



a Munters company

Technology Sustainability Carbon Footprint



WHAT IS SUSTAINABILITY?



 $\mathbf{\tilde{\mathbf{N}}}$

SUSTAINABILITY

Sustainability



Carbon Footprint

- Traditional Footprint Reduction
- Utility Conservation
- Public Transportation
- Reduce Reuse Recycle

 \sim



HOW MUCH ARE WE EMITTING?

Greenhouse Gases

- Gasses of interest defined in Kyoto Protocol
- Agriculture primarily deals with CO₂, CH₄, and N₂O



Average broilers emission intensity by region (regions with less than two percent of broiler production are omitted)



(FAO, 2013)

OVERVIEW OF U.S. GREENHOUSE GAS EMISSIONS IN 2019



Not all gasses are created equal!

Global Warming Potentials (GWP) of each differ

(USEPA, 2021)

 $\mathbf{\tilde{\mathbf{v}}}$

mtechsystems.io | 🟹

-			9
	Ν.	4	
	Δ.	Ζ	
			/

		vGWP values for 100-year time horizon			
Industrial designation or common name	Chemical formula	Second Assessment Report (SAR)	Fourth Assessment Report (AR4)	Fifth Assessment Report (AR4)	
Carbon dioxide	CO ₂	1	1	1	
Methane	CH4	21	25	28	
Nitrous oxide	N2O	310	298	265	

)

Emission Calculation

- Calculation requires activity data, emission factors, global warming potentials, and unit conversions
- Emissions Factors (EF) are location specific whenever possible and modeled when data is insufficient

Emission × **EF** ×**GWP** ×**Unit Conversion** = **CO2e**



Scope of Assessment: Poultry Value Chain





HOW CAN TECHNOLOGY HELP?





Technology drives sustainability

- Faster processing and understanding of environmental impacts
- More informed sustainability goal setting
- Building a better future for resilience

Integrating Technology

- Understand emissions of the past
- Determine baseline
 emissions
- Evaluate and Improve on sustainability Goals



 $\mathbf{\nabla}$

mtechsystems.io

Sustainability & MTech



What do we care about?

Customers Service Innovation



Carbon Footprint Calculations

- GHG Protocol Guidance
- Scope 1, Scope 2, and Scope 3
- What-if Analysis
- Full Transparency

- Carbon Neutral Initiatives
- Economic Integration
- Nutrient and Metal Analysis
- Environmental Models







 \checkmark







• MTech Systems



Thanks Gracias 謝謝 וرىش Danke Спасибо ありがとう Obrigado

mtechsystems.io

VISIT OUR BOOTH



Padmini Persaud, PhD padminipersaud@mtech-systems.com

