

# 2021 ON-FARM SOIL HEALTH PRACTICES REPORT

## ENVIRONMENTAL SUSTAINABILITY ANALYSIS

### About the Report

**14,702** acres from **163** fields from **14** farmers that receive manure from **46** sites

This on-farm report was conducted on farms in the Raccoon River Watershed and measured several on-field practices impacting soil health. In 2021, 46% of the acres received liquid hog manure at an average rate of 4,486 gallons per acre, which is determined through manure analysis, soil samples and recommendations from the Department of Natural Resources (DNR). Farms in this study have consistently used hog manure as fertilizer before 2021 due to cropping rotations and nutrient needs, all impacting overall soil health.



### SOIL CONDITIONING INDEX

Soil Conditioning Index (SCI) is a tool from NRCS that shows the trajectory of soil health. A positive SCI means a positive trajectory of soil health and vice versa.

The fields in the project are an overall **+** trajectory for **SCI**.

## HOG MANURE & CONSERVATION PRACTICES IMPACTING SOIL EROSION RATE

### IN-FIELD ENVIRONMENTAL OUTCOMES

The data is reflective of weather and soils influence in addition to implemented in-field management practices for the project year.<sup>†</sup> The USDA National Resources Inventory provides estimates on average erosion for different systems across the US.\*



Iowa Select

#### Soil Erosion Rate

**0.64** T/ac/yr



Iowa Cropland

**5.9** T/ac/yr



National Cropland

**4.6** T/ac/yr

### KEY TAKEAWAY

**9 Times**  
**LESS**  
**Soil Erosion**

Fields in the EcoPractices analysis have 9 times less erosion than Iowa's average, primarily due to the use of hog manure, reduced tillage and no-till practices.

Conservation Practices			
	Iowa Select	Iowa Average <sup>1</sup>	National Average <sup>1</sup>
Cover Crop	2%	3%	4%
No-Till	5%	27%	37%
Reduced Till	43%	33%	35%

**46%** of the acres used Iowa Select Farms hog manure in the 2021 crop year.

## IN-FIELD ENVIRONMENTAL OUTCOMES

The data is reflective of weather and soils influence in addition to implemented in-field management practices for the project year.\*



Net GHG Emissions

Soil Carbon Sequestered

OVERALL FARM

**0.04 T CO<sub>2</sub>e/ac/yr**

**0.19 T C/ac/yr**

Conservation Practice	Fields	Acres
 Grassed Waterway	13	67
 Buffer	19	111

CROP	% ACRES	YIELD
Corn Grain	62%	235 bu/ac
Soybean	38%	67 bu/ac

### MANURE APPLICATION & SAVINGS

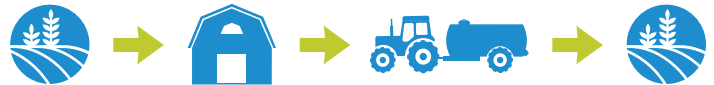
**46%** of acres received liquid manure fertilizer at an average rate of **4,486 gallons/acre**.



The average **cost savings** from manure applied to **7,534 acres** was estimated to be **\$152 per acre** based on a reduced need for commercial N, P & K resulting in a **total savings of \$1.1 million**.



Manure produced during pork production has many benefits. Manure provides macro- and micro-nutrients to the crops that are grown. The soils applied receive **organic matter** which increases **carbon storage**. In addition, **microbial activity** is stimulated. Producers prioritize **stewardship** by properly applying manure to benefit the fields that are applied.



### About National Pork Board

The National Pork Board funded these on-farm sustainability reports. Pork producers live and work by the six We Care Ethical Principles, one being the environment. Hog manure is a valuable resource that safeguards water quality and helps improve soil health. The pork industry is working on sustainability from multiple angles, not just the one highlighted in this report. Learn more at [porkcares.org](http://porkcares.org).



### About Iowa Select Farms

Iowa Select Farms is the largest pork producer in Iowa and is committed to responsibly producing safe, nutritious and high-quality pork for their customers and the food companies they serve. Environment care is one of their four core values. Iowa Select Farms is an industry leader in land stewardship and adds value to natural resources by replenishing the crop ground with essential nutrients from swine manure. They are committed to protecting water in the state of Iowa through their hog manure and conservation practices. Learn more at [iowaselect.com](http://iowaselect.com).



## ECO PRACTICES

Data provided by 14 producers within Iowa Select Farms for the 2021 growing season and calendar year.

\*EcoPractices estimates an environmental impact value for reducing greenhouse gas emissions, reducing soil erosion, and reducing nutrient loss due to reduced leaching. These estimates adhere to processes that are documented by the NRCS Technical Guides and publications from the EPA. These values are tailored to a specific location and participant's operation. Models used are supported by USDA, NRCS, other government agencies, and major universities. Modeled results include input data from public resources for weather, soils, and historical crop rotation. Greenhouse gas simulations were produced from the Greenhouse Gas Inventory (GGIT) tool developed by Soil Metrics, LLC (2021) <https://soilmetrics.eco>. The GGIT tool implements the USDA-sanctioned greenhouse gas inventory methods described in Eve et al. (2014) "Quantifying Greenhouse Gas Fluxes in Agriculture and Forestry: Methods for Entity-Scale Inventory". The GGIT tool utilizes greenhouse gas modeling technology developed for the COMET-Farm tool, licensed by Colorado State University to Soil Metrics, LLC.

\*USDA, NRCS 2017 National Resource Inventory | '2017 US Ag Census

This summary must not be edited or altered in any way without the involvement and consent of EcoPractices.