The Factory Farming Index

WORLD ANIMAL PROTECTION

The case for changing the way we feed our world

Introduction

Factory farming's impacts on animals, people, and our planet are devastating.

This cruel system shortens human and animal lives, devastates local environments, and causes intense unimaginable suffering to billions of animals. Yet it gets little or no critical attention from governments, international policy makers, and from the financial institutions that fund it. Consequently, its effects have remained largely hidden.

The Factory Farming Index – World Animal Protection's innovative ranking system covering 151 countries – boldly challenges this silence and complacency. It objectively calculates the impacts of factory farming on animal welfare, human health, and the environmental destruction caused at a total country level and per person.

The Factory Farming Index also represents a world first. This is in the way it measures and conveys the extreme suffering and loss of life span that factory farmed animals endure in human equivalent terms.

Through the Factory Farming Index, World Animal Protection presents critical evidence for systems change. We point the way to equitable, humane, and sustainable farming methods capable of feeding the world.

The case for change

Factory farming...

Shortens people's lives, globally and on average, by 1.8 years.

Is a major contributor to greenhouse gas emissions, with the global agrifood system being responsible for approximately **29.7%** of total emissions.[1]

Cover photo credit: World Animal Protection / Tracks Investigations

[1] Tubiello, F.N., et al. (2024). *Greenhouse gas emissions from agrifood systems. Global, regional and country trends, 2000–2022.* FAOSTAT Highlights, Food and Agriculture Organization of the United Nations.

Developing the rankings: the Factory Farming Index methodology

The Factory Farming Index focusses on three key areas of concern related to factory farming. These are: animal welfare, human health, and the environment. To achieve the ranking system, we identified sub-issues within these key areas and built in a measurable indicator for each sub-issue.

The Factory Farming Index covers only chickens raised for meat, layer hens, pigs, dairy cattle and beef cattle, five of the most intensively and widely farmed land animals.

The indicators are expressed in two ways: total national production, and national consumption per person.

- The production version considers the total impact on human health and animal welfare. It also estimates the total biodiversity loss caused by production in each country.
- The consumption version expresses these impacts per person and includes the number of factory farmed animal products either exported or imported by each country. The result is an average person's consumption.

For each indicator, impacts from production or consumption of factory farmed animals (chickens, layer hens, pigs, beef cattle and dairy cattle) were calculated for animal welfare, human health and environmental concerns. These calculations then form the basis of the Factory Farming Index ranking system for production and consumption. (See Appendix 1 and 2 showing impacts from production and consumption, respectively).

Photo credit: World Animal Protection / AnimalKIND

Figure 1. The Factory Farming Index: areas of concern and indicators for each.

Hiding in plain sight

Since the mid-20th century factory farming has become the system that produces most of the world's animal-sourced food.

Today, around 76 billion chickens, pigs, and cattle globally are factory farmed annually in intensely cruel conditions, with 46% farmed in just four countries – China, Brazil, the USA and Indonesia.

Factory farming methods are largely invisible. Animals are packed into barns and cages, living in such close confinement that there is often little room to move or even turn around. Natural behaviours – exploring, forming natural social groups or hierarchies, playing, carrying out maternal instincts – are frequently denied.

Fuelling global demand

To meet people's demands for cheap animal products, factory farmed animals are bred to grow fast, have large litters, lay high numbers of eggs, or produce a maximum amount of milk. This puts great strain on their bodies. Antibiotics are given in large quantities to keep factory farmed animals 'healthy' in these unnatural and stressful environments.

At the end of their short lives, factory farmed animals are often subjected to stressful and painful methods of slaughter.

The Factory Farming Index researchers found that 74% of factory farmed animals are produced in countries where there is either no legislation on slaughter, or there are exemptions to stunning beforehand.

Defining a factory farm

Despite factory farming being a widely understood concept, there is no single universally agreed definition of a factory farm. The Factory Farming Index considered three important features when defining factory farms. These are: stocking densities – how closely animals are confined together, farm size, and animals' lack of access to outdoor space.

Farming numbers focus

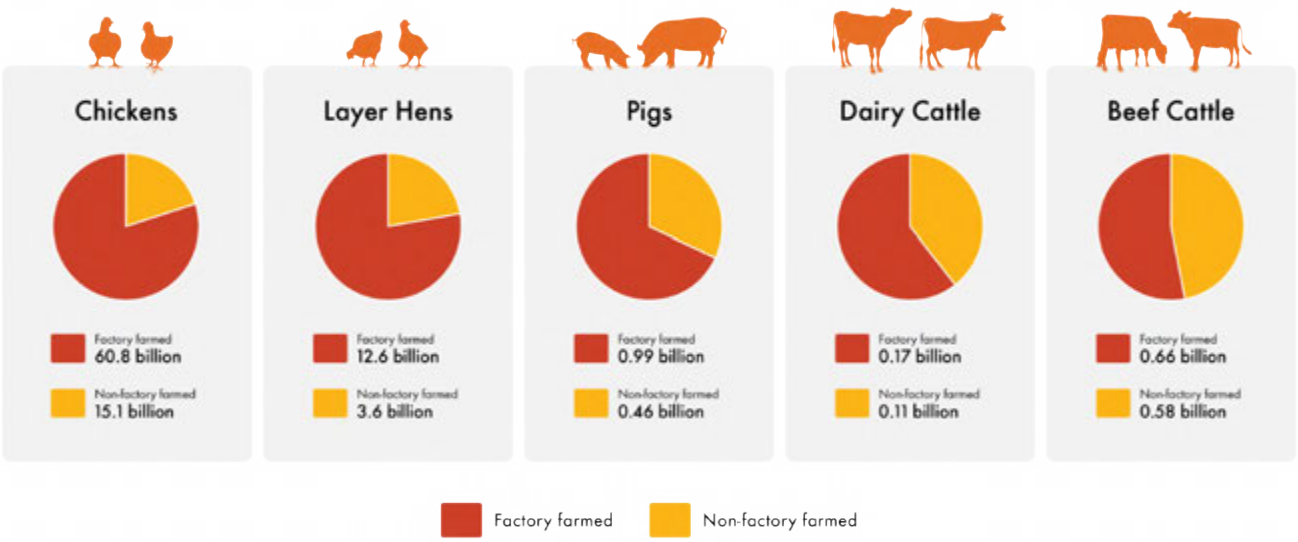
The 10 countries with the most factory farmed animals are:
1. China, 2. USA, 3. Brazil, 4. Indonesia, 5. India, 6. Russia, 7. Mexico, 8. Iran, 9. Turkey, and 10. Thailand.

In total, these countries farm 47 billion animals composed of chickens, pigs and cattle annually.

Table 1. Numbers of animals in factory farms in the year 2020.

million / yr	Chickens	Pigs	Beef Cattle	Dairy Cattle	Layer Hens
East Asia Pacific	16,595	456	63	15	7,176
Latin America / Caribbean	12,103	95	151	22	1,380
North America	10,375	182	59	7.3	667
Europe	6,778	196	41	7.1	545
Middle East	5,718	0.2	43	20	628
Africa	3,674	12	154	26	588
Russia	2,254	37	7.5	4.3	316
South Asia	1,853	3.2	132	58	922
Central Asia	1,478	12	11	10	427
Total	**60,827**	**994**	**661**	**170**	**12,649**

Figure 2. Production of animals in factory farms in the year 2020.



Measuring today's unsustainable meat consumption

The Factory Farming Index shows that on average, 10 chickens, pigs, and cattle are factory farmed (collectively) for each person in our world annually. China, Brazil, the USA and Indonesia are the world's biggest factory farmers and their products are exported globally.

Consumption rates of factory farmed animals (which include imports) is highest in Israel, Qatar, Belarus, and Panama – an average of 39, 33, 32, and 32 animals per person, per year respectively.

Conversely, consumption of factory farmed animals is lowest in Sub-Sahara African countries, well below the average.

Taking healthy years

Factory farming negatively affects the health of every single person on our planet. The Factory Farming Index shows that even people who don't eat factory farmed products, or any animal products at all, are victims of the industry, albeit to a lesser degree. Put simply, the impacts of factory farming on human health extend beyond the impacts associated with the direct consumption of these products. The Factory Farming Index calculates that factory farming causes 1.8 years of healthy life to be lost per person on average globally. *

The loss of healthy human life caused by factory farming practices is not only due to the industry's dependence on antimicrobial (antibiotic) use but also the pollutants, greenhouse gas emissions and other environmental impacts associated with it.

** This figure is based on a World Health Organization 2020 global lifespan figure of 86; the 2020 global population of 7.8 billion, and a 2.1% loss of healthy human life caused by factory farming.*

What is a healthy life year lost?

Healthy life years lost is a concept used by the World Health Organization to express every year that humans do not live in good physical and mental shape. Healthy life years have traditionally been used to evaluate and give critical insights into how we prioritise human health interventions.

The Factory Farming Index is the first research to look at animal health in an equivalent way. It measures the number of years of life lost for factory farmed animals, and the number of years of intense suffering for animals who remain in factory farms.

Breeding superbugs

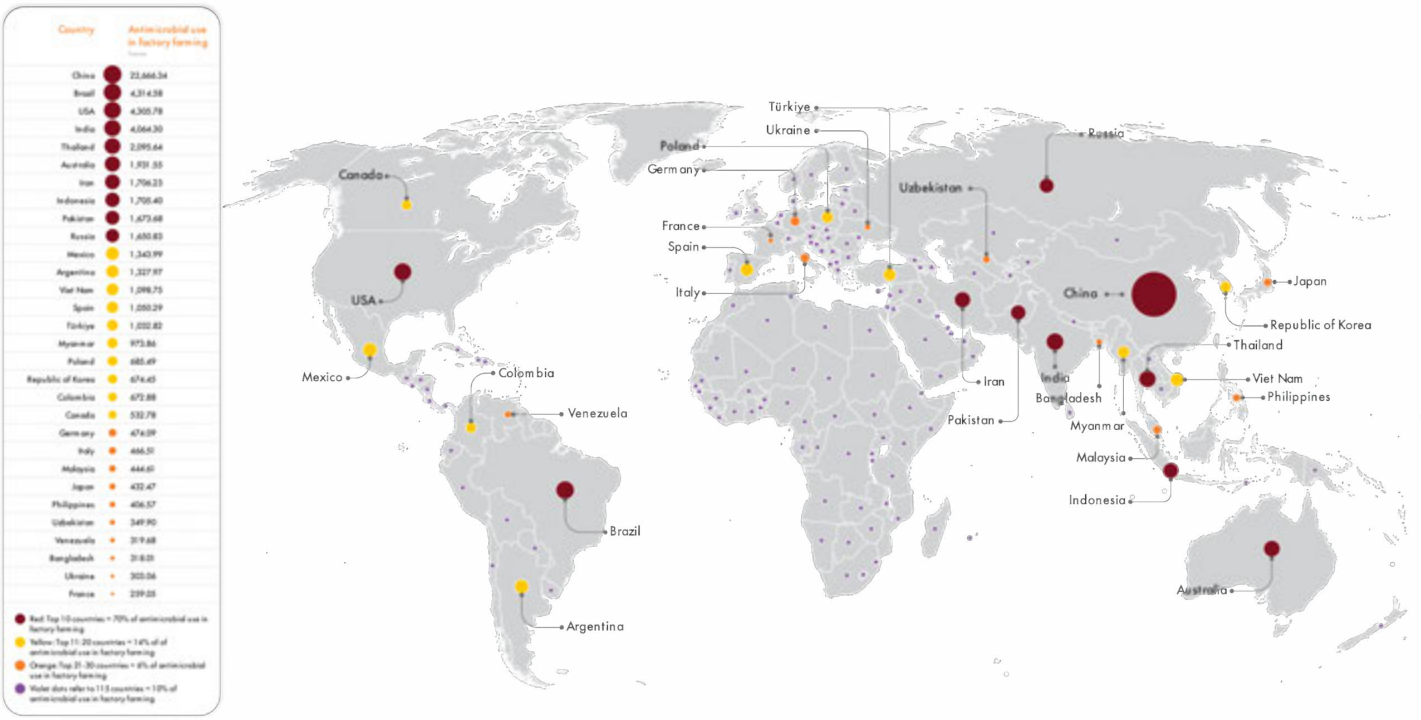
Factory Farming Index researchers found that antibiotic overuse makes up the biggest (56%) threat to human health from factory farming. Factory farmed chickens, pigs, and cattle were given 66,000 tonnes of antimicrobials in 2020 – double the amount used by humans. Such overuse risks the development of antibiotic-resistant superbugs.

Antibiotic focus

The 10 countries that give the most antimicrobials to farmed animals are: 1. China, 2. Brazil, 3. the USA, 4. India, 5. Thailand, 6. Australia, 7. Iran, 8. Indonesia, 9. Pakistan, and 10. Russia.

Together they are responsible for a massive 70% of antimicrobial use in factory farming.

Figure 3. Antimicrobial use in factory farms.



Other life shortening health issues caused by factory farming include the following:

Pulmonary disease – which mostly affects people living or working near the farms. This is caused by animal excreta emissions which release 8 million tonnes of ammonia, approximately 260,000 tonnes of nitrous oxide and around 230,000 tonnes of fine particulate matter annually. These emissions have been linked to a range of pulmonary health conditions, particularly for those living or working near factory farms.

Food insecurity – this inefficient system feeds 2,100 trillion food calories via crops directly to animals rather than to people. This is a quarter of the world's food calories, enough to feed about 2 billion people. Of those calories fed to animals, only about 17–30% come back to humans as meat, dairy, or eggs – meaning loss of up to 70% of those 2,100 trillion food calories through converting crops to intensively farmed animal products. It is therefore likely that factory farming is contributing to global caloric deficiencies in humans.

Water shortages – factory farming uses 14% of the world's irrigation water to grow animal feed crops, driving water scarcity for people in many regions. This is especially relevant for countries with significant pressure on water resources. India has the highest freshwater use associated with factory farming, while China is third in freshwater use. Both countries exhibit high water stress levels.

Increased meat consumption – factory farming drives down animal product prices. This enables the huge global increase in meat consumption per person which is more damaging to human health than consuming a plant-based diet. Excess animal product consumption, particularly red and processed meat consumption, is linked to colorectal cancer, heart disease, type 2 diabetes, stroke, kidney disease, and possibly dementia. While in some countries, the nutritional benefits that animal products provide may outweigh their health costs, at a global level, factory farming is almost certainly inflicting a net negative toll on human health. Indeed, there are many substitutes to animal products that deliver nutritional benefits without the harm.

Destroying our environment

Factory farming is a major contributor to many environmental problems, yet this is largely unrecognised in international and national climate and biodiversity policymaking. The Intergovernmental Panel on Climate Change (IPCC) notes that agriculture is a significant source of greenhouse gas emissions globally, contributing about 21% to 37% of total anthropogenic GHG emissions when considering the entire food system. Without intervention, emissions are likely to increase by about 30–40% by 2050, due to increasing demand based on population and income growth[2].

While factory farming is often portrayed as climate efficient based on emissions per kilogram of meat, dairy or eggs produced, its heavy reliance on soy and maize feed–often tied to deforestation–makes the total climate impact much higher.

Factory farming also...

Emits an estimated 21 million tonnes of pollutants – nitrogen and phosphorus – which cause eutrophication of water which can result in dead zones in rivers and seas. Overall, factory farming accounts for around 25% of all eutrophication caused by human activity.

Consumes 530 trillion litres of water each year, this adds up to 14% of all freshwater used by people.

Uses around 350 million hectares of cropland to produce animal feed – an area the size of India.

Causes great biodiversity loss. The USA tops the ranking because its factory farms raise large numbers of cattle and this has a high environmental impact.

Environment focus

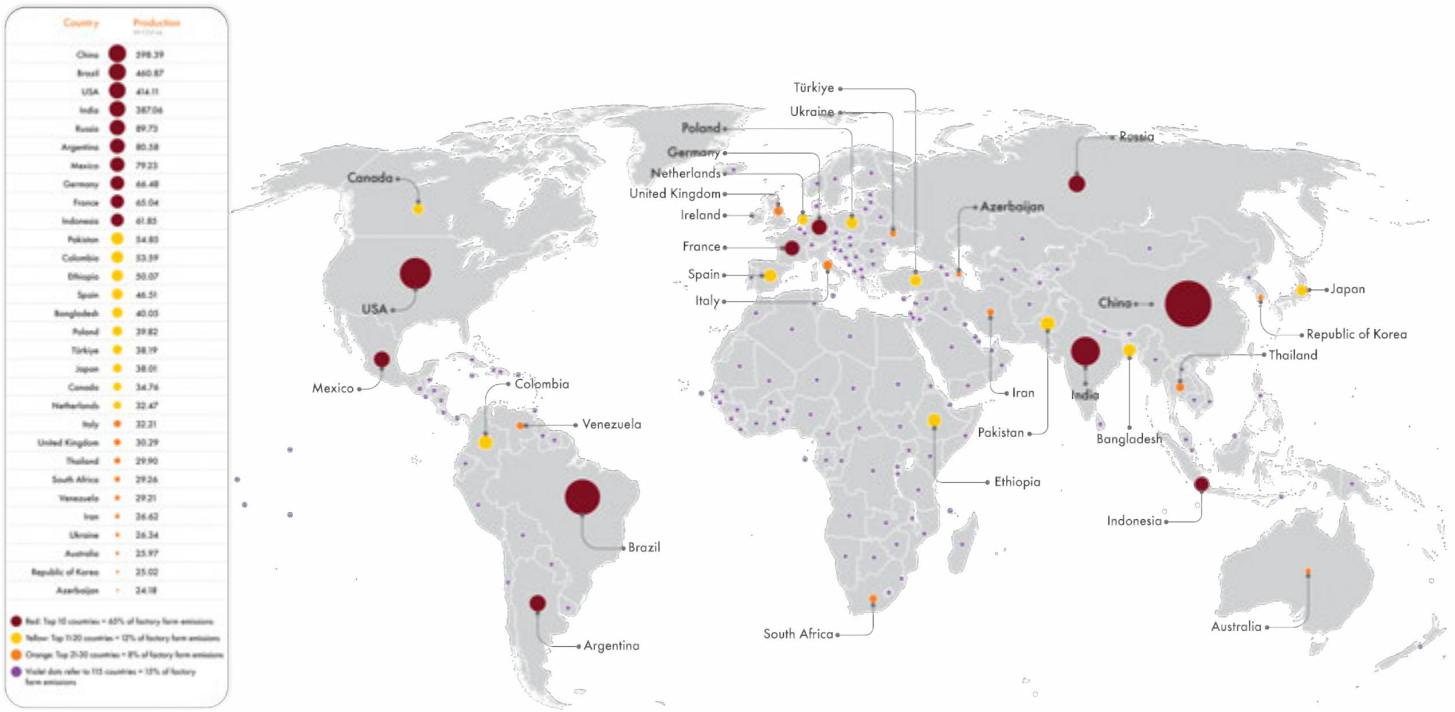
The 10 countries whose factory farms are linked with highest greenhouse gas emissions are: 1. China, 2. Brazil, 3. USA, 4. India, 5. Russia, 6. Argentina, 7. Mexico, 8. Germany, 9. France, and 10. Indonesia.

Photo credit: Haig / World Animal Protection / We Animals Media

[2] Intergovernmental Panel on Climate Change (IPCC). (2019). *Climate Change and Land: An IPCC Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security, and Greenhouse Gas Fluxes in Terrestrial Ecosystems.* Geneva, Switzerland: IPCC. Retrieved from https://www.ipcc.ch/srccl

Together they are responsible for 65% of factory farm greenhouse gas emissions. At the bottom of the rankings are 115 countries who are responsible for only 15% of factory farm greenhouse gas emissions. These are total production figures; if emissions per capita of population are considered this league table changes.

Figure 4. CO_2 eq emissions from factory farms.



Animal suffering matters

The Factory Farming Index researchers applied the principle of healthy life years to measure factory farmed animal suffering. They based their calculations on two considerations – 'years lost to premature death' and 'years of life lived with disability and disease.'

Chickens, pigs, and cattle kept in optimal welfare conditions could be expected to live for 7.5, 15, and 20 years respectively. On factory farms, chickens live on average just 5% of their potential high-welfare lifespan, and only 4% for pigs.

The Factory Farming Index researchers also used the legal protections granted to animals in different countries as proxy for welfare conditions in factory farms. Using World Animal Protection's previously developed ranking system, the Animal Protection Index, they found that no countries grant animals sufficient legal protection. They also found that 44% of countries grant animals either no legal protections or very minimal protections.

Looking at equivalents – human and factory farmed animal suffering

The researchers applied the healthy life years measurements to animals to calculate the total global loss of factory farmed animal healthy life.

They also explored and calculated the enormous animal suffering involved and translated this data into a human equivalent scale of suffering and loss.

Data from the Global Burden of Disease database from the Institute for Health Metrics and Evaluation helped them develop a truly shocking comparison.

The database estimated that in 2020, 2.8 billion years of healthy human life were lost due to disease and premature death. The Factory Farming Index team calculated that the burden of loss of healthy life for factory farmed chickens, pigs, and cattle is around 37 times higher. This health and welfare burden borne by farmed animals in our care must be addressed as part of a transition to equitable, humane, and sustainable food systems.

Ending the factory farming system

The Factory Farming Index is an urgent and clear warning to our world. It gives a detailed and global picture of the scale and nature of the factory farming system, clearly documenting the devastating cost to animal and human lives and our environment.

In its rankings and calculations, it shows the distressing and immediate plight of billions of factory farmed animals. The Factory Farming Index strongly highlights that animal welfare within this cruel system urgently needs to be improved. But this will not be enough to stop our planet's devastation.

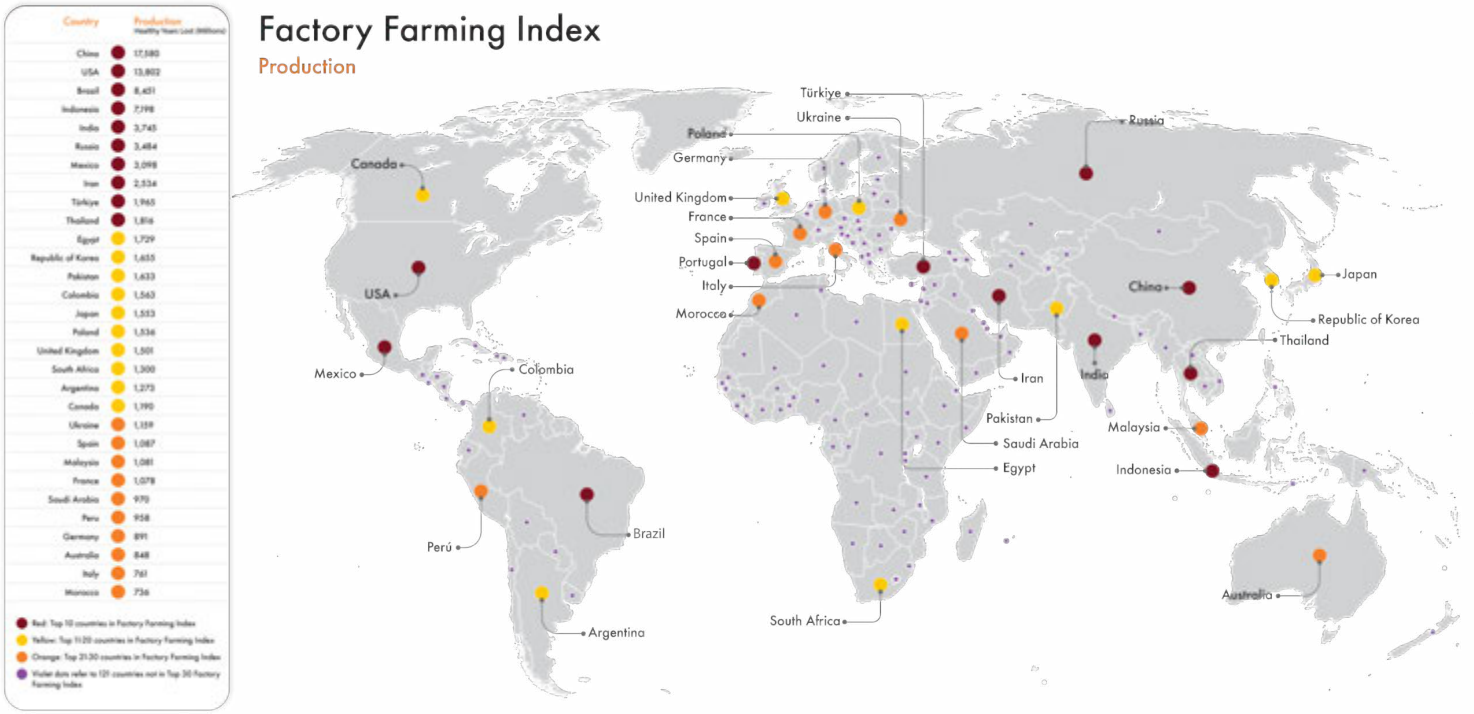
A whole package of measures would be necessary to tangibly improve the lives of factory farmed animals – including improving welfare standards and animal life spans.

Yet continued confinement of animals with longer life spans in factory farms would only increase their misery. This is because no country worldwide achieves a top animal welfare ranking (A) in the Animal Protection Index – the welfare indicator used by the Factory Farming Index research team. Such a ranking is unachievable within the confines of the factory farming system.

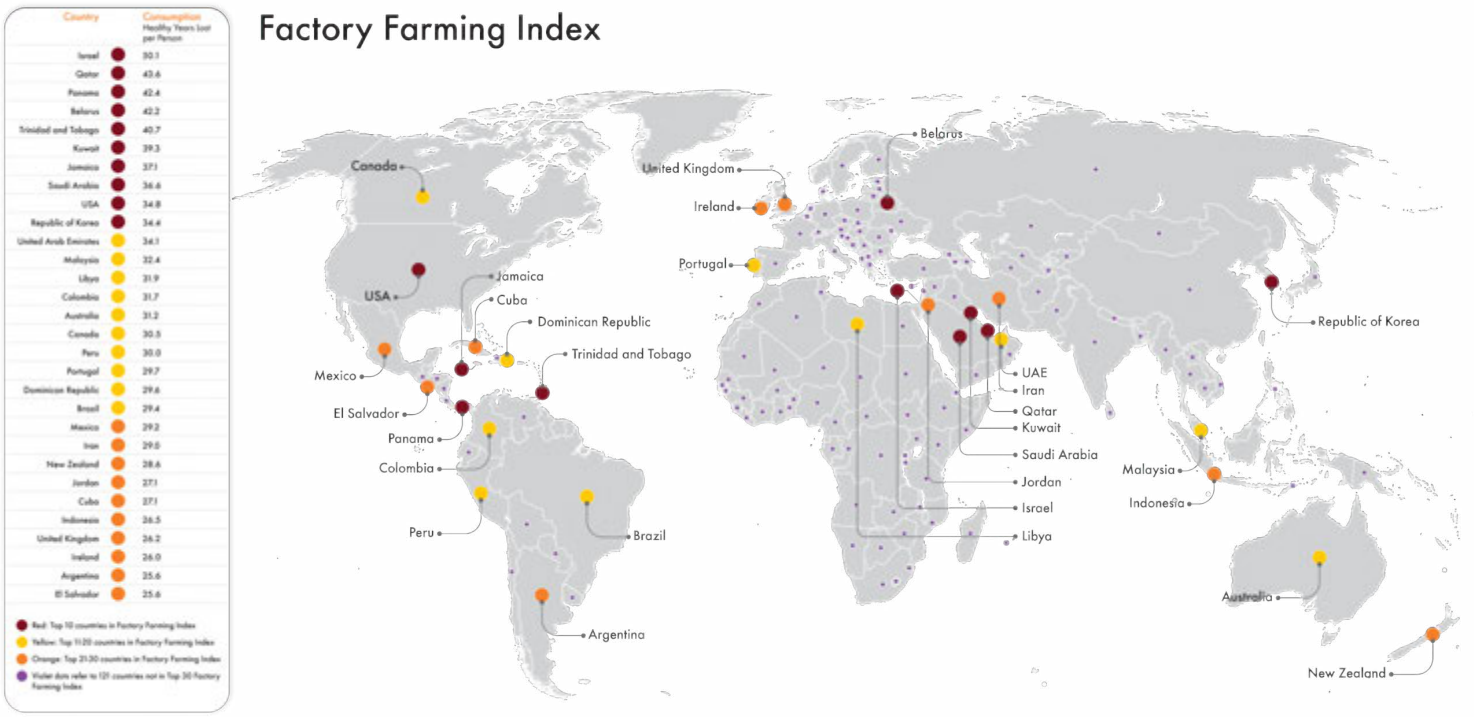
The only real solution to achieving an equitable, humane and sustainable food system is to transition away from factory farming. In doing so the world must prioritise plant-based diets and higher welfare small scale farmers and incorporate agroecological principles to farming.

Photo credit: World Animal Protection / Evans Kipkorir

Appendix 1. Production Impacts from factory farms.



Appendix 2. Consumption Impacts from factory farms.



World Animal Protection

126 Fairlie Road, Slough,
SL1 4PY,
UK

+44 (0)20 7239 0500
info@worldanimalprotection.org
W: worldanimalprotection.org

/WorldAnimalProtectionInt
/world_animal_protection
/MoveTheWorld
/animalprotection

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