Tracking On-Farm Greenhouse Gas Emissions in the United States

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Introduction

In 2017, the National Milk Producers Federation (NMPF) initiated a new component of the Farmers Assuring Responsible Management (FARM) Program: FARM Environmental Stewardship (ES). FARM ES provides a comprehensive estimate of the greenhouse gas (GHG) emissions and energy use per pound of milk produced on U.S. dairy farms using a science-based, parsimonious greenhouse gas model.

Aim

The aim of FARM ES two-fold: (1) for a dairy market chain to report greenhouse gas emissions intensity per unit of milk production through a statistically valid method and (2) provide dairy farms with educational materials to reduce GHG and energy footprint.

Methods

FARM ES estimates GHG emissions and energy intensity by using the results from a U.S. dairy life cycle assessment. The simplified model explains 98% of the variability in total GHG and energy footprint. Feed efficiency and manure management are key determinants of their footprint per unit of milk. A sampling protocol has been developed to randomly select dairy farms to produce statistically accurate results that can be reported through a dairy supply chain.

Results

The FARM ES assessment has been completed on 566 farms by 20 different cooperatives and processors. A *FARM Environmental Stewardship Manual* has been published containing management practices, technologies and other considerations that can help reduce on-farm GHG emissions and energy use in a way that makes business sense. FARM ES is being considered for the on-farm estimate needed by milk suppliers to report GHG emissions into science-based targets that are being set by major brands and retailers in the U.S. marketplace.

Conclusion

FARM ES allows the U.S. dairy industry to track and communicate progress for on-farm GHG emissions generated per unit of milk. The model being used comes from peer reviewed science and is based on data generated from the U.S. dairy life cycle assesment.