

TRTECORA[®]

POLLUTION CHECK

Engaged for a
better future!





Value-added Innovation in food chains

Background: Intensive farming

✓ Important source of gaseous air pollutants (NH_3 , CH_4 , N_2O , NO_x , CO_2 , odours) and atmospheric particulate matter (PM)

Emission (param.)	Process	Bckg concentrations	Indoor concentrations (e.g. pigs)	Indoor concentrations (e.g. chickens)
NH_3	Animal housing, manure treatment and spreading	0,7 - 20 ppm _v	2 - 87 ppm _v	1 - 50 ppm _v
CH_4	Animal housing, manure treatment and spreading	1,8 ppm _v	7-630 ppm _v	1-10 ppm _v
CO_2	Animal housing, manure treatment and spreading heating buildings - transports - combustion plants - biogenic emissions	390 ppm _v	1000 - 5000 ppm _v	0,3 - 4 ppm _v
N_2O	Animal housing, manure treatment and spreading	0,3 ppm _v	0,3-1,2 ppm _v	0,3-4 ppm _v
Odours	Animal housing, manure treatment and spreading	< 300 UO _E m ⁻³	517 - 18063 UO _E m ⁻³	278 - 3032 UO _E m ⁻³
PM ₁₀	Animal housing, manure treatment and spreading heating buildings - transport - combustion plants	3 - 172 µg m ⁻³	150 - 5500 µg m ⁻³	101 - 10360 µg m ⁻³

Indoor emissions

Energy consumption - Process parameters control - Biogenic consumption rate (LCA) - Circular Economy

Outdoor emissions



VIDA

value-added innovation
in food chains

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Value-added Innovation in food chAins

Background: Intensive farming Integrated System – BIOSIX[®]

Real-time monitoring of **gas pollutants and PM**
System optimized for measuring indoor concentrations and outdoor emissions

PM (PM ₁₀ – PM _{2,5})	OPC (Optical Particle Counter): measuring of particles dimensional distribution in 31 dimensional channels, the concentration of PM ₁₀ and PM _{2,5} (inhalable, thoracic and respirable fractions). Compliant with the regulations
CH ₄ , N ₂ O, CO ₂	NDIR sensor
NH ₃	High precision electrochemical sensor

Advantages of real-time monitoring

- ✓ Control and optimization of the normal management of activities and plants: **ENERGY SAVING**, reduction of indoor concentrations and outdoor emissions/management costs
- ✓ Detection of critical situations / anomalies and intervention actions





Value-added Innovation in food chains

Background: Greenhouses

CO₂ need in greenhouses to participate in the plant "metabolism"

- ❖ Stimulation of flowering, increase of fruiting
- ❖ It is the most important of mineral fertilizers
- ❖ Large farms often use boiler exhaust → before putting the gas in the greenhouses, it must be cleaned and cooled, only after it is fed into the beds by the pipeline system
- ❖ CO₂ monitoring is important from an energy point of view but also productive, since the **distribution must be homogeneous** throughout the greenhouse in the various points of supply



Control of pathogenic biological agents (viruses, spores, bacteria) to guarantee an aseptic environment even in a phase "post greenhouse"
(e.g. drying of vegetables before packing)



Value-added Innovation in food chains

Background: Intensive farming

Integrated System - Green Air CO₂ and BIO Monitor[®]

TCR TECORA proposes an integrated system for real-time monitoring of CO₂ and biomonitoring of some pathogenic biological agents (viruses, spores and bacteria)

System optimized to provide an answer to:

- Evaluation of an important process parameter for food production (CO₂)
- Indicators of an aseptic environment (viruses, spores, bacteria)

Also a tool to assess the healthiness of the work environments of the operators within the greenhouses



Value-added Innovation in food chains

Voucher declaration of interest



is convinced that it can contribute to the following VIDA challenges

Food Sector	Resource efficiency challenges
Sustainable Farming North and South of Europe	Manure management; Energy efficiency; diffuse pollution
Greenhouses	Energy efficiency and circular economy

Innovation Support Voucher (ISV)

Field of activity → Improving knowledge and data collection with regard to resource consumption in food production and processing



How to Reach

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