

# Impact on air quality

Outdoor pig farming contributes to air pollution through emissions of **ammonia (NH<sub>3</sub>)**, **nitrous oxide (N<sub>2</sub>O)**, and **methane (CH<sub>4</sub>)**. These gases affect air quality, climate, and ecosystems. Their impact varies depending on system design, ground cover, stocking rates, and seasonal conditions.

## Key Pollutants

**Ammonia (NH<sub>3</sub>)**: Released when urine and faeces mix, breaking down nitrogen compounds.

**Nitrous Oxide (N<sub>2</sub>O)**: Produced through processes involving small soil organisms when nitrogen from manure and urine is deposited.

**Methane (CH<sub>4</sub>)**: Methane is produced when small soil organisms break down organic matter in pig manure under oxygen-poor conditions, such as in waterlogged soils, releasing methane as a by-product of decomposition.

## Why It Matters

**Ammonia** combines with other atmospheric gases to form **particulate matter (PM)**, which can travel long distances and harm human health and the environment. Ammonia emissions can lead to **nitrogen deposition**, which can cause excess nutrients and changes in species composition, threatening sensitive flora, fauna and habitats.

**Nitrous oxide and methane** are potent greenhouse gases, contributing to climate change.

## Direct risks of outdoor pig farming to air quality

Several factors can increase emissions:

- **High-protein diets** can lead to excess nitrogen excretion.
- **Poor ground cover** can increase emissions.
- **Stocking density and paddock design** can influence the concentration of urine and manure.
- **Soil compaction** changes the physical structure of the soil, creating anaerobic conditions and an increase in emissions.

Check out the guidance documents below to see which measures can improve air quality.

### Actions

- Site selection
- On-farm infrastructure
- Diet
- Equipment and machinery
- Green cover and buffer strips
- Stocking rate and grazing management
- Soil health and structure
- Manure management

## Links to further information

Code of Good Agricultural Practice (COGAP) for Reducing Ammonia Emissions, Defra, 2024: [www.gov.uk/government/publications/code-of-good-agricultural-practice-for-reducing-ammonia-emissions/code-of-good-agricultural-practice-cogap-for-reducing-ammonia-emissions](http://www.gov.uk/government/publications/code-of-good-agricultural-practice-for-reducing-ammonia-emissions/code-of-good-agricultural-practice-cogap-for-reducing-ammonia-emissions)

Protecting our water, soil and air, Defra, 2011: [www.gov.uk/government/publications/protecting-our-water-soil-and-air](http://www.gov.uk/government/publications/protecting-our-water-soil-and-air)

The Code of Good Agricultural Practice (COGAP) for the prevention of pollution of water, air and soil, DAERA, 2008: [www.daera-ni.gov.uk/publications/code-good-agricultural-practice-cogap](http://www.daera-ni.gov.uk/publications/code-good-agricultural-practice-cogap)

