Field to Market: The Alliance for Sustainable Agriculture

Accelerating Innovation, Productivity and Sustainability in Agriculture

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Managing Crops to Maintain Markets
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Agenda

1. Who We Are
2. What We Do
3. Governance (How) and Value
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Who We Are
Field to Market: The Alliance for Sustainable Agriculture focuses on defining, measuring and advancing the sustainability of food, fiber and fuel production.
Meeting the Challenge

Producing enough food, fiber and fuel for more than 9 billion people by 2050, while conserving natural resources has become increasingly complex.

- 50-70% in middle class purchasing more protein rich foods
- Doubling agricultural output
- Facing a changing climate
- Decreased rainfall
- Extreme weather patterns
- 70% fresh water used
- 37% of land use
- 1/3 edible food lost or wasted
Changing Tastes

When shopping for food, consumers prize family satisfaction above all else, but increasingly, they consider sustainability as an important factor in their buying decisions.

More than 8 in 10 Americans consider sustainability when buying food and would like to see more options available that protect the environment.\(^\text{10}\)

Similarly, consumers are looking to companies to help them understand their impact on the environment – with nearly 3/4 of consumers stating they want companies to do a better job explaining how their purchases impact the planet.\(^\text{11}\)

Increasingly, we’re seeing Millennials (19- to 36-year old consumers) voting with their wallets, with 6 out of 10 willing to pay more for environmentally friendly products.\(^\text{12}\)
Field to Market membership centers around 5 distinct sectors of the agriculture value chain

- Grower
- Agribusiness
- Brands & Retail
- Civil Societies
- Affiliate
2017 By the Numbers

$1.3T
Combined Revenues
Our diverse membership represents combined revenues totaling more than $1.3 trillion.

134
MEMBERS
Field to Market is the premier sustainability initiative joining diverse organizations from all levels of the food and agriculture supply chain.

18%
Membership Growth
Creating shared value from farm to fork, Field to Market’s membership continues to grow at a significant pace, demonstrating convergence around a common framework to measure sustainability in U.S. agriculture.

45
Fieldprint®Projects
Our members are partnering with growers on a journey of continuous improvement through 45 active Fieldprint® Projects in 32 states.

2,300+
FARMERS
Field to Market is engaging farmers on the ground to measure the environmental performance of their management practices using the Fieldprint® Platform.

2.8 Million Acres
More than 2 million acres of commodity crops in the United States are enrolled in a journey of continuous improvement through participation in our Supply Chain Sustainability Program.
Field to Market® | Uniting the Supply Chain to Deliver Sustainable Outcomes for Agriculture
Why a Multi-Stakeholder Approach?

Field to Market uniquely brings together stakeholders from across the agricultural supply chain and creates unparalleled opportunities for collaboration.

• Credibility
• Harmonization
• Efficiency
How We Define Sustainable Agriculture

Meeting the needs of the present while improving the ability of future generations to meet their own needs by:

- Increasing productivity to meet future food and fiber demands
- Improving the environment
- Improving human health
- Improving the social and economic well-being of agricultural communities
Guiding Principles

- Engage the full supply chain including producers
- Focus on commodities crops with unique supply chains and traceability issues
- Commitment to individual grower data privacy
- Emphasis on continuous improvement
- Measure broad-scale trends and field-scale outcomes
Field to Market is working to meet the challenge of producing enough food, fiber and fuel for a rapidly growing population while conserving natural resources and improving the ability of future generations to meet their own needs by driving sustainable outcomes for corn, soybeans, wheat, cotton, rice, potatoes and other crops.

To deliver these outcomes, Field to Market’s membership has pledged to:

**Improve land use efficiency**
Drive sustained improvements by increasing productivity on U.S. cropland, conserving native habitat and enhancing landscape quality.

**Improve water quality**
Offer sustained contributions to solving regional water quality problems by reducing sediment, phosphorus, nitrogen, and pesticide loads from U.S. cropland.

**Improve irrigation water use efficiency**
Provide sustained contributions to solving regional water scarcity problems through continual improvement in irrigation water use efficiency and conservation.

**Improve energy use efficiency**
Drive sustained improvement in energy use efficiency from U.S. crop production.

**Reduce greenhouse gas emissions**
Deliver sustained reductions in greenhouse gas emissions from U.S. cropland per unit of output.

**Reduce soil erosion**
Provide sustained reductions in soil erosion to tolerable levels or below on all U.S. cropland.

To achieve these outcomes, Field to Market seeks to engage 20% of productive acres of U.S. commodity crop production, the equivalent of 50 million acres, in its supply chain sustainability program by 2020.
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What We Do
What We Do

Three Key Resources

1. Fieldprint Platform

2. Fieldprint Projects

3. National Indicators Report

Field to Market – What We Do
1. Fieldprint Platform

A free, confidential online education tool for row crop farmers that indexes their agronomics and practices to a Fieldprint.

Helps growers evaluate their farming decisions and compare their sustainability performance.

Comparing against:
- Their own fields
- Previous year’s performance
- Regional, state and national averages
Five Resource Efficiency Metrics

Land Use: Accounts for the planted area used to produce a unit of crop output (e.g. acre/bushel)

Energy Use: Includes all energy used in production of the crop – field operations; energy used to produce fertilizer, seed, and crop protectants; harvest drying and transportation energy.

Greenhouse Gas Emissions: Includes emissions from energy use as well as nitrous oxide from soils

Irrigated Water Use: Calculates the amount of water required per incremental increase in crop yield.

Soil Conservation: Calculated as soil loss per acre from water and wind erosion, uses NRCS erosion models

Common Feature: Benchmarks based on USDA survey data are available for comparison of field level scores to state and national level averages
Three Performance Index Metrics

**Water Quality**: Applies the NRCS WQI tool to assess qualitative water quality impacts of an operation.

**Soil Carbon**: Applies the NRCS SCI to assess the likelihood that a field is gaining or losing carbon.

**Biodiversity**: A Field to Market developed tool for evaluating the potential for habitats to support diverse ecosystems at the farm level (pilot phase).

**Common feature**: Index metrics are based on ranking systems of practices combined with environmental variables, such as soil type and weather; No benchmark values are available.
What does the Fieldprint Platform Do?

Provides corn, cotton, potato, rice, soybean and wheat growers with a free and confidential tool to explore relationships between management practices and sustainability outcomes.

Farmers can save their information and compare the environmental impact of different management decisions on their operation.

Helps growers evaluate their farming decisions in the areas of:

- Biodiversity (Piloting)
- Energy use
- Greenhouse gas emissions
- Irrigated water use
- Land use
- Soil carbon
- Soil conservation
- Water quality
Measuring at the Field Level

Management

- **2012 Corn**
  - Tillage System: No-Till
  - Management System:
    - "corn grain;NT,anhyd, z16"
    - Apr 20 - Fert. applic. anhyd knife 30 in
    - Apr 20 - Sprayer, pre-emergence
    - Apr 20 - Fert. applic. surface broadcast
    - May 1 - Planter, double disk Oprn w/flowed coulter
    - Jul 1 - Sprayer, fungicide
    - Oct 20 - Harvest, killing crop 50 pct standing stubble
  - Crop Residue Removed: Yes
  - N Credit Taken from Cover Crop: 0 lb/ac
  - Vegetative Cover
    - Low = Less than 30% vegetative cover:
      - January
      - February
      - March
    - Medium = 31 to 80% vegetative cover:
      - April
      - May
      - June
    - High = More than 80% vegetative cover:
      - July
What We Do

Summary

The Fieldprint values shown for a selected crop on the slider bars are plotted on the above Spidergram. The Spidergram axes are relative indices representing your resource use or impact per unit of output in each of the five resource areas. Lower values closer to the center indicate a lower impact on each resource.

The values on the slider bars are relative indices, where lower values (0) indicate greater efficiency and/or lower impacts on the particular resource area and higher values (100) indicate lower efficiency and/or higher impacts on the particular resource area.

Create Report
2. Fieldprint Projects

- Demonstrate use of calculator on the ground to test utility at the grower level and through the supply chain
- Engage farmers across geographies, crops, and supply chains
- Sponsors include grower organizations, supply chain companies, conservation organizations, and NRCS
What We Do

45 Active Fieldprint Projects Across 32 States

- Barley
- Corn
- Cotton
- Potatoes
- Rice
- Soybeans
- Sugar Beets
- Wheat
In 2016, Field to Market released the third edition of the National Indicators Report, which analyzes sustainability metrics focused on U.S. agriculture and the science-based measurements of outcomes associated with commodity crop production.

- The report evaluated national-scale metrics focused on biodiversity, energy use, land use, soil carbon, greenhouse gas emissions, soil conservation, irrigation water use, and water quality.
- New changes for the 2016 edition include:
  - New crops: barley, corn, silage, peanuts, and sugar beets
  - Discussion of trends for biodiversity, soil carbon, and water quality
National Indicators Report

Sample results- resources per bushel, soybeans

Index of Per Bushel Resource Impacts to Produce Soybeans
(United States, Year  2000 = 1)

<table>
<thead>
<tr>
<th>Year</th>
<th>2000 *</th>
<th>Unit - per Bushel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land Use</td>
<td>0.027</td>
<td>Planted Acres</td>
</tr>
<tr>
<td>Soil Erosion</td>
<td>0.131</td>
<td>Tons</td>
</tr>
<tr>
<td>Irrigation Water Applied</td>
<td>0.766</td>
<td>Acre Inches</td>
</tr>
<tr>
<td>Energy</td>
<td>44,840</td>
<td>Btus</td>
</tr>
<tr>
<td>Greenhouse Gases</td>
<td>8.2</td>
<td>Pounds CO₂e</td>
</tr>
</tbody>
</table>

* Five-year average 1996 - 2000

Note: Data are presented in index form, where the year 2000 = 1 and a 0.1 point change is equal to a 10% difference. Index values allow for comparison of change across multiple dimensions with differing units of measure.
Harmonizing Metrics and Approaches

• Signed a MOU with The Sustainability Consortium in 2014 to harmonize measurement and reporting of sustainable agriculture
  • Field to Market’s benchmarks and metrics can be utilized to report against TSC’s key performance indicators on commodity crop production
  • Commitment to encourage data platform interoperability and collaborate on innovation projects
• Signed a MOU with the Innovation Center for U.S. Dairy in 2015 to align metrics to assess sustainability of dairy feed
• Collaborating with aligned efforts to harmonize metrics and approaches
  • National Cattlemen’s Beef Association
  • Roundtable on Sustainable Biomaterials
  • SAI Platform
  • Stewardship Index for Specialty Crops
  • U.S. Roundtable for Sustainable Beef
What We Do

Key Objectives for 2017

- Updating our metrics to incorporate newly available science
  - Greenhouse gases
  - Water use and water quality
  - Soil health
- Preparing for rollout of version 3.0 of the Fieldprint Calculator
  - Updated user interface
  - Integration into other farm management software through an API
- Developing partnerships for continuous improvement
  - Sustainability curriculum for Certified Crop Advisers, etc.
- Membership expansion to strengthen downstream pull
  - Apparel
  - Biofuels
  - Livestock
Governance and Value
Largest Governing Body = General Assembly
The General Assembly is made up of one representative from each of the Field to Market voting member organizations, and provides strategic direction for Field to Market’s program.

Board of Directors
The Board of Directors is comprised of 14 members, elected from each of the five Sectors. The Board of Directors make recommendations to the General Assembly concerning organizational strategy, budget, and annual work plan.

Executive Committee
The Executive Committee is elected from the Board of Directors to hold the positions of Chair, Vice Chair, Treasurer, and Secretary.
Standing Committees

Four standing committees have been established to oversee various aspects of Field to Market’s program and to make formal recommendations to the General Assembly and Board of Directors. These committees will have a number of responsibilities including developing and refining metrics; establishing verification protocols for sustainability claims; developing education and outreach materials to accelerate continuous improvement; and establishing awards and recognition programs for outstanding growers and supply chain partners. Committees membership is an elected position from each of the five sectors.
Advisory Councils

Three advisory councils/networks have also been established to provide informal guidance to Field to Market on a range of questions including science, technology and project implementation.
What We Do

Value of the Field to Market Approach

- Evaluate current environmental performance
- Connect with tools and initiatives that will facilitate continuous improvement within their operations
- Maintain their freedom to operate under voluntary system of conservation incentives
- Ensure market access
- Reduce or eliminate a proliferation of supply chain surveys
- Share sustainability story with consumers

- Provide relevant decision support tools, technologies, programs and initiatives to growers
- Help farmers meet continuous improvement goals
- Share sustainability story with consumers, shareholders and stakeholders
Value of the Field to Market Approach

• Connect growers they source commodities from with downstream companies
• Report the sustainability of their sourcing areas through a single sustainability platform
• Reduce or eliminate challenge of responding to multiple, competing surveys
• Share sustainability story with consumers, shareholders and stakeholders

• Access aggregated data to characterize sustainability of their sourcing regions
• Partner with suppliers to advance continuous improvement in sustainability outcomes
• Benefit from industry alignment around a common sustainability framework to enable supply chain sustainability claims
• Share sustainability story with consumers, shareholders and stakeholders
Value of the Field to Market Approach

- Partner with suppliers to advance continuous improvement in sustainability outcomes
- Benefit from industry alignment around a common sustainability framework to enable supply chain sustainability claims
- Share sustainability story with consumers, shareholders and stakeholders

- Benefit from confidence in a sustainability framework
- Collaborate on establishing metrics that advance conservation mission
- Support initiative that advances sustainable agricultural production
- Contribute to building more sustainable supply chains
- Share sustainability story with consumers and stakeholders
Thank You
For More Information
Visit www.fieldtomarket.org
Endnotes


Canadian Field Print Initiative

Canadian farmers have dramatically reduced their environmental footprint. Less soil erosion, reduced greenhouse gas emissions, lower energy use, and more carbon sequestration tell an impressive story. Farm production practices have evolved to become more sustainable than ever before.

Consumers, food retailers and food manufacturers are becoming more conscious about reducing their own environmental impact. They’re asking, “is my food produced sustainably?”

The Canadian Field Print Initiative is working to develop tools to assist the Canadian agricultural industry to respond to these questions.
Canadian Field Print Initiative - Participating Organizations