wagner, H. & Dänicke, S.** 2017. Long term study on the effects of iodine sources and levels without and with rapeseed cake in the diet on the performance and the iodine transfer into body tissues and eggs of laying hens of two breeds. *Landbauforschung – Applied agricultural and forestry research*, 67(3–4).
- Government of India.** 2017. *National Action Plan for Egg & Poultry-2022 for Doubling Farmers' Income by 2022*. Ministry of Agriculture and Farmers Welfare. New Delhi.
- Iannotti, L.L., Lutter, C.K., Bunn, D.A. & Stewart, C.P.** 2014. Eggs: the uncracked potential for improving maternal and young child nutrition among the world's poor. *Nutrition Reviews*, 72(6): 355–368.
- Lutter, C.K. & Morris, S.S.** 2018. Eggs: A high potential food for improving maternal and child nutrition. *Maternal Child Nutrition*, 14(S3).
- Peter, K.V.** 2018. *Zero Hunger in India: Policies and Perspectives*. New Delhi, Brillion Publishing.
- Swanson, J.C., Lee, Y., Thompson, P.B., Bawden, R. & Mench, J.A.** 2011. Integration: valuing stakeholder input in setting priorities for socially sustainable egg production. *Poultry Science*, 90(9): 2110–2121.
- Taylor, R.C., Omed, H. & Edwards-Jones, G.** 2014. The greenhouse emissions footprint of free-range eggs. *Poultry Science*, 93(1): 231–237.
- United Nations.** 2015. *Transforming our world: The 2030 agenda for sustainable development*. General Assembly Resolution A/70/L.1. Geneva, Switzerland.
- Wallace, T.C.** 2018. A comprehensive review of eggs, choline, and lutein on cognition across the life-span. *The Journal of the American College of Nutrition*, 37(4): 269–285.
- Ymeri, P., Sahiti, F., Musliu, A., Shaqiri, F. & Pllana, M.** 2017. The effect of farm size on profitability of laying poultry farms in Kosovo. *Bulgarian Journal of Agricultural Science*, 23(3): 376–380.

WEBSITES

- American Egg Board. Production process
www.aeb.org/farmers-and-marketers/ftip
- Egg info. British Lion eggs
<https://www.egginfo.co.uk/british-lion-eggs>
- International Egg Commission. Avian Influenza Global Expert Group
www.internationalegg.com/representing-the-industry/egg-industry/avian-influenza-global-expert-group
- The Egg Quality Assurance
<https://eggquality.ca>

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