

# Eggs

ONE OF NATURE'S MOST  
NUTRITIOUS FOODS



# Key facts

- The humble egg is a rich source of protein and essential fatty acids, as well as a range of vitamins and minerals.
- Eggs are beneficial throughout the life course, with special potential to fuel growth and development during the first six months to two years<sup>1</sup>.
- For babies and children with small stomachs, eggs are among the best foods to improve diets, given they contain high concentrations of quality nutrients which help brain development and physical growth<sup>2</sup>.
- For pregnant and lactating women, they also provide nutrients required to help the baby grow and develop inside and outside the womb, with potential to improve birth outcomes, milk quality, and physical and mental child growth.
- An average chicken egg will provide 7g high quality protein, essential for the rapid growth of an infant inside and outside of the womb.

## Eggs Composition

### Egg white

Proteins, selenium, potassium.

### Egg yolk

Energy, proteins, choline, riboflavin, pantothenic acid, vitamin B6, vitamin B12, folate, selenium, phosphorus.

### Essential fatty acids

Critical for brain development and eye health.

**Stunting** is when a child is **short for their age**. Their short stature is often an indication of a lack of **quality nutrients** in infancy (and/or a lack of health and care).

Stunting has devastating impacts on children and their future potential, burdening them with a **life-long disadvantage**.

Increasing egg consumption amongst pregnant women and young children could help provide quality nutrients needed for growth and could result in reduced **stunting**<sup>3</sup>.

The consumption of eggs contributes to some of the Sustainable Development Goals (SDGs)

Contributing to the SDGs

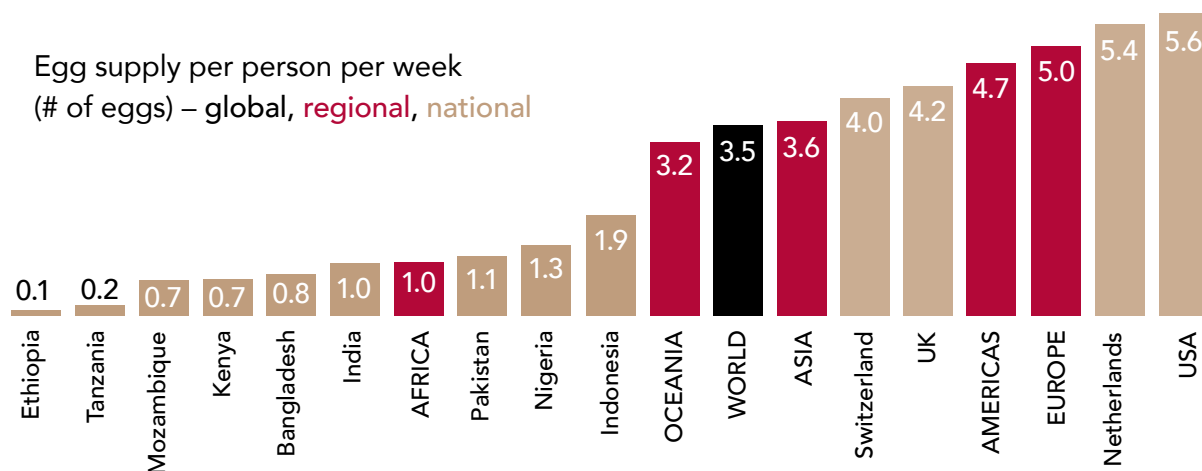


# Introduction

## Egg supply around the world

Although eggs are highly nutritious, they remain scarce and relatively expensive in many low-income settings<sup>4</sup>, including across many of the countries where GAIN operates. Moreover, they are only rarely consumed by children in many regions. Globally, the average egg supply is around 3.5 eggs per person per week. National variation is large though – in countries with GAIN offices, it ranges from a tenth of one egg per person per week in Ethiopia, to almost 6 eggs per person per week in the United States (Figure 2).

Figure 2: Large regional and national differences in egg supply<sup>5</sup>



## Our vision: more available, accessible, and desirable eggs

GAIN works on **supply** and **demand**, as well as encouraging the **production** and **consumption** of nutritious and safe foods by creating **incentives**, and helping nations establish **rules and regulations**. We seek to understand and tackle the barriers faced by small enterprises working to boost the availability, affordability, desirability, and the convenience of **nutritious foods such as eggs** – especially for low-income populations.





# GAIN case studies

GAIN has over 15 years' experience supporting small companies in Africa working in nutritious food supply chains, including those for eggs. Companies are identified through careful vetting, and receive support in business plan development, technical and, in some cases, financial assistance, as well as continued follow-up to ensure that plans are implemented.

## Supply and affordability

More work is needed to boost **availability** of eggs. In many places, supply falls well short of demand, owing to common barriers faced by small- and medium-scale producers such as:

- Expense and disruption in supply of inputs, including feed (often the largest fraction of egg production costs), veterinary care, or electricity; and
- Other technical and financial barriers to scaling up – such as accessing finance to increase laying stock, or to invest in infrastructure, distribution networks, and other resources.

Overcoming such hurdles to achieve economies of scale will improve supply and **affordability**. Where production and distribution of eggs faces fewer barriers – as in most middle- and high-income settings – chicken eggs have become **one of nature's most affordable nutritious foods**.

Our work on **supply chains for nutritious foods** assesses value chains, identifies enterprises to support, and provides grants and technical assistance that enable small- and medium-enterprises (SMEs) to produce nutritious and safe foods at affordable prices. We actively support companies that supply eggs in low-income countries because of their nutritional value, their relative scarcity in countries where GAIN operates, and their potential for affordability.

## 1. Boosting egg production in Rwanda

*Trabac* is an egg farm located in the outskirts of Kigali. Through GAIN's Marketplace for Nutritious Foods programme, *Trabac* received grants and technical assistance to improve production, financial management, packaging and distribution of eggs.

Production capacity tripled between 2015 and 2017, from 600 to 1,800 eggs per day. With better feed quality, a larger henhouse, and better business management driving down unit costs, *Trabac* began offering lower prices for customers buying direct from the farm. Lower prices also attracted wholesalers, contributing to driving increased production and sales. To further improve access for low-income consumers, *Trabac* plans to sell part of its stock through three branded kiosks, two of which are to be in low-income markets.

## 2. Rebuilding after disaster in Mozambique

*Quinta do Bom Ovo*, or the Farm of the Golden Eggs, is located near Beira, capital of Sofala province, Mozambique. GAIN's support helped the farm to build new housing for 6,000 hens in 2018. Business was good, with affordable fresh eggs sold directly to people in the neighbourhood, as well as trucked to nearby Beira.

Cyclone Idai, one of the worst tropical cyclones ever recorded, made landfall in Mozambique in March 2019. *Quinta do Bom Ovo*'s infrastructure was washed away. A great number of hens were lost in the initial disaster, and in its wake, owing to interrupted feed supply.

GAIN's assistance in weeks following the cyclone enabled the farm workers to return and helped rebuild to prevent further loss of hens. Ongoing work with the *Quinta do Bom Ovo* is part of wider efforts to return production and distribution of nutritious food in the region to pre-cyclone levels.

**We know from experience in Mozambique that a typical egg company can, over three to four years, increase egg production by 1.75m eggs a year, with a co-investment of around USD 80,000.**

### Demand and desirability

For children to benefit from more available, affordable eggs, families must both buy them, and prioritise them in children's meals. Cultural beliefs and taboos around eating eggs, as well as their digestibility or cleanliness restricts demand, particularly for pregnant women or children.

Where lack of demand drives low consumption of eggs, demand must be created – for instance through behaviour-change campaigns, such as:

**Nutrition education in schools, hospitals, and other public settings**

**Mass-media marketing through for example radio or television**

**Promotions and advertising in-store**

### More demand for eggs

For children and youth to benefit from the nutritional value of eggs within the context of a diverse diet, families must be persuaded to spend more of their disposable income on eggs, as well as to prioritise them in children's meals. In many settings, affordability is perceived as a major barrier – but it's not the only one. Cultural beliefs can equally restrict demand, particularly for pregnant women or young children. In India, hundreds of millions of people avoid eggs for religious reasons.

GAIN works to understand **the reasons behind household food choices**, including perceptions of, and attitudes to, nutritious foods – using these analyses to create demand based on consumer-centred interventions.

### 3. Boosting egg demand in Nigeria and Ethiopia

In Nigeria and Ethiopia, where government programmes tackling egg availability exist, GAIN seeks to complement these efforts by generating demand for eggs, especially targeting children. GAIN's programmes develop and implement innovative last mile distribution, retail activation, and communication strategies to improve child nutrition, particularly by encouraging parents to feed eggs to children as part of a balanced diet.

The strategies include engaging with mass media, developing partnerships with key associations, government representatives, and private sector stakeholders, and developing in-store schemes to be visible at the point of purchase. Work focuses on Kaduna State, northern Nigeria's poultry capital, and six rural locations in three Ethiopian provinces, reaching more than 200,000 households. The overall objective is to help increase the consumption of eggs among children who typically do not consume enough animal-sourced foods as part of their regular diet.



### Eggs as an important source of missing micronutrients for weaning children

Recent research by GAIN and UNICEF called Comprehensive Nutrient Gap Assessment (CONGA) identified key nutrient gaps faced by young children aged 6-23 months in Eastern and Southern Africa, as well as South Asia. CONGA also highlighted the micronutrient-dense foods that are already relatively affordable in local contexts, though under-consumed, identifying good candidate foods to help plug particular nutrient gaps. Eggs appeared as an important and affordable source of various micronutrients in five of the nine countries in which CONGA research was conducted. The findings (Table 1) point to a need to increase demand among families with young children, particularly those on low incomes, to include items like eggs in children's meals. Where affordability was a barrier – South Africa, Tanzania, Uganda, and Zambia – CONGA points to a need for more work to make eggs affordable.

**Table 1: Comprehensive Nutrient Gap Assessment (CONGA) findings relating to eggs<sup>5</sup>**

Country	Key micronutrients of concern among young	Affordable eggs for certain micronutrients
<b>Bangladesh</b>	Zinc, vitamin A, calcium, iron, iodine	Eggs for zinc and vitamin A
<b>Ethiopia</b>	Iron, zinc, iodine, vitamin A, calcium	Eggs for zinc and vitamin A
<b>India</b>	Iron, vitamin A, zinc, vitamin B <sub>12</sub> , folate, calcium	Eggs for zinc, vitamin A, folate, vitamin B <sub>12</sub>
<b>Mozambique</b>	Iron, vitamin A	Eggs for vitamin A
<b>Pakistan</b>	Vitamin A, iron, folate, vitamin B <sub>12</sub> , zinc, calcium, iodine, and vitamin D	Eggs for vitamin A, zinc, folate, vitamin B <sub>12</sub>



# Recommendations

**What sorts of things might be done to help boost egg supply and demand in low- and middle-income countries? We've listed a few ideas:**

Governments can make policies and regulations work for egg supply, through funding schemes to develop and support local egg producers, for example through supporting small enterprises to access finance or technical assistance, or through improving affordability of key inputs such as feed or animal health services. They can also contribute to multi-stakeholder efforts to reduce loss and waste of perishable foods including eggs along the supply chain, as well as being encouraged to adopt policies that promote sustainable egg production and good practices in animal welfare.

On the demand side, governments, private-sector stakeholders, development partners, and consumer groups can work together to develop innovative demand-generation campaigns, encouraging people – particularly our younger generations – to desire eggs as much as less healthy options. Demand generation campaigns can also tackle taboos or cultural hesitations around eggs, where appropriate.

Where governments, including sub-national ones, procure food and meals, such as for schools, hospitals, prisons, and canteens, they can ensure that these include eggs in line with national dietary guidelines, helping to stimulate supply and demand.

The private sector can also play a big role, by complying with government efforts to improve food safety for example. Companies, particularly larger ones, can offer workplace nutrition programmes that include offerings like eggs. Larger companies can mentor smaller ones, for instance to improve the nutrition and business cases of their offerings. Small and medium enterprises can join networks like the Sun Business Network to amplify their voices and to better access available opportunities such as trainings in their communities of practice.

Individuals, consumer groups, and non-governmental organisations have a crucial role to play beyond programming, including to amplify voices and to hold both government and private sector actors to account, particularly where commitments are made.

The supply challenges around eggs, their lack of affordability in some places, and the underexploited opportunities to boost demand, particularly among children and pregnant and lactating women, can be overcome. Programming to support eggs will remain firmly on GAIN's plate in the future, as part of our commitment to making healthy foods and healthy diets more available, accessible, and desirable.

# References

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AND  
<https://www.gainhealth.org/resources/reports-and-publications/comprehensive-nutrient-gap-assessment-conga-south-asia>

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