

Background

Producers are under pressure to demonstrate and document environmental sustainability. Responding to these pressures requires measurements to demonstrate ammonia (NH₃) and greenhouse gas (GHG) emissions now and in the future.

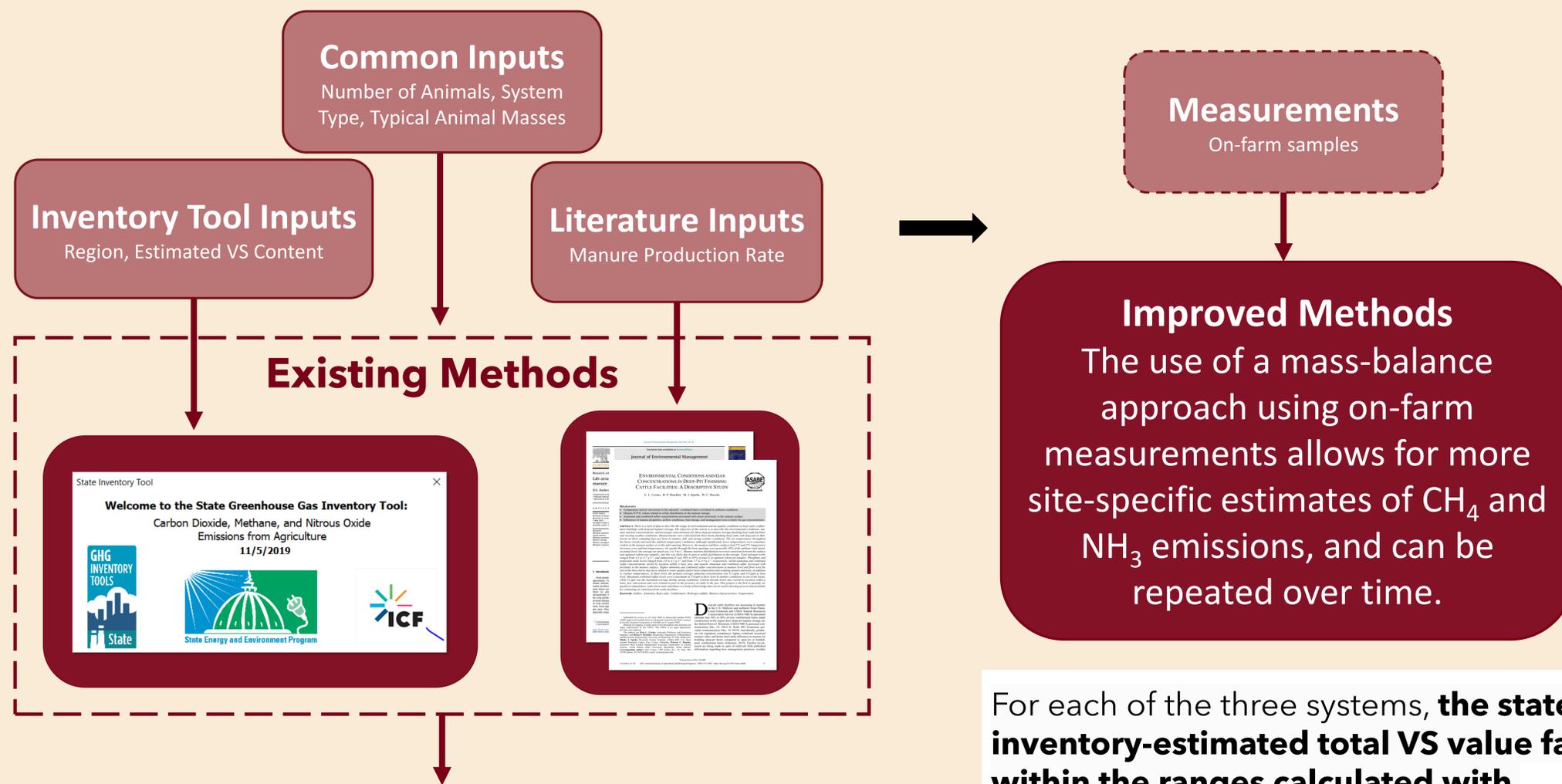
Stored manure emissions are a critical source of livestock agriculture's contribution to methane (CH₄) - a GHG - and a NH₃ emissions. Current emission inventories (models) do not account for all production and manure management systems.

The overall goal of this project is to track flows of nitrogen (N), volatile solids (VS), and ash into and out of several commercial livestock barns to estimate CH₄ and NH₃ emissions. This poster presents comparative values based on emission inventories and literature.

A mass balance approach to estimate methane and ammonia emissions from livestock barns

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For each of the three systems, **the state inventory-estimated total VS value falls within the ranges calculated with experimental data.**

As seen in the experimental total VS values, there can be a large range of VS production due to differences within specific operations of each system. **The state inventory-estimated emissions cannot account for the variabilities found within or between farms.**

	Total VS Production (Mg/yr)		Emissions*
	State Inventory Tool	Experimental Values	m ³ CH ₄
Feedlot Steer (500 head)	335	261 - 1,003	1,262**
Grower-Finisher Swine (1,200 head)	160	108 - 217	19,050
Turkey (15,000 head)	315	207 - 359	1,699

*Emissions estimates found through the State Greenhouse Gas Inventory Tool

**Feedlot steer emission estimate assumes an open feedlot manure management system

Acknowledgments

This work is supported by the UMN Rapid Agricultural Response Fund.