Field to Market ® FieldPrint

Website: https://www.fieldtomarket.org/calculator.php

Factsheet

General description of the tool

Category	Outcome-based
Objective	To evaluate the environmental performance of corn, cotton, rice, wheat, potato and soybean production in the United States. To assess how their management choices are impacting both the environment and their production efficiency
Geographical applicability	USA
Functionalities	Hotspots identification,alternative scenarios testing, provide a footprint value/metrics
Target audience	Farmers and food supply chain managers
Developers	Keystone Alliance for Sustainable Agriculture - latest update: 2016
Format	Online tool (https://www.fieldtomarket.org/calculator.ph
Cost (tool and data)	Free
Past or current users	Cargill, Bunge, General Mills, Kellogg, McDonald's Corp, CocaCola, Unilever and Walmart

Commodities covered

Potato, wheat, soybean

BMPs covered

Reduced tillage practices

Crop rotation, incorporating perennial or pulse crops

Application rate based on testing and book values

Application method - conventionally tilled land

Use of buffer zones for field crops

Cover crops

Fertilizer application - timing

Fertilizer application - placement

Run-off control

Catch basin management

Fertilizer application - rate*

Fertilizer application - source*

Timing of application for plant needs*

**modelled partially (i.e. can only model default scenarios)*

Indicators covered

GHG emissions
Land use
Conservation/biodiversity
Soil carbon
Water use
Water quality
Energy use

Data inputs

Data requirements	Primary data required	Default values
Environmental conditions	Location, soil characteristics (slope, texture, organic matter content), area	n/a - no default value
Crop management	- Crop rotation: planting date, seed treatment, seeding rate, row spacing, tile drainage system, share of economic value, previous crop residue burned, - Management: tillage system (practice), management system (scenario to pick), crop residue removal, N credit taken from cover crop, vegetative cover (low/medium/high for each month), pest management (practice), nutrient application, soil condition at time of primary nitrogen application, dominant application method, application type, fertilizer/crop protectant application trips, manure application - Planted but not harvested: field area, planted area, harvested area, reason	n/a - no default value
Carbon sequestration/storage	No	n/a - no default value
Livestock	No	n/a - no default value
Energy use	- Product transportation/hauling: distance from field to point of sale, fuel type - Drying: drying system, energy source, points of moisture removed by drying	n/a - no default value
Primary processing	No	n/a - no default value
Water	- Farm demographics: total managed irrigated acres, total managed non-irrigated acres - Crop rotation: use of irrigation, growing season rainfall estimate, yield	n/a - no default value
Transport	No	n/a - no default value
Others	- Conservation practices (select practices)	n/a - no default value

Scope ☑ Farm level ☐ Supply chain

Ease of use for the data collector	Relatively easy, but may require specific documentation and time consuming - Qualitative data entries can be easily completed by the user. However, unless the producer has done a soil assessment, data on soil organic matter, moisture and pH can be hardly found. Data on crop areas and irrigation areas can be easily estimated by the producer.Quantitative data related to fertilizers and pesticides will require the user to search through its documents, but these documents should be accessible. Data on energy use (electricity and fuel) are usually easily accessible to producers.

Modelling methods

Consistency of the model with the goal and scope of the tool	Consistent - the model provides results in terms of environmental impacts and an assessment of a farm's efficiency against 7 indicators
Transparency and quality of documentation	Guidance document: Yes - Guidance is provided within the tool Methodology document: Yes - Methodology available online: https://www.fieldtomarket.org/report/national-2/PNT_NatReport_A27.pdf
Conformity of the methodology with the current state-of-the-art agronomic and environment sciences	Consistent - Uses mainly primary data from census and surveys representative of US production (see above) and well-developed methodologies The draft report was shared with 9 peer reviewers (University of Nebraska, USDA Climate Change Program Office, USDA Agricultural Research Service, Agricultural Conservation Economics, University of Kentucky, Simplified Technology Services, LLC, University of California, Ohio State University)
Methodology	Based on US EPA inventory of emissions for GHG emissions, USLE methodology for soil erosion, IPCC assumptions for N2O emissions, etc.,
Dataset sources used for modelling	Productivity estimates through 2010 from NASS, 2007 Agricultural Census and 2008 Farm and Ranch Irrigation Survey, 2002 and 2007 soil erosion data from NRI new ARM survey data and updated fertilizer use data by crop

Outputs / Results

Results ☑ Detailed summary of results in tables ☑ Detailed summary of results in graphs

Analysis ☑ Comparison with alternative scenarios

Limits of the tool/model

- No account of soil carbon sequestration in GHG emissions indicator (due to the complexity and uncertainty related to this topic)
- Uses public data and at a broad-scale