How Improved Livestock Health Can Reduce GHG Emissions

Livestock are a critical resource for the over 1.7 billion people worldwide who rely on them for their livelihood. These animals provide important food and nutrition to our food supply, while helping drive economies. However, with livestock production representing approximately 12% of global GHG emissions,[1] it is important to consider how our world can maintain these benefits while protecting our climate. Recent analyses from peer-reviewed studies to United Nations institutions have found that better livestock health can be a powerful climate solution for animal agriculture.

Disease increases GHG emissions of livestock production

Animals that are sick consume more feed and water, while growing at a slower rate. When an animal is lost to disease, it means resources must be re-invested in raising another animal to meet market demand. This means disease leads to higher GHG levels per unit of milk, meat and eggs because more animals and resources are ultimately needed to maintain productivity.

Sick animal → Lower yield → More animals needed → Higher emissions

Effects of Disease on Beef Cattle Emissions[2]

Bovine Viral Diarrhea – Up to 130% increase
Johne's Disease – Up to 40% increase
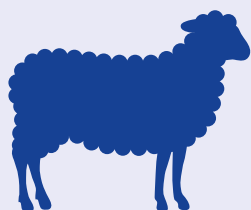**Salmonella** – Up to 20% increase

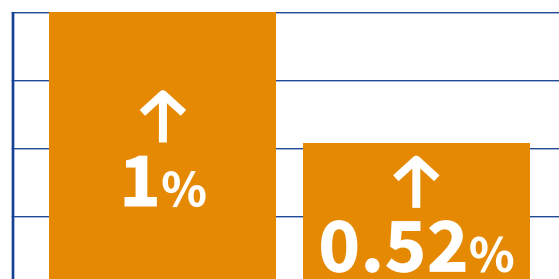**Effects of Disease on Dairy Cattle Emissions[2]**

Johne's disease – Up to 25% increase
Salmonella – Up to 20% increase
**Bovine Viral Diarrhea** – Up to 20% increase

Every 1% increase in parasitic worms in sheep results in a 0.52% increase in emissions[3]
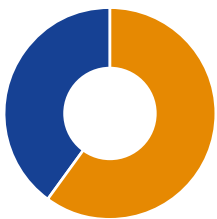
↑ 1%   ↑ 0.52%

Effects of Diseases are More Pronounced in Developing Markets

Animal disease significantly reduces the global productivity of livestock farming each year, particularly in developing regions where access to veterinary care and vaccinations may be minimal.
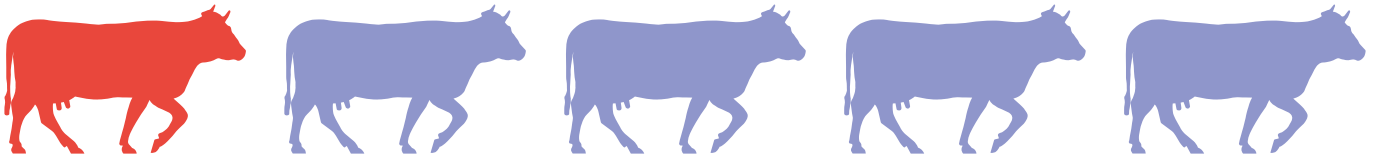
An outbreak of cattle disease affecting 20% of a herd is associated with:[4]

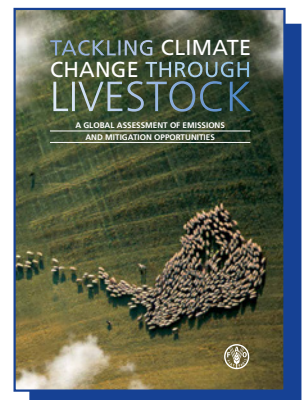**60%** increase in emissions in low income countries

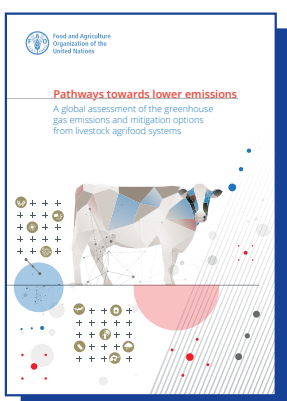**42%** increase in high-income countries

> "The main reasons for the high level of emission intensities [in South Asia] are... poor quality feed and high mortality rates."
>
> *United Nations Food and Agriculture Organization[6]*

TACKLING CLIMATE CHANGE THROUGH LIVESTOCK

A GLOBAL ASSESSMENT OF EMISSIONS AND MITIGATION OPPORTUNITIES

United Nations Recommends Animal Health as a Climate Solution

Recent reports from the United Nations Food and Agriculture Organisation (FAO) have evaluated how livestock production can help bridge global nutrition gaps, while simultaneously reducing emissions. The two most impactful solutions were increasing productivity and better animal health.

Food and Agriculture Organization of the United Nations

Pathways towards lower emissions
A global assessment of the greenhouse gas emissions and mitigation options from livestock agrifood systems

Increased productivity and improved animal health **can reduce global livestock emissions by 30%,** according to a recent UN report.[5]

Healthy livestock produce fewer emissions

There is a direct link between GHG emissions and animal health. Healthy animals are more productive and sustainable as they require fewer natural resources to thrive, leading to a lower environmental impact.

Recent report found that reducing global livestock disease levels by **10** **percentage points**

Would lead to a drop of more than **800** ↓ **million tons** of GHG emissions

Equivalent to the average annual emissions of **117million Europeans** based on EU estimates of 6.8 tonnes of CO2 per person[7]

Studies across the globe have measured the effects of various animal health interventions on the GHG emissions of livestock production, finding that these technologies can be a climate solution for animal agriculture.
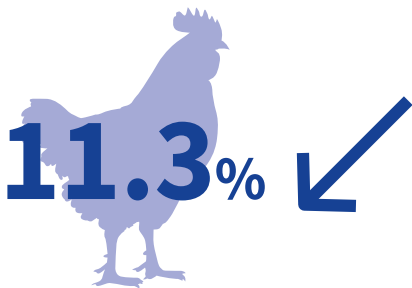
40%

Vaccination

East coast fever vaccination in cattle reduces emissions up to 40% in East African countries[8]

33%

Parasite Control

Parasites can increase methane emissions by 33%, which is why studies have found deworming can drastically cut emissions[9]

11.3%

Biosecurity

Control of Highly Pathogenic Avian Influenza (HPA) reduces emissions by 11.3%[10]

8%

Genetics

Better genetics could reduce livestock emissions by 8% across the EU and up to 24% of methane emissions in the Netherlands[11,12]

Healthy animals for a healthier world

The data is clear. Better animal health means higher productivity, lower emissions and fewer people going hungry. Healthy animals are a cornerstone of sustainable food systems

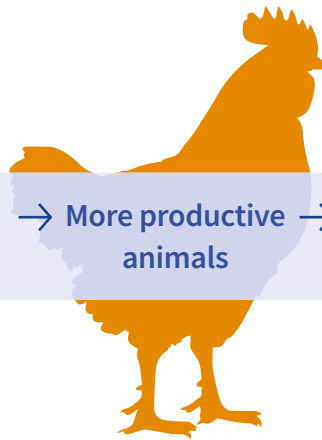Vaccination & veterinary care → Healthy animal → More productive animals → Fewer emissions → Sustainable food systems

Spotlight: Feeding 9+ Billion

A recent report analysed UN data and found that scaling up existing practices in animal health and husbandry means livestock could serve a world population of more than 9 billion in 2050. Here's how:

1 UNFAO estimates that an increased uptake of existing animal health and husbandry technologies and practices can reduce livestock emissions intensity by 18–30% .

2 This intensity reduction could allow livestock farmers to increase production by an estimated 46.7 billion kg a year, enough to meet the needs of another 1.6 billion people, while holding overall emissions at current levels.

3 With the global population at 8 billion, this means that increased adoption of existing tools in animal health and husbandry could enable livestock to serve more than 9 billion people in 2050 without increasing emissions.

Endnotes

1   https://www.fao.org/newsroom/detail/new-fao-report-maps-pathways-towards-lower-livestock-emissions/en
2   https://academic.oup.com/af/article/9/1/69/5173494
3   https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7539894/
4   https://healthforanimals.org/reports/animal-health-and-sustainability/
5   FAO, Pathways to lower emissions, Table 3, https://www.fao.org/3/cc9029en/cc9029en.pdf
6   https://www.fao.org/3/i3437e/i3437e.pdf
7   https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Greenhouse_gas_emission_
8   https://www.fao.org/3/cc0431en/cc0431en.pdf
9   https://www.sciencedirect.com/science/article/abs/pii/S0020751918301723
10   https://onehealthoutlook.biomedcentral.com/articles/10.1186/s42522-023-00089-y
11   Impact of animal breeding on GHG emissions and farm economics, European Commission
12   https://www.sciencedirect.com/science/article/pii/S1751731121001373