Practical Tools for Assessing and Improving a Farm's Environmental Footprint: an Example from the United States

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Introduction

FARM Program Goal

Assure consumers & customers that dairy farmers care for their animals, workforce and land in a humane and ethical manner.

FARM Program Mission

To aid dairy farmers and cooperatives/processors in assuring consumers and customers that dairy farmers manage their animals, workforce and land in a responsible manner through science-driven methods and a commitment to continuous improvement.


ANIMAL CARE
ANTIBIOTIC STEWARDSHIP
ENVIRONMENTAL STEWARDSHIP
WORKFORCE DEVELOPMENT
FARM
NATIONAL DAIRY FARM PROGRAM

FARM ES Overview

Quantifies a dairy farm's GHG + energy use footprints and asks about the use of nutrient management plans to enable supply chain transparency and support continuous improvement

Features

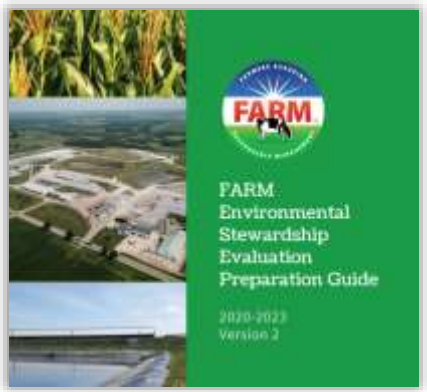
- Strong science w/ periodic updates
- Trained, 2nd party evaluators
- Resources for continuous improvement
- Enables supply chain reporting and collaboration

Methods

Evaluation Process

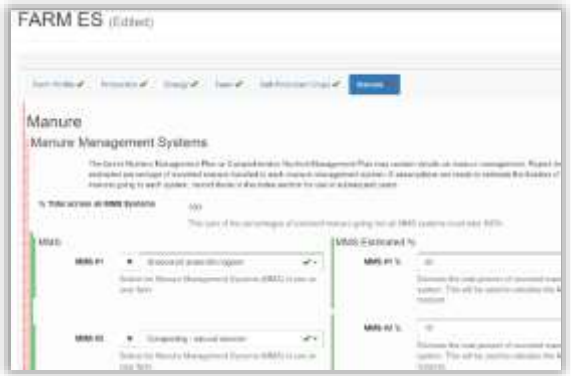
Pre-Visit

- Evaluator schedules farm visit
- Provides ‘getting ready’ guide



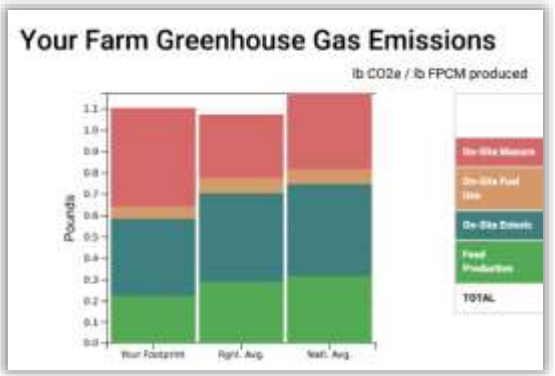
Evaluation

- Web or app-based entry



Results

- GHG and energy use intensity; use of NMPs
- Track changes over time



Model

- Model output is lifecycle-based – from cradle to farmgate
- Based on peer-reviewed, published research
- Model explains 98% of the variability in total GHG footprint across farms


International Dairy Journal

Dairy farm greenhouse gas impacts: A parsimonious model for a farmer's decision support tool

Data Inputs

The data needed to estimate GHG emissions and energy use intensity include:

Milk Production

Herd Data

Rations

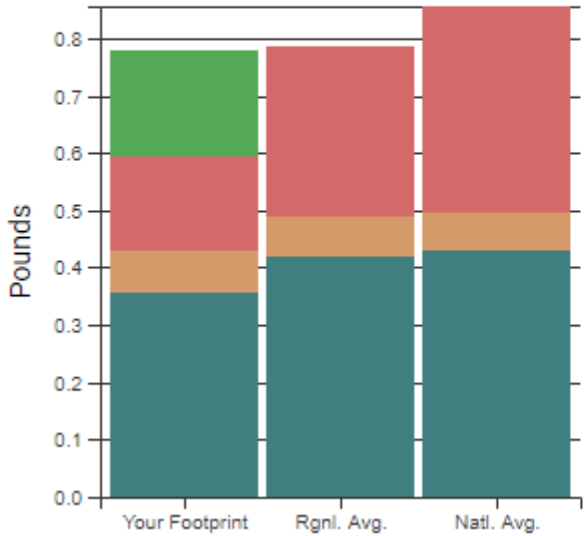
Manure Management

Energy Use

Data Outputs

Your Farm Greenhouse Gas Emissions

lb CO2e / lb FPCM produced



	Your Footprint	Rgnl. Avg.	Rgnl. Diff.	Natl. Avg.	Natl. Diff.
Feed Production*	0.185				
On-Site Manure	0.165	0.296	0.131	0.358	0.193
On-Site Energy Use	0.072	0.072	0.000	0.067	-0.005
On-Site Enteric	0.357	0.418	0.061	0.431	0.074
Total (w/o Feed Production)	0.594	0.786	0.193	0.856	0.262
Total	0.778				

Resources

- **Evaluation Prep Guide** – Resource for farmers to learn about ES and prep for an evaluation
- **User Guide** – The best resource for interpreting the data inputs
- **Data Gathering Sheet**– Facilitate process of collecting information
- **Reference Manual** – focuses on opportunities that help both the environment and the farm's bottom line (e.g. energy efficiency)

Results

Farm Benefits

- Improve international management systems
- Identify opportunities to improve efficiency / productivity.
- Simplified tool, while still providing robust results
- Show farm's commitment to natural resources

Farm Benefits

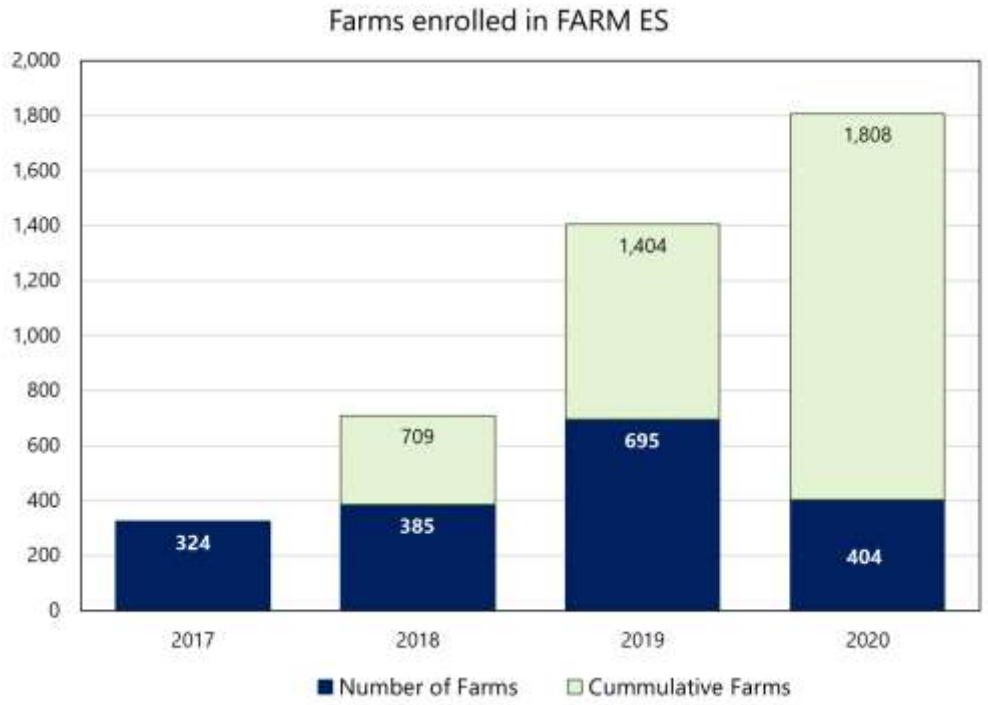
- Reference Manual offers considerations for improvement

Emissions Type	Relevant Reference Manual Chapter(s)	Chapter Page	Example Topic Areas Covered
All	Chapter 2: Moving Forward	Page 8	• Selecting a specialist/vendor • Financing options
On-Site Enteric	Chapter 3: Feed Chapter 4: Productivity	Page 16 Page 38	• Ration formulation • Feeding • Herd health
On-Site Manure	Chapter 3: Feed Chapter 5: Manure	Page 16 Page 58	• Manure storage and treatment options • Ration formulation
On-Site Energy Use	Chapter 6: Energy	Page 72	• Energy efficiency options for milking, ventilation and lighting

Participation

- 1,900+ FARM ES evaluations completed
- 1,808 facilities enrolled in FARM ES

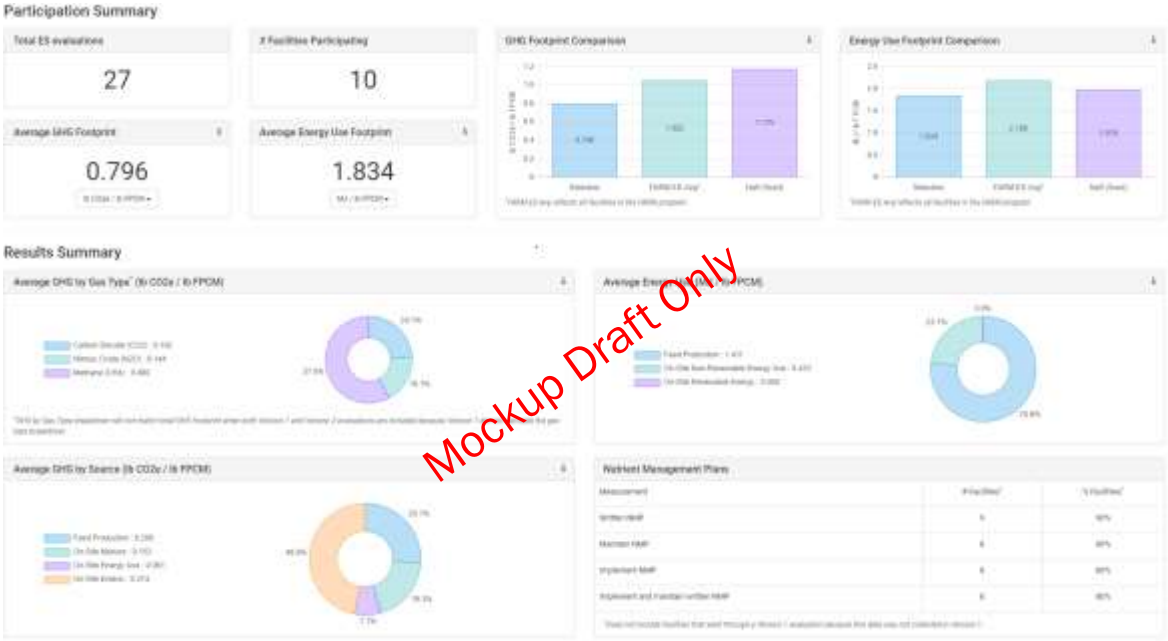
Preliminary *data through Q4 2020. Number of farms is an approximation based on # of facilities; grouped by year of first evaluation.*



Customer Interests

Companies are setting ‘science-based’ targets to reduce GHG emissions in their supply chain, including ***on-farm*** GHG reductions.

Aggregate Reporting



Thank You

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