



Air Quality Solutions

# Agriculture & Livestock

Air Quality Monitoring

Approach & Solutions

---

Powered by AI & Green Technology

# The Challenge

## Why Air Quality Monitoring is Critical for Agriculture & Livestock



### Indoor Health Risks

Indoor air contaminants directly affect the health of both livestock and workers — reduced productivity, illness, and safety hazards.



### Community Complaints

Outdoor pollutants create nuisance complaints in surrounding communities. Unresolved odour issues escalate quickly.



### Regulatory Pressure

Government intervention follows unaddressed pollution. Proactive monitoring avoids costly fines and forced shutdowns.

*Emissions from farms outweigh all other human sources of fine-particulate air pollution in much of the US, Europe, Russia, and China — Columbia Climate School, 2016*

# AAVOS Monitoring Approach

A comprehensive two-layer strategy for complete indoor & outdoor coverage

## Stationary Equipment

### **CTmini & AQmini**

Continuous 24/7 monitoring of indoor and outdoor air quality around your facility.

- Indoor livestock/worker safety
- Outdoor perimeter monitoring
- Real-time pollutant levels
- Wireless network of sensors

## Odour Patrol

### **Mobile & Aerial Monitoring**

Developed in 2015, used in Canada, UAE, USA, Italy, Chile and more.

- Hotspot detection across large areas
- Granular spatial & temporal data
- SM100i olfactometer + TR8 Odotracker
- DR2000 drone flying laboratory

**Together: Full facility coverage — indoor, outdoor, near & far**

# Pollutants Monitored

Agriculture & livestock facilities emit a complex mix of gases and particulates requiring simultaneous monitoring

**NH<sub>3</sub>**

Ammonia

**H<sub>2</sub>S**

Hydrogen Sulfide

**CH<sub>4</sub>**

Methane

**N<sub>2</sub>O**

Nitrous Oxide

**CO<sub>2</sub>**

Carbon Dioxide

**PM**

Particulate Matter  
PM1, PM2.5, PM10

**VOCs**

Volatile Organic  
Compounds

**NO**

Nitric Oxide

**O<sub>3</sub>**

Ozone

**H<sub>2</sub>S**

Organic Sulfides  
& Disulfides

+ Exhaust Fumes • Aromatic Compounds • Criteria Air Pollutants (CAP) • and more

# Monitoring Devices

A wide range of tools for every monitoring need — from fixed stations to aerial drones

Perimeter

## CTmini

Particulate Matter Monitor

Highly accurate PM1, PM2.5, PM4, PM10 plus Temperature & RH

Indoor

## AQmini

Indoor Air Quality

High-powered, cost-effective IAQ monitoring for enclosed spaces

Perimeter

## CTair

Compact Network Analyzer

Wireless, compact multi-pollutant analyzer — deployable as a sensor network

Aerial

## DR2000

Aerial Flying Lab

Conducts ambient measurements in hard-to-reach places via drone

Mobile

## SM100i

Intelligent Olfactometer

Auto-screens panelists; eliminates guesswork from field olfactometry

Mobile

## TR8+

Pollutracker

Portable, multi-sensor tool measuring up to 10 chemicals simultaneously

Mobile

## US20

Urban Scanner

Vehicle-based monitor for community impact assessment along roads

Support

## Weather Station

Meteorological Data

Tracks temperature, humidity, pressure, wind speed and precipitation

# SIMS3

## Sensor Information Management System

AI-powered software that transforms raw sensor data into actionable intelligence — automatically.



Temporal, Statistical, AQI & Heat Map analytics



Real-time odour complaint management & justification



Event triangulation to pinpoint unknown odour sources



Sensitive receptor tracking with odour unit/second values



Atmospheric dispersion modelling (AERMOD)



Automated weekly, monthly & annual reports

Powered by

## Artificial Intelligence

### Plume Detection

Track emission spread in real time

### Complaint Justification

Auto-classify complaints as justified / not justified / pending

### Source Triangulation

Pinpoint unknown odour sources via back-trajectory analysis

### Predictive Alerts

AQI threshold alerts before breaches occur

# Odour Complaint Management

SIMS3 handles the entire complaint workflow automatically — from receipt to legal justification

**JUSTIFIED**

Complaint automatically categorised as justified. Emission source identified, corrective action required.

**PENDING**

Recorded and flagged for further analysis. Triangulation initiated to determine contribution.

**NOT JUSTIFIED**

Recorded but categorised as unjustified. Data archived for regulatory evidence purposes.



## Triangulation of Unknown Sources

SIMS3's Event Triangulation mode pinpoints unknown odour source locations using ambient monitoring data and back-trajectory analysis. Sources are identified down to their contribution in odour units per second. This is admissible evidence for regulatory defence.

# Complete Emission Inventory Services

Beyond hardware — AAVOS provides expert services for a complete compliance picture

## Environmental Impact Assessment



Comprehensive site overview with a qualified team. Olfactometric measurements, ISO 17025 analytical lab, optional AERMOD dispersion modelling.

## Atmospheric Dispersion Modelling



Determine the severity and extent of pollutant/odour emissions. Processed using the US-EPA approved AERMOD suite.

## Odour Analysis



Laboratory determination of odour concentration per EN13725:2022, ASTM E679-04, VDI 3881, and other international standards.

## Direct Aerial Sampling



Drone-based analyzers collect residual gases high above your facility. Full on-site analysis by our air and odour experts.

*Also available: Perimeter Monitoring • Odour Patrols • Aerial Monitoring • New Source Identification • Complaint Database • Regulatory Reports*

# Proven Track Record

Global references across agriculture, livestock, and related facilities

## Peel Region | Ontario, Canada

Odour Management Plan, SIMS3 facility-wide integration, DR2000 ambient monitoring, SL50 perimeter, dispersion modelling

## Haya Water | Oman

Training workshop, regulator training, odour monitoring equipment installation, software modelling

## Metro Vancouver | Vancouver, Canada

Odour regulation & field inspection protocols, training for environmental engineers, odour measurement workshops

## Al Warsan WWTP | Dubai, UAE

Odour sampling & olfactometric analysis, emission inventory, dispersion modelling, complaint management installation

## Marafiq WWTP | Saudi Arabia

Full plant audit, odour sampling, health & safety analysis, dispersion modelling, monitoring device commissioning

## Chicago Wastewater | Chicago, USA

Emission inventory, odour source identification, olfactometric analysis, community impact reporting, perimeter monitoring

# Why Choose AAVOS?

Your local partner for world-class air quality monitoring technology



## Proactive Compliance

Stay ahead of regulations — never face government intervention unprepared



## End-to-End Solution

Hardware, software, lab services and reporting — one partner, one workflow



## AI-Powered Platform

SIMS3 automates analysis, complaint handling, and reporting 24/7



## Global Proven Technology

Deployed in 20+ countries; backed by ISO 9001:2015 certification

**Ready to get started?**

[CONTACT AAVOS TODAY FOR A SITE ASSESSMENT AND TAILORED MONITORING PROPOSAL](#)