The **environmental impact** of animal farming

What we eat has a huge impact on the state of the planet and the survival of species all over the world.

At any one time there are 19 billion chickens, 1.5 billion cows, 1 billion sheep and 1 billion pigs living on the planet.[1]

Worldwide, more than 70 billion land animals are killed every year for food.[2] Meat production has doubled in the last 30 years – and this rate of increase shows no sign of slowing.[3]

Most of these animals are reared under intensive systems – either inside factory farms, or outdoors on huge feedlots.

Rearing animals for food on this industrial scale is having a devastating impact on the natural environment. It is responsible for climate change, species extinction, habitat loss, rainforest destruction, water pollution, desertification and food and water shortages.

Climate Change

The Earth is facing an ecological catastrophe due to a warming climate. One of the main causes of this environmental disaster is animal agriculture.

According to the United Nations, farming animals for food (meat, dairy and eggs) is responsible for 14.5% of all anthropogenic greenhouse gas (GHG) emissions – that is more than is produced by all the land, sea and air transport combined (13%).[4]

Sources of greenhouse gas emissions from livestock

Studies show that animal farming accounts for around 9% of all CO_2 emissions, 35–40% of methane emissions and 65% of nitrous oxide emissions.[5]

CO_2

Carbon dioxide emissions arise from:

- Deforestation (see next section)
- Energy used in the production and transportation of animal feed and meat products
- Soil carbon loss in grazing lands

CH_4

90% of methane from farmed animals is produced in the stomachs of sheep, cattle and other ruminants when they digest their food – a process called enteric fermentation. It is released into the atmosphere through burping and farting.

N_2O

Nitrous oxide emissions mainly come from nitrogenous fertilizers used on animal feed crops. Animal farming creates more than half of the nitrous oxide produced by human activity.

Deforestation

Animal farming is the single biggest threat facing the world's tropical rainforests. The most diverse ecosystem that has ever existed on planet Earth is being cleared largely to create pasture for cattle to graze and cropland to grow animal feed.

The clearing of rainforest to create pasture for cattle to graze is responsible for around 80% of Amazon rainforest destruction.[6]

The rainforest is also being chopped down to grow crops, such as soya beans, which are turned into animal feed and exported all over the world to feed livestock.

In 2020, 42,000 square km of tropical rainforest were lost – that's an area twice the size of the country of Wales, or equivalent to nine football fields disappearing every minute of every day.[7]

Humans have already destroyed a third (34%) of the world's tropical rainforests and degraded another 30%. More than half of the destruction since 2002 has been in the Amazon and bordering rainforests.[8]

The world's rainforests are home to around 50% of all plant and animal species on Earth. If their habitat disappears, these species will be lost forever.[9]

One study warns that continued expansion of cattle ranching and agriculture in the Brazilian Amazon could trigger a tipping point by 2050. This would shift the Amazon from tropical rainforest to savanna, with dire consequences for biodiversity and climate regulation.[10]

As world-renowned philosopher Peter Singer said, 'we are quite literally gambling with the future of our planet for the sake of hamburgers'.

Cattle raised for beef on land that was once tropical rainforest in Para State, Amazon rainforest, Brazil.

▲ Soya bean plantation in the Amazon rainforest.

Animal farming is a major cause of habitat loss and species extinction. According to the World Wide Fund for Nature the demand for land for food production is responsible for nearly 60% of global biodiversity loss. The most important factor is the growing of animal feed crops to satisfy our current levels of meat consumption.[11]

Switching away from animal farming will free up land for other purposes including reforestation and restoring the natural habitats, which will both aid the survival of endangered species and help absorb greenhouse gas emissions.

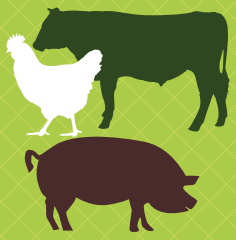
A rare ocelot wildcat whose habitat is being destroyed for the meat trade.

Food, feed and biodiversity

How the consumption of animal products causes global biodiversity loss

1

The consumption of beef, pork and chicken increases.



2

Farmed animals such as cows, pigs and chicken are fed protein and energy-rich feed such as soya.

3

Soya production increases to feed more farmed animals.

4

Forests and other ecosystems are cleared to create land to grow soya crops.

5

Ecosystems and wildlife habitats disappear and biodiversity decreases.

6

The farmed animals in the UK need an area the size of Yorkshire to produce the soya used in the animal feed that they consume.

©Greenpeace/Kate Davidson

Emptying the oceans

©Graham Robertson/Australian Antarctic Division/RSPB

A dead albatross caught on a fishing line

Overfishing is driving many fish species to the brink of extinction. Many non-target fish get caught in trawlers' nets (known as bycatch) and are simply thrown back into the sea, dead. An estimated 300,000 whales, dolphins and porpoises also die in fishing nets every year.[12]

One third of fish caught in the world's oceans are converted into fishmeal, which is used as animal feed – often to feed fish on fish farms.[13]

Rather than helping, fish farming makes matters worse. On average, it takes three to five pounds (1.36 to 2.27 kg) of fishmeal to produce one pound (0.45 kg) of farm-raised fish.[14]

Pollution

Animals reared for food produce a lot of waste – globally, the amount runs into billions of tonnes of manure every year. Liquid manure (slurry) containing high levels of nitrogen and phosphorus often leaks into waterways, polluting rivers and lakes.

These nutrients cause algae to grow in abundance, creating an algal bloom. When these plants die, bacterial decomposition uses up the oxygen in the water. This process, called eutrophication, leads to fish and other aquatic creatures dying through suffocation.

Fish suffocated by water pollution.

©Joerg Modrow/Greenpeace

Waste from animal farming is the biggest source of water pollution in the UK.

Water consumption

The water footprint of a 150g plant-based vegan burger is 158 litres, compared to 2,350 litres for a 150g beef burger – to produce the meat version requires 15 times more water.[19]

The world's freshwater supply is diminishing. According to the UN, 2 billion people (a quarter of the world's population) do not have access to safe drinking water. [20]

The more freshwater we use for animal farming, the less will be available for people to drink, or to use for growing crops.

Global food shortages

Rearing animals is an incredibly inefficient way of producing food. This is because only a fraction of the calories that the animals eat is actually converted into food that people can eat.

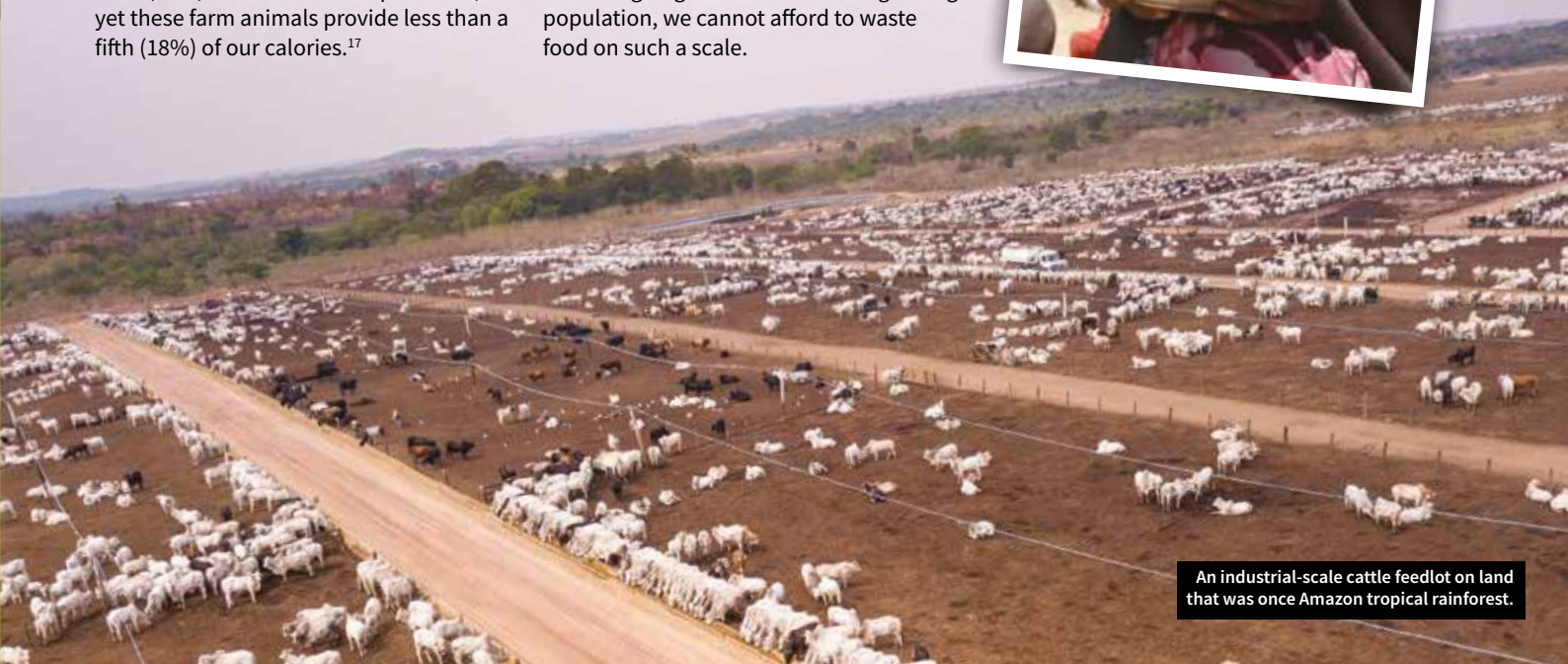
Cattle are the most inefficient food converters. They need to eat 20kg of animal feed to produce just a single kg of meat, using up, or in effect 'wasting' 95% of what they are fed.[15]

Today, farmed animals consume over a third (36%) of the world's crop calories,[16] yet these farm animals provide less than a fifth (18%) of our calories.[17]

Another way to look at the incredible inefficiency of animal farming is land use. Animals reared for food take up 83% – over four fifths – of the world's farmland, while providing only 37% of our protein and 18% of our calories.[18]

We would be able to feed at least four times as many people by using the available land to feed people directly, on a plant-based diet, rather than by using it to fatten animals.

If we are going to feed the world's growing population, we cannot afford to waste food on such a scale.



An industrial-scale cattle feedlot on land that was once Amazon tropical rainforest.

Food for thought

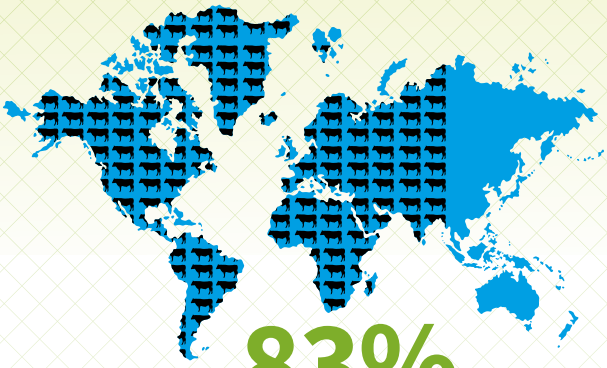
Changing to an animal-free, plant-based diet is one of the most positive steps that each of us can take to protect the environment. A vegan diet has other benefits as well as being environmentally friendly. Studies have shown it to be a healthy diet, and of course it is also kinder to animals.

Researchers at the University of Oxford found that going vegan can reduce an individual's climate footprint from food by up to 70%. The figure is 63% for a vegetarian diet.[21]

'A vegan diet is probably the single biggest way to reduce your impact on planet Earth, not just greenhouse gases, but global acidification, eutrophication, land use and water use. It is far bigger than cutting down on your flights or buying an electric car.'

Joseph Poore, Department of Zoology, School of Geography and Environment. The Queen's College, University of Oxford.

Facts at a glance

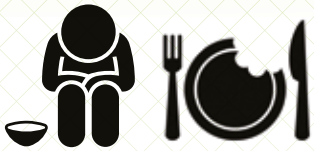


83%

of the world's agricultural land is used for raising animals – this includes croplands for animal feed and pasture for grazing.[23]

27%

of global food production, in terms of calories, is wasted by being fed to livestock. [22]

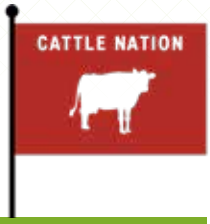


By going vegan you can reduce your climate footprint from food by up to **70%**[25]

The clearing of rainforest to create pasture for cattle to graze is responsible for around **80% of Amazon rainforest destruction.**[26]

Animal farming is responsible for 14.5% of all greenhouse gas emissions.[24]

If the world's cattle were a nation, they would rank third behind China and the United States for greenhouse gas emissions.[27]



You can make a difference

- Eat less meat, go vegetarian, or better still go vegan – visit our website to order a free *Go Vegan* info pack.
- Ask your geography teacher or citizenship teacher to invite a speaker from Animal Aid to visit your school to give a talk on the environmental impact of animal farming.

Glossary

Anthropogenic – Caused by, or produced by, humans

Biodiversity – The number of different plant and animal species in one region or ecosystem. A measure of the variety, or richness, of an ecosystem or habitat.

GHG – Greenhouse gas

Eutrophication – To over-enrich a body of water with nutrients

Acidification – To make a body of water more acidic

Desertification – To transform a fertile area into arid desert

For the references, see *The environmental impact of animal farming* factsheet on our website

July 2024