U.S. Dairy Sustainability Commitment
Measurement to Innovation

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Industry Action: Industrywide Participation
Sustainability Council Members

Associations/Academic

Producers
Clauss Dairy Farms
Gar-Lin Dairy Farms, Inc.
Graywood Farm
Foster Brothers Farm
Haubenschild Farms Inc.
Nobis Dairy Farm
Spruce Haven Farm

Processors/Manufacturers

Retailers

Co-ops
Agri-Mark
Dairylea Cooperative Inc.

Crop Production  Milk Production  Transport  Processing  Packaging  Distribution  Retail  Consumer/Academic NGO
Collaborate: We brought together the whole value chain for a 3-day appreciative inquiry summit…
Steps to Systemic Change

- Collaborate
- Measure
- Lead
- Innovate
Measurement: U.S. Fluid Milk Footprint

Greenhouse Gas Emissions for U.S. Fluid Milk: Contributions by Supply Chain

Total CO$_2$e emissions of fluid milk = 17.6 lbs. per gallon of milk$^1$

$^1$ 2010. "Greenhouse Gas Emissions of Fluid Milk in the U.S." University of Arkansas. Based on environment and consumption data from 2007-2008, the total fluid milk carbon footprint is approximately 35 million metric tons, with a 95% confidence range from 30 to 45 million metric tons. Natural variability in data ranges from 15.3 to 20.7 lbs. CO$_2$e per gallon.
Measurement: Understanding and Owning our Footprint

Carbon footprint of 1 gallon of milk = 17.6 lbs CO₂e/gallon fluid milk consumed²

![Bar chart showing supply chain contribution for various factors affecting carbon footprint.]

¹ Does not include sources related to waste.
² 2010, “Greenhouse Gas Emissions of Fluid Milk in the U.S.” University of Arkansas. Based on environment and consumption data from 2007-2008, the total fluid milk carbon footprint is approximately 35 million metric tons, with a 95% confidence range from 30 to 45 million metric tons. Natural variability in data ranges from 15.3 to 20.7 lbs. CO₂e per gallon.
31 Industry CEOs and Chairmen committed to:

- **Support goals for GHG reduction** at each stage of the dairy value chain from farm to retail, with an overall reduction goal for the industry of **25% by 2020**

- **Support a portfolio of 10 projects** that promise to deliver **GHG reductions** and create **$238 million of business value**
Lead: International

Worldwide Dairy Industry signed Global Declaration on Climate Change Sept 24, 2009

On 24 September, the dairy industry made history with the signing of a Global Dairy Agenda for Action during the World Dairy Summit in Berlin, Germany.

Signed by seven organisations on behalf of the world’s dairy associations and companies, the Global Dairy Agenda for Action is an industry pledge to reduce carbon emissions as part of its contribution to help address global warming. This pledge builds on past performance to address climate change.
On December 15, 2009 the USDA recognized the work of dairy producers and the entire industry with a Memorandum of Understanding (MOU).

"This historic agreement, the first of its kind, will help us achieve the ambitious goal of drastically reducing greenhouse gas emissions while benefiting dairy farmers."

- Secretary Tom Vilsack
Innovate: Roadmap Projects

Energy Management Best Practices
  Farm Energy Efficiency
  Dairy Plant Smart

Energy Management Next Practices
  Next Generation Processing: UV
  Next Generation Cleaning

Dairy Distribution Best Practices:
  Dairy Fleet Smart
  Processing and Packaging LCA

Enteric and Manure Management Next Practices
  Dairy Power
  Cow of the Future
FarmSmart: Project Mission & Vision

■ Mission:
  - To enable dairy producers, stakeholders and support personnel to make on-farm operational changes that generate business value and improve the environment.

■ Vision:
  - An information management and knowledge creation system that enables decision makers to assess, measure, and mitigate environmental impacts in a way that makes good business sense for farmers.
  - Tools that:
    – provide dairy farmers and other stakeholders with farm-specific priority areas for optimizing farm practices.
    – allow dairy farmers and other stakeholders to run what-if scenarios to test how specific changes will impact a specific farm.
Innovate: vision for FarmSmart project

Cow of the Future BMPs & research

Dairy Farm

Cow Power

DNDC + IFSM Process Model

C, N, P

C, N, P

C, N, P

C, N

N, P

C
Innovate: FarmSmart project

Farm Site Information

- Availability of Providers
- Cost
- Grant
- Bidding

Forecast & Modeling Tool

Farmers Decision Making

Quantifiable Reductions

Carbon Calculation Aggregation Models

Life Cycle Assessment

Sustainability Scorecarding
Example: Reduction in CH$_4$ emissions from reduced dietary protein

Single Chino Farm: Implement better management practices

Impact of change in intake protein rate on CH$_4$ emissions

- Field CH$_4$
- Lagoon CH$_4$
- Compost CH$_4$
- House CH$_4$
- Enteric CH$_4$
Site-specific modeling of transferring better management practices to other farms
Region-wide modeling

Chino Region Farms: Adopt better management practices
State-wide modeling

California Farms: Adopt better management practices (feed/manure)
What we have learned…

Collaborate:
Foster pre-competitive collaboration (contagious!).
Develop an ‘AND’ question

Measure:
Stimulate research for sustainable food and agriculture
Measure to determine what really matters. LCA provides a snapshot in time, but the biological interdependencies needs to be connected to assist a farmer

Lead:
Engage leadership in creating a roadmap

Innovate:
Best and Next Practices project for today and tomorrow
DAIRY 2020
VISION FOR THE FUTURE

Join the Movement.

INNOVATION CENTER FOR U.S. DAIRY
HEALTHY PEOPLE • HEALTHY PRODUCTS • HEALTHY PLANET