

## Can eggs crack world hunger?

Every night, approximately 690 million people around the world go to bed hungry, with 270 million “marching toward starvation,” according to David Beasley, executive director of the United Nations World Food Programme (WFP).

For these people, a basic meal is even further out of reach as coronavirus joins conflict, climate change and economic troubles in increasing levels of hunger around the world.

Sadly, the problem of food security is set to get worse, with the world’s population expected to increase by 2 billion in the next 30 years, putting more pressure on already limited resources.

Many scientists believe we need to find new, sustainable ways to produce enough food to satisfy everyone, or risk more starvation and habitat loss, with [one study](#) estimating farmers would have to clear an area at least the size of Mexico to grow enough crops to feed everyone.

## Good eggs

While no one solution or food can crack the problem of world hunger, the humble egg could play an essential role in future food systems around the world.

Eggs are packed with high quality protein, fatty acids, vitamins and minerals. They are rich in selenium, which helps our immune system to function, plus vitamins to keep our nervous system, bones and muscles healthy.

Eating an egg a day can reduce the risk of heart disease and stroke according to [scientists in China](#), while another study links them to [good eyesight](#). Egg consumption can also help young children grow and aid cognitive development, making eggs an efficient, and scalable way of [improving child nutrition](#), especially in [developing countries](#).

“The consequences of poor nutrition not only have life-long consequences for a child but also for the economic development of a country, [so] the potential contribution of eggs to brain development is particularly noteworthy,” the researchers of one [leading study](#) write.

Saul Morris, director of services at the Global Alliance for Improved Nutrition (GAIN) told the UN's Food and Agriculture Organisation (FAO) Forum: “Eggs can be produced at prices which make them accessible even to the moderately poor,” suggesting they could prove to be a good option in helping to solve the global food shortage.

## Eggs in Africa

The protein-power eggs provide is desperately needed in Eswatini in southern Africa, where a quarter of children under five years old are malnourished due to a myriad of factors

including unemployment, high rates of HIV and recurrent droughts, which all adversely affect food security.

In Eswatini, a 2,500-acre multi-commodity farm that is home to 5,000 hens is meeting this challenge by providing 4,000 eggs every day to hungry children, many of whom have lost their parents to AIDS. Set up by the Heart for Africa charity, Egg Farmers of Canada helped transform a patch of barren land into a farm with two highly efficient egg barns, as one of a number of projects it supports.

With no roads, water or electricity, it was a huge project. "Everything is hard here. We take two steps forward, and three steps back," says Janine Maxwell co-founder of Heart for Africa. But strong partnerships made it possible.

Volunteers from Egg Farmers of Canada designed the barns, while a local commercial egg farm in Eswatini provided young hens and feed. Canadian egg farmer, Roger Pelissero, helped pick a spot for the barns, which have open sides to keep the hens cool. "Recently the temperature reached 43°C, but the wind from the hillside helps," he says.

The barns may be simple, but they boast one unique feature. "The roads are so poor we couldn't deliver the eggs uncooked ... and locals didn't necessarily have the cooking facilities at churches or schools," Tim Lambert, CEO of Egg Farmers of Canada explains. To overcome this, engineers came up with a boiler to cook the eggs, while a food scientist developed another solar-powered machine that cools and preserves them in a lime solution, sealing the outside of the shells. "It's all set up to work in the conditions we have in the region," Lambert says. The equipment enables eggs to be stored for 30 days with no refrigeration, making it easier to get them into the hands of children, because they are sturdier to transport."

The Canadian volunteers trained locals to operate the egg boiling machines as well as look after the birds. Like on any farm, work begins early and workers check the hens' supplies and health, collecting eggs twice a day. "They're now able to achieve efficiencies in line with the US, Canada and the UK. They're doing a fantastic job," Pelissero says.

### **Egg-ceptional benefits**

Not getting enough protein at a young age is one important factor in stopping children reaching their full potential, says Lambert. "It's profoundly important, not only that we feed people, but that we introduce high quality protein," he adds.

The six-year partnership has seen the production of more than six million eggs, feeding 3,500 children every week from schools and churches, as well as the charity's orphanage, which is home to 275 children including Jonathan.

He arrived at the orphanage just before his second birthday suffering with the effects of AIDS, and was so malnourished he weighed less than half that of a healthy child his age. Jonathan barely had the strength to move, but protein from eggs helped him rebuild muscle, so that just two years later, he won the class award for best athlete. "I almost burst into tears," says Ian Maxwell. "Love and medical care is really important, but nutrition is critical. Eggs are the perfect protein for our kids."

Food insecurity is not just a problem in Africa, with families in some of the world's richest nations missing meals. In Canada, one in five children go to school on an empty stomach, so Egg Farmers of Canada provides eggs for school breakfast programmes. "We're also very involved in food banks and have donated millions of eggs this year," Lambert says.

In Eswatini, egg farming creates vital jobs as well as providing nutrition. "Anyone who is willing to work is employed," says Janine Maxwell. The farmers learn new skills from Egg Farmers of Canada volunteers, including crop rotation and animal husbandry. "They can take that knowledge home to keep their own chickens healthy," Janine Maxwell says.

The Eswatini operation employs 313 locals, enabling them to pay for food, electricity and school fees. "The ripple effect through the community is huge," says Lambert.

Before the chicken barns were built, the Maxwells saw only darkness and the occasional orange glow of cooking fires when they looked towards the hills at night. Now, their neighbours' houses are lit using electricity. "This helps families prepare meals and children, who now go to school, to do some reading. It's made a huge difference," Pelissero says.

While the farm has changed the landscape dramatically, its environmental footprint is small so it can be cheaply and easily maintained, and it's set to shrink further with the installation of a solar farm. "Our electrical needs in the daytime will be pretty much satisfied," says Ian Maxwell. The farm's efficiency measures follow a trend in the industry which already has one of the lowest environmental impacts of any form of animal agriculture. In Canada, the environmental footprint of the egg production supply chain declined by almost 50% between 1962 and 2012, while egg production increased by 50%. "There's even an egg farm striving to be net zero in Alberta," says Pelissero.

### **What comes next?**

In Eswatini, egg farming produces food and hope. "When people walk in the gates to work and the egg truck goes out to deliver, that's hope. It's life-giving," Ian Maxwell says. The project has overcome hurdles that have blighted others, such as the availability and cost of equipment and [feed](#), providing a blueprint for success that could be replicated in the right conditions.

"You need stability, young hens, feed, and people who can do the work and build knowledge," Lambert says, adding that while this mixture can sometimes be hard to find, egg farming is relatively easy to set up and scale.

Lambert is among the experts who hope we may see more egg farming in the developing world, bringing nutrition and wealth. Colleen Farrell, a technical adviser at the charity CARE, told the FAO Forum that “egg production can offer an additional source of household income, providing families with more resources to mitigate the effects of poverty and food insecurity.”

While small projects are the easiest to set up, Morris says, “small producers can only boost rural consumption in a handful of countries where poultry ownership is unusually high,” whereas large farms hold the key to bringing down prices ‘significantly’ and allowing more poor households to access the benefits that eggs bring.

This has already been seen in Thailand, and with three quarters of the world's egg production concentrated in just 14 countries, there is a huge opportunity to share the benefits more widely.

However, more work is needed across all agricultural sectors to provide enough food for everyone in a more sustainable way. As Beasley put it when he accepted the Nobel Peace Prize on behalf of the WFP: “Failure to prevent famine in our day will destroy so many lives and cause the fall of much we hold dear.”

While eggs are part of the answer, a variety of solutions are required. After all, “The power of food, the power of love and the power of hope – it all works together,” says Ian Maxwell.”