

Speakers



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Predictive Soil Health Economic Calculator (P-SHEC) Tool

What it means for planners, producers, & the bottom line

Presenters: Michelle Perez, Ben Wiercinski, Meng Li, Chellie Maples

Collaborators: Aysha Tapp Ross, Robert Ellis, and Bonnie McGill
American Farmland Trust

NRCS Conservation Webinar Series
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American Farmland Trust's mission is to save the land that sustains us

- Protecting farm and ranch land
- Promoting sound farming practices
- Keeping farmers on the land



Background & Overview of the P-SHEC Tool



- **How:** AFT & NRCS developed the P-SHEC Tool thru a Cooperative Agreement:
 - NRCS Economists: Julie Suhr Pierce, Bryon Kirwan, & Lynn Knight
 - Soil Health Division: Karl Anderson, Amanda Branham, Candiss Williams, & Lori Metz
- **What:** The tool helps farmers & ag advisors predict the potential 10-year costs & benefits from adopting cover crops, nutrient management, & no-till
- **Goal:** Provide unique & value-added information to help farmers & their ag advisors make more informed decisions on soil health practices

Initial AFT-NRCS Collaboration on Soil Health Economic Resources

Soil Health Economic Case Studies



Soil Health Case Study The Purdy Family, Picabo Livestock, ID

Introduction
Three generations of the Purdy family—Nick (age 83), Pat (60), and Nicholas (40)—operate the 150-year-old Picabo Livestock ranch, a 700-head cow-calf operation. They also grow alfalfa hay, multi-bale mountain seed, and potatoes across 4,800 acres of heavy till soil and rocky dry ground in Blaine County, Idaho. Although they've adopted soil health practices on their entire acreage, this study focuses on their 4,800-acre rotation that includes 3 years of barley and 4 years of alfalfa where the Purdy practice no-till, cover cropping, and nutrient management. The ranch is 100% irrigated and protected from development by a conservation easement.

The Purdy's natural motivation for transitioning away from conventional management, especially intensive tillage, was the severe wild erosion often experienced in the region of Idaho. Consistently driving progressive silty topsoil to maintain the world-class trout stream that the ranch shares was increasingly expensive, and seeing how much topsoil had run off his fields was "heartbreaking." In 2014, they began their no-till journey on both barley and alfalfa, then expanding across all their acreage as they acquired the necessary equipment, a process which took about four years.

Prior to their adoption of cover crops in 2012, the ranch fields would all have over the winter, which the only "low risk" death for soil health and maintaining topsoil. Now, the Purdy plant a tall fringed mix, which includes peas, lentils, vetch, turnips, and a speltz/maize/soybean, on roughly half of their barley acres. This mix plus the volunteer barley growth provides excellent grazing for their cattle in the fall before it frost kills over the winter.

Around the same time that the ranch began no-tilling, the Purdy's began retooling their nutrient management program, which they continue to

The Purdy Family, Picabo Livestock, ID

health practice adoption, providing an additional \$70,000/yr. On average, the Study Area fields have seen an increase in SOM from 4.4% before 2012 to 9% after 2012. Finally, customizing nutrient application with some soil samples showing SOM as high as 8.8%.

The Purdy have experienced two decreases in cost. First, by switching to no-till they eliminated two tillage passes for barley and three passes for alfalfa, reducing their annual tillage costs by \$600/yr. Second, they've eliminated the use of insecticides on alfalfa altogether since their change in nutrient management, limiting applications of urea nitrate, which Pat calls a "big expense", saving the ranch an average of \$800/yr or \$600/000/yr.

Overall, the largest cost increases that Picabo Livestock has incurred are due to changes in nutrient management practices. Incorporating cover soil sampling methods is more costly, an additional \$0.10/yr.

Soil Health, Economic, Water Quality, and Climate Benefit

Partial budgeting analysis was used to measure the marginal benefits and costs of cover-cropping and nutrient management health practices at Picabo Livestock. It was limited to only those income and cost changes affected by the adoption of these practices. The table on page 3 presents a summary economic effects revealing that, due to soil health practices, Picabo Livestock's income increased by \$60,000/yr, or by 14% on the 4,800-acre study area, when they return on investment.

The largest per-acre increase in net benefits attributed to the forage value of their no-till alfalfa is \$760/yr. This cover crop increases the \$160/yr cost of cover and planting.

The second largest per-acre increase in income is due to barley and alfalfa seeing increases of \$36/yr and \$31/yr, respectively, due to the Purdy's increase in their soil's organic matter (SOM) content as a result

of manure compost for alfalfa is significantly more expensive than conventional tillage, costing the farm an additional \$400/000/yr. Finally, customizing nutrient application on alfalfa and the additional pass required for split applications of liquid fertilizer on their barley accounts for an additional \$670/000/yr. In total, the Purdy's begin doing partial budgeting analysis, which is dramatically changing their nutrient management. As that is a new practice, it has not been included in this analysis.

Finally, Picabo Livestock employees spend most of their time on learning activities related to their soil health practices, placing special emphasis on finding reliable resources.

The Purdy's have seen significant improvements in soil health practices, soil tillage, and water infiltration as a result of their efforts. Sign Dr. "We just don't see standing water on our soils, no dry spots

Closing Thoughts

The Purdy credit the success of their soil health journey to starting small, experimenting where they could afford to fail, and acknowledging that mistakes are part of the process. For them, the biggest challenge has been changing their mindset. This has meant going from tilling their soil as a start to respecting it as a living biological organism, which they see as a challenge. Sign Pat, "If you view your soil as a living biological system, it really does challenge you ethically to change your behavior."

When Dr. Bob Allen, Director, American Farmland Trust

Economic Effects of Soil Health Practice on Picabo Livestock Co, ID (2021 Prices)¹

Increases in Net Income				Decreases in Net Income			
ITEM	PER ACRE	ACRES	TOTAL	ITEM	PER ACRE	ACRES	TOTAL
Increased crop yield based on SOM increase	\$28	200	\$5,600	None identified			\$0
Increased yield for barley & alfalfa (no-till)	\$75	1,000	\$7,500				\$0
Increased yield for alfalfa (no-till)	\$10	1,000	\$1,000				\$0
Total Increased Income			\$14,100				\$0
Decreases in Cost				Increases in Cost			
Decreased cost savings due to no-till	\$40	100	\$4,000	Cover crop seed and planting costs	\$60	200	\$12,000
Decreased tillage operations for barley	\$5	1,000	\$5,000	Increased cost for cover crop seed and planting	\$12	1,000	\$12,000
Decreased tillage operations for alfalfa	\$10	1,000	\$10,000	Increased cost for cover crop seed and planting	\$10	1,000	\$10,000
Decreased cost for fertilizer	\$10	1,000	\$1,000	Increased cost for cover crop seed and planting	\$10	1,000	\$10,000
Decreased cost for insecticides	\$10	1,000	\$1,000	Increased cost for cover crop seed and planting	\$10	1,000	\$10,000
Total Decreased Cost			\$32,000	Total Increased Cost			\$64,000
Annual Total Increased Net Income			\$14,100	Annual Total Decreased Net Income			\$50,000
Total Annual Net Income			\$14,100	Total Annual Net Income			\$50,000
Annual Per Acre Increased Net Income			\$29	Annual Per Acre Decreased Net Income			\$10

Annual Change in Total Net Income = \$17,100
Return on Investment = 16%

¹Markings above include the total of positive items, the depreciation, interest, insurance, taxes, and other costs associated with the practice. ²For more information on this study or to discuss soil health practices, please contact David Anderson, American Farmland Trust, Idaho Program Manager, david@amfarmland.org or 208-527-6228 x 105. ³For more information on this study or to discuss soil health practices, please contact David Anderson, American Farmland Trust, Idaho Program Manager, david@amfarmland.org or 208-527-6228 x 105. ⁴For more information on this study or to discuss soil health practices, please contact David Anderson, American Farmland Trust, Idaho Program Manager, david@amfarmland.org or 208-527-6228 x 105.

A Farmer's Guide to Soil Health Economics

FINDINGS FROM NATIONAL SURVEYS FOR CORN, SOYBEAN, AND SMALL GRAIN

According to the U.S. Department of Agriculture (USDA), soil science research has shown that practices which improve soil health can lead to benefits such as reduced erosion, maximized water infiltration, improved nutrient cycling, and improved resistance. These "soil health practices" not only have direct benefits for the producer, but they can also have public benefits for the surrounding community.

Although practices such as no-till, cover crops, change in crop rotation or nutrient management have been shown to improve soil health, adoption remains limited, and 2% of cultivated acres are in continuous no-till and only 5% are in rotation with cover crops. One barrier to conservation practice adoption is that farmers bear all the costs of practice adoption while sharing the benefits with the public. Soil health practices can allow farmers to reduce input costs, and, in some cases, increase crop yield.

To shed light on the economic impacts of adopting soil health practices, we searched for relevant economic analyses. We organized the results into three factbooks highlighting key findings from surveys, budget analyses, and research trials. In this factbook, we share findings from TWO NATIONAL SURVEYS. This guide focuses on the production of corn, soybeans, and small grains.

Surveys provide excellent insight into a large sample of producer decisions and the economic effects of those decisions. If large enough and generalizable, surveys can examine national trends. In conservation practice, however, a case study or research trial tells detailed stories about one or a group of producers, survey can provide a more overarching view. In this section, we will focus on two national surveys: USDA's Agricultural Resource Management Survey (ARMS) and the Sustainable Agricultural Research and Education (SARE) National Cover Crop Survey.¹

The SARE National Cover Crop Survey is a biennial survey specifically targeting producers using cover crops across the country. It asks to high questions about cover crop adoption and the effects they have on a producer's operation. The yearly ARMS Survey provides information on production practices, resource use, and economic well-being. Within ARMS, there are a few sections that provide insights into soil health practices. It is important to note that each survey has limitations. The SARE survey is limited to current cover crop users and does not include producers for whom cover crops did not work, potentially biasing

Forage and Soil Considerations for Beef Producers

A FARMER'S GUIDE TO GRAZING

According to USDA-NRCS, research has shown that effective use of grazing practices can improve soil health on grazing lands. Grazing practices refer to a set of grazing patterns and stocking densities. Optimized livestock rotation, improved forage utilization, and adequate forage recovery periods can provide agronomic benefits such as increased soil organic matter, improved soil infiltration, increased forage availability, reduced soil erosion, and carbon sequestration. These practices may also increase the profitability of livestock operations through improved sustainability in environmental conditions, enhanced forage utilization, and improved animal health.¹

In this series of four Farmer's Guides to Grazing, we will focus on the economic, forage, and soil health benefits of grazing practices. The guides will synthesize relevant literature on the economic, forage, and soil health benefits of intensive grazing (also known as management-intensive grazing), seasonal grazing practices, and grazing cover crops. The second guide focuses on the FORAGE AND SOIL HEALTH BENEFITS OF INTENSIVE GRAZING.



Figure 1: Grazing on forage and soil health impacts of intensive grazing. Key findings include:

- Three studies reported increased forage availability under intensive grazing conditions.²⁻⁴ Common benefits include even nutrient distribution, increased organic matter, and weed control. One study in southeast Arkansas found that rotational grazing with moderate stocking rates decreased stored forage requirements and increased forage availability during the grazing season compared to continuous grazing.² However, Garber et al. (2010) noted decreased forage quality due to trampling in mob grazing systems in the upper Midwest.³
- Two studies in the southeastern US found that soil organic carbon (SOC) was higher under AMP grazing compared to continuous grazing. Johnson et al. (2002) reported a 30% increase, and Mosier et al. (2002) reported a 17% increase.⁵⁻⁶ However, there is insufficient evidence of improved SOC in intensive grazing practices in arid or semi-arid regions.⁷
- Three studies evaluated the effects of grazing systems on soil phosphorus loss.⁸⁻¹⁰ Khan et al. (2005) found that rotational grazing with 10 to 20 residual forage cover reduced phosphorus concentration and loss compared to continuous grazing.⁸ Stanley, Day et al. (2002) found that phosphorus loss increased on grazed rangelands and suggested that phosphorus loss may be reduced in rotational grazing systems with

Although intensive grazing practices can improve pasture and soil health, less than half of U.S. cow-calf producers have adopted these methods.¹¹ Limited adoption may be due to an increase in smaller operations (100 head), regional variations in high installation costs, labor shortages, land ownership status, and non-physical barriers like steep topography, dense vegetation, and location of waterways. While technologies exist to address these issues, they often raise costs and operational complexity. Ideal rotation frequency and stocking density differ for each operation depending on forage availability and quality. The table below highlights a few common grazing patterns and how we define rotation frequency, stocking rate, and stocking density. Healthy soil is vital for grazing systems, enhancing nutrient availability, root growth, drought resilience, and forage supply. We

GRAZING PATTERN	ROTATION FREQUENCY ¹	STOCKING RATE/DENSITY ²
Continuous (Conventional)	No rotation	Set stocking rate and density
Traditional Rotational	Set rotation frequency	Stocking rate and density vary
Adaptive Multi-Paddock (AMP) Rotational	Rotation frequency varies based on forage availability/quality, which is continuously monitored.	Stocking rate and density vary based on forage availability/quality.
Notes:	Rotation frequency varies based on forage availability/quality, which is continuously monitored (like AMP); cattle are moved more frequently and at higher densities.	Stocking rate and density vary based on forage availability/quality; increased stocking density is possible due to increased rotation frequency.

¹ Rotation frequency refers to the timing of grazing cattle and rest periods for forage production.
² Stocking rate describes the best land area and grazing system used in a grazing system over a specific period of time. Stocking density refers to the number of cows allocated per acre.

Summarizes literature from 79 studies for:

3 Row crop guides:

- Research trials
- National surveys
- Budget analyses

4 Grazing guides:

- Transition from conventional to intensive grazing
- Seasonal grazing practices
- Cover crop grazing

- Features 23 row crop & 3 almond "soil health successfu" farmers in 12 states



Agenda

Soil health overview

Soil health economics overview

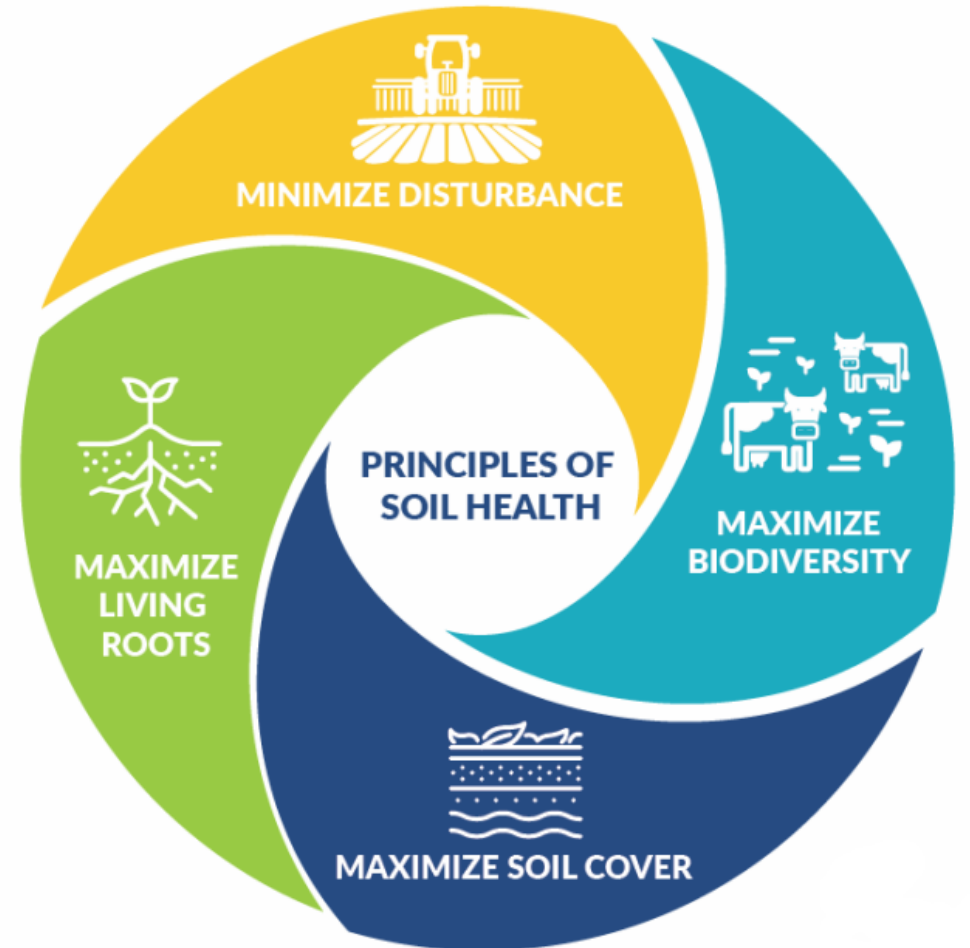
P-SHEC Tool methods

P-SHEC Tool tour

General Signs of Poor Soil Health



4 Soil Health Principles that Conserve the Soil Ecosystem



P-SHEC Tool includes “the Big 3” Soil Health Practices

Conservation Practice

Soil Health Principle	Conservation Cover (327)	Conservation Crop Rotation (328)	Cover Crop (340)	Forage & Biomass Planting (512)	Pest Mgmt. Conservation System (595)	Mulching (484)	Nutrient Mgmt. (590)	Prescribed Grazing (528)	Residue & Tillage Mgmt. (329/345)
Minimize Soil Disturbance	✓			✓	✓		✓	✓	✓
Maximize Soil Cover	✓		✓	✓		✓		✓	✓
Maximize Biodiversity	✓	✓	✓	✓				✓	
Maximize Living Roots	✓	✓	✓	✓				✓	

Table 1. Conservation practices that can be used in a soil health management system to help achieve the soil health principles.

<https://directives.sc.egov.usda.gov/44340.wba>

Outcomes of Soil Health Practices

Prevents soil, water, & nutrient runoff



Provides crop yield resistance to drought
(Example from Carroll, Ohio 2012)



**40 yrs No-till & Winter
Cover Crops:
144 bu/ac - Dave Brandt**



**>20 yrs Conventional
Tillage:
40-80 bu/ac - Neighbor**

Soil Health Economics

- Economics is “the study of scarcity, the study of how people use resources and respond to incentives, or the study of decision-making” –*American Economic Association*

Private Costs and Benefits

- Changes in input and machinery costs
- Changes in yield
- Risk associated with practice adoption

Public Costs and Benefits

- Cleaner waterways
- Increased biodiversity
- Changes in federal expenditures
- Changes in pest pressure



“Moving the Needle”

- Decision Support Tool
- Predictive ≠ Prescriptive
- Various factors influence the decision-making process
- No single factor or resource drives adoption



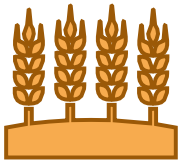
Corn, Soybean and Small Grains

From national surveys, experiments, and budget analyses



Production Costs

- Conservation tillage reduces costs by \$40–\$90/ac (fuel, labor, equipment) (Bowman et al., 2021)
- No-till systems show higher net returns (+\$53/ac corn; +\$35/ac soybean) (Bowman et al., 2021)



Yield Impacts

- Long-term no-till and cover crops maintain or increase yields
 - +0.5–1.5 bu/ac corn (Cai et al., 2019)
 - +3–18 bu/ac soybean (Cai et al., 2019)
 - +4% wheat (SARE, 2023)



Profitability

Short-term returns can be neutral or slightly negative, but tend to increase over time (Myers et al., 2019)

-\$31 (Y1) → \$1 (Y3) → +\$18/ac (Y5) corn

-\$23 (Y1) → \$0 (Y3) → +\$10/ac (Y5) soybean

Mixed net income results associated with cover crops

PSHEC: Predictive Soil Health Economic Calculator

To answer farmer questions about costs, benefits, & 10-year net return on soil health practices

Crop list:

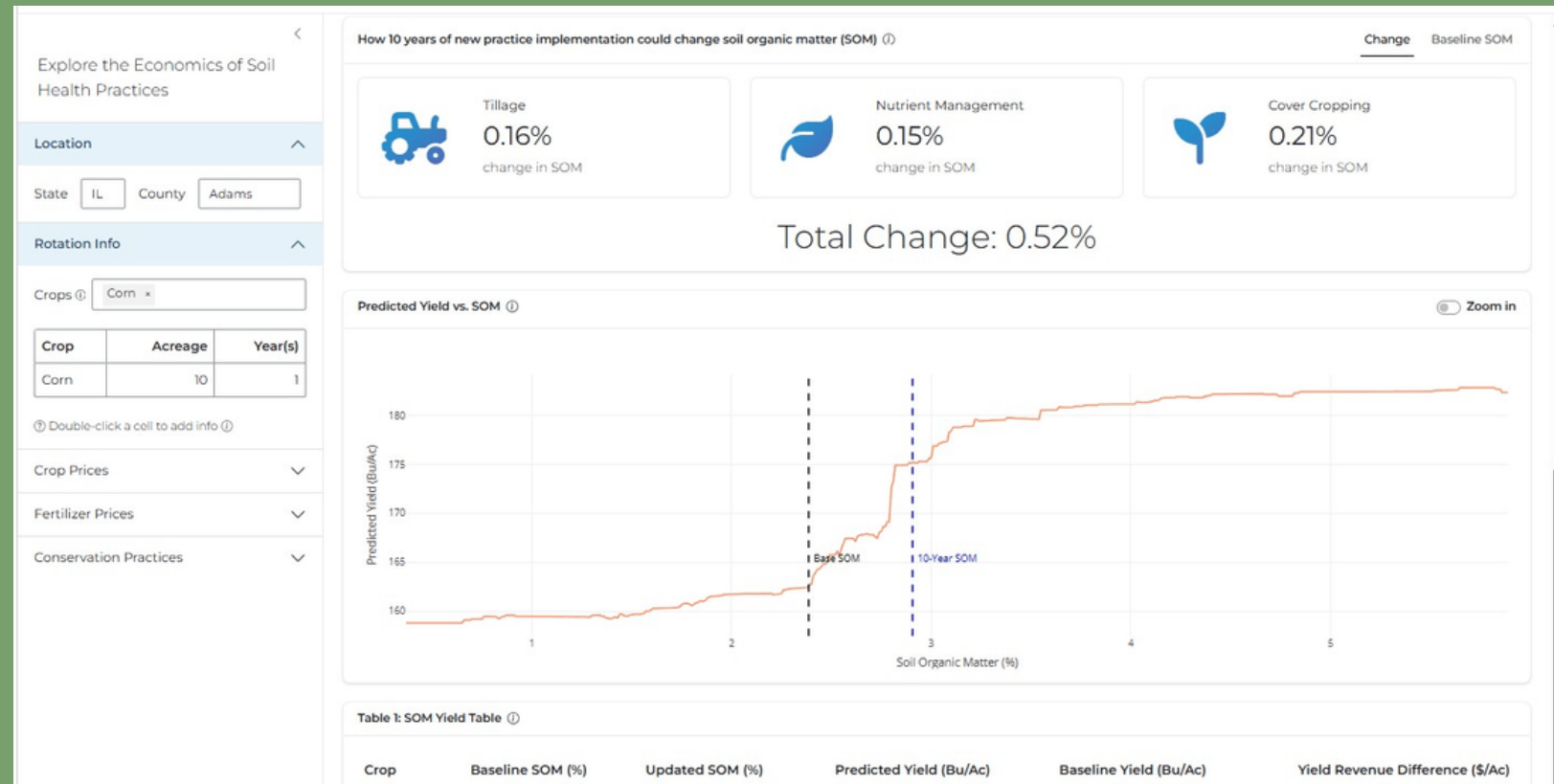
- Barley
- Corn
- Cotton
- Tobacco
- Sorghum
- Oats
- Peanut
- Sugar Beet
- Soybean
- Wheat

Soil health practices:

- No-till/Reduced Till
- Cover Crops
- Nutrient Management

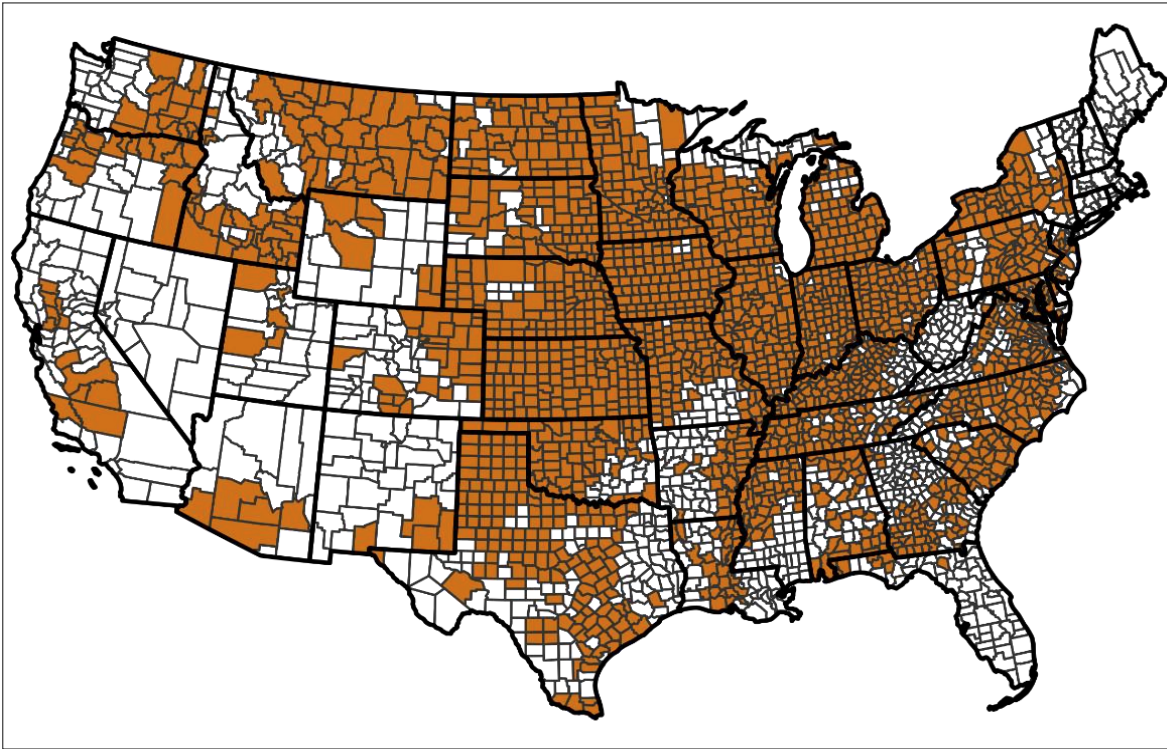
Yield resilience to extreme weather:

- Drought (available now)
- Excessive rainfall (coming soon)
- Excessive temperature (coming soon)



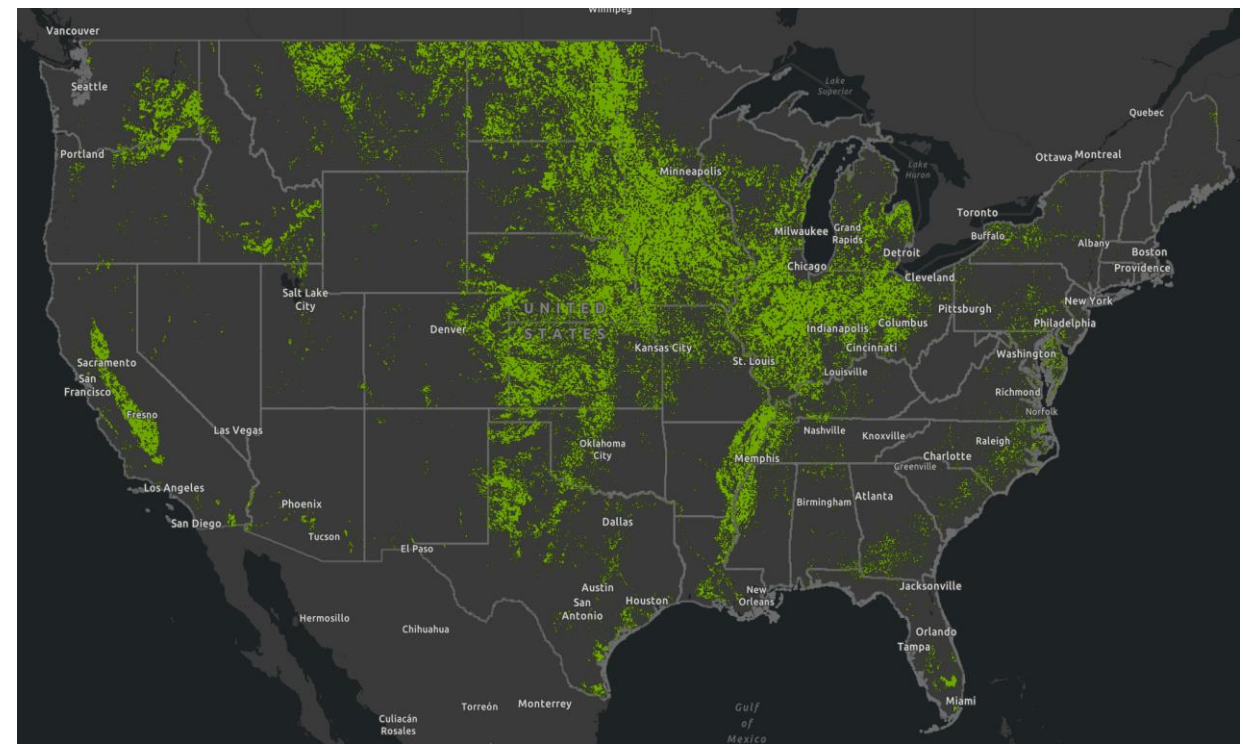
P-SHEC Coverage: 41 states and 1,962 counties

P-SHEC (county-level)



(Maples et al. 2026)

US cultivated land (30 m)



(Source: NASS National Cultivated Layer 2020-2024)

Questions P-SHEC

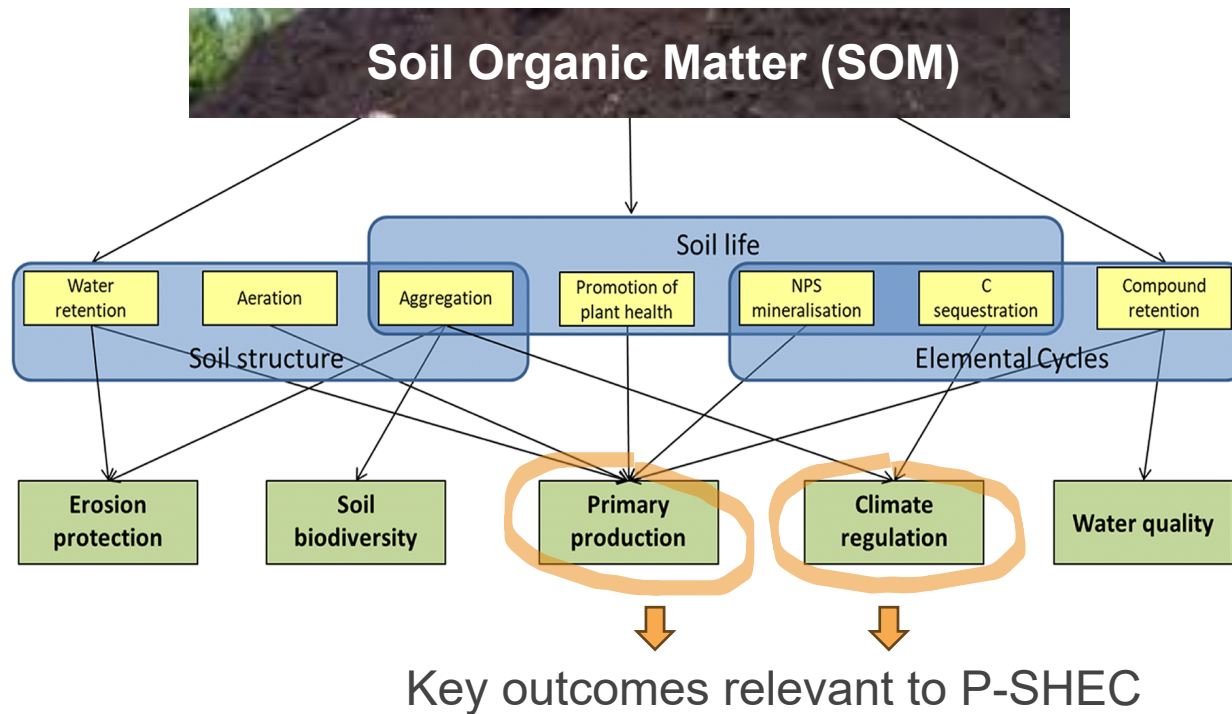
Answers

- “How will soil health practices impact **crop yield** and **farm net income**?”
- “What are the **recurring** and **long-term economic benefits and costs** of adopting soil health practices?”
- “How can soil health practices help **mitigate the effects of drought**?”



Why Soil Organic Matter matters for production and resilience

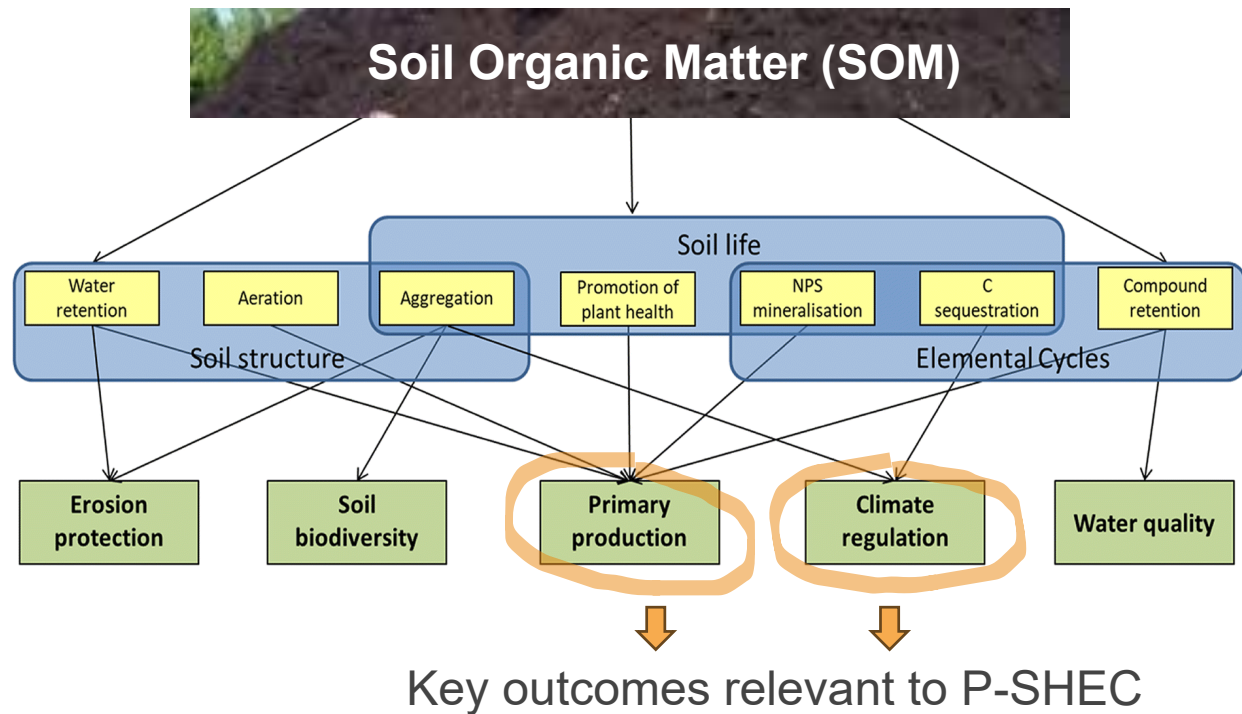
- SOM is a widely used indicator for soil health
- SOM supports both crop production and climate resilience



(Hoffland et al., 2020)

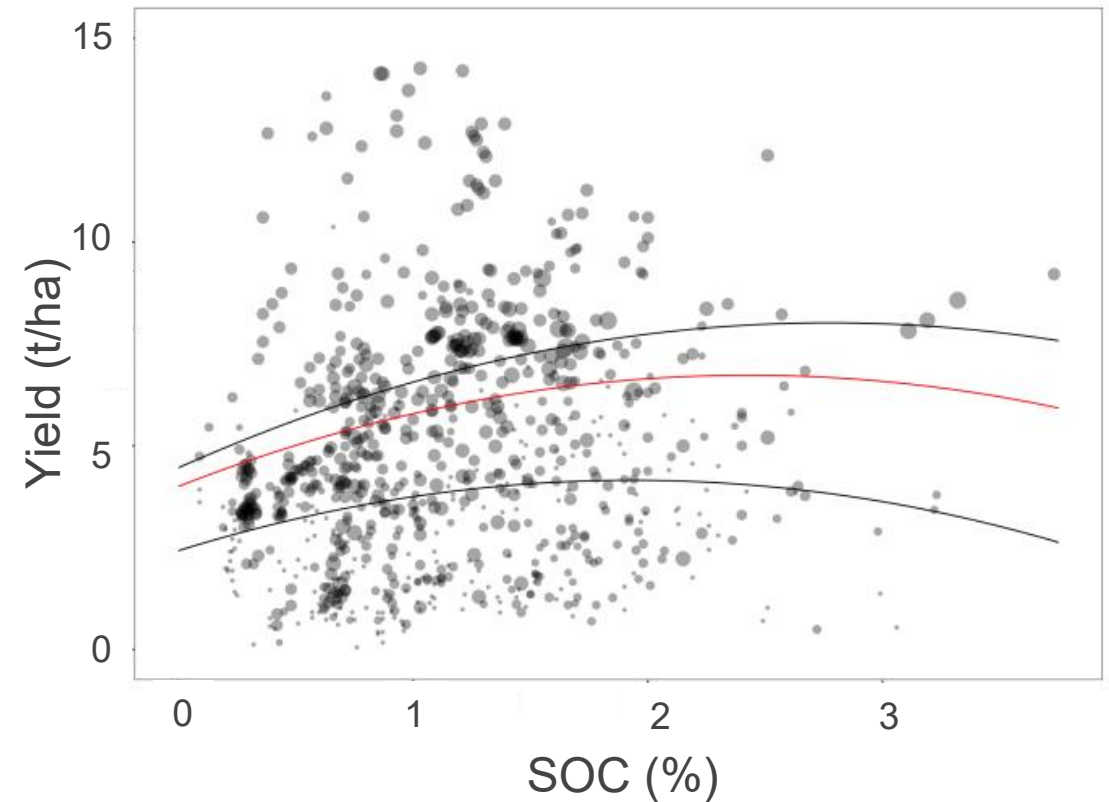
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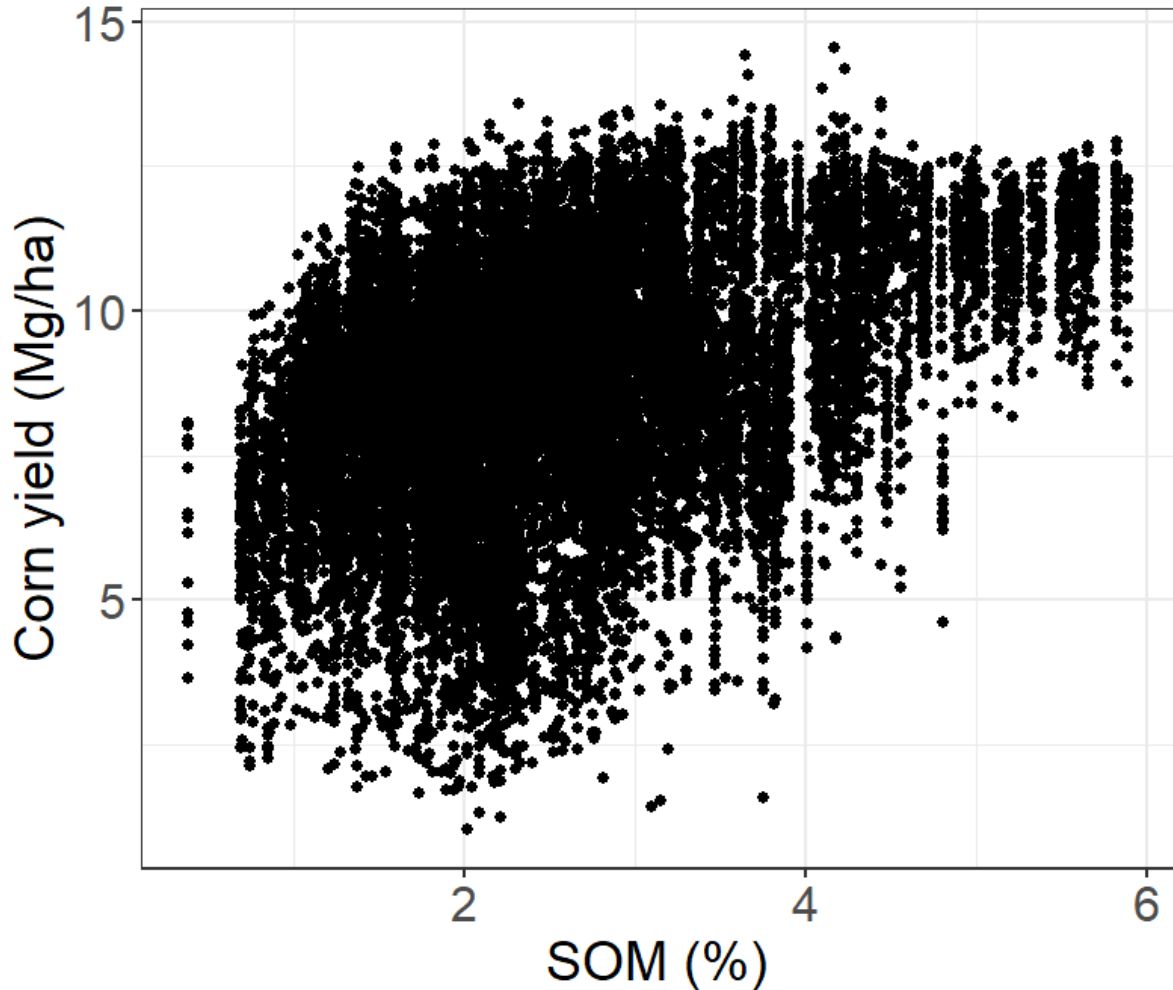
- Globally, higher SOM is associated with higher yields



Note: SOC shown here; can be converted to SOM

(Oldfield et al., 2019)

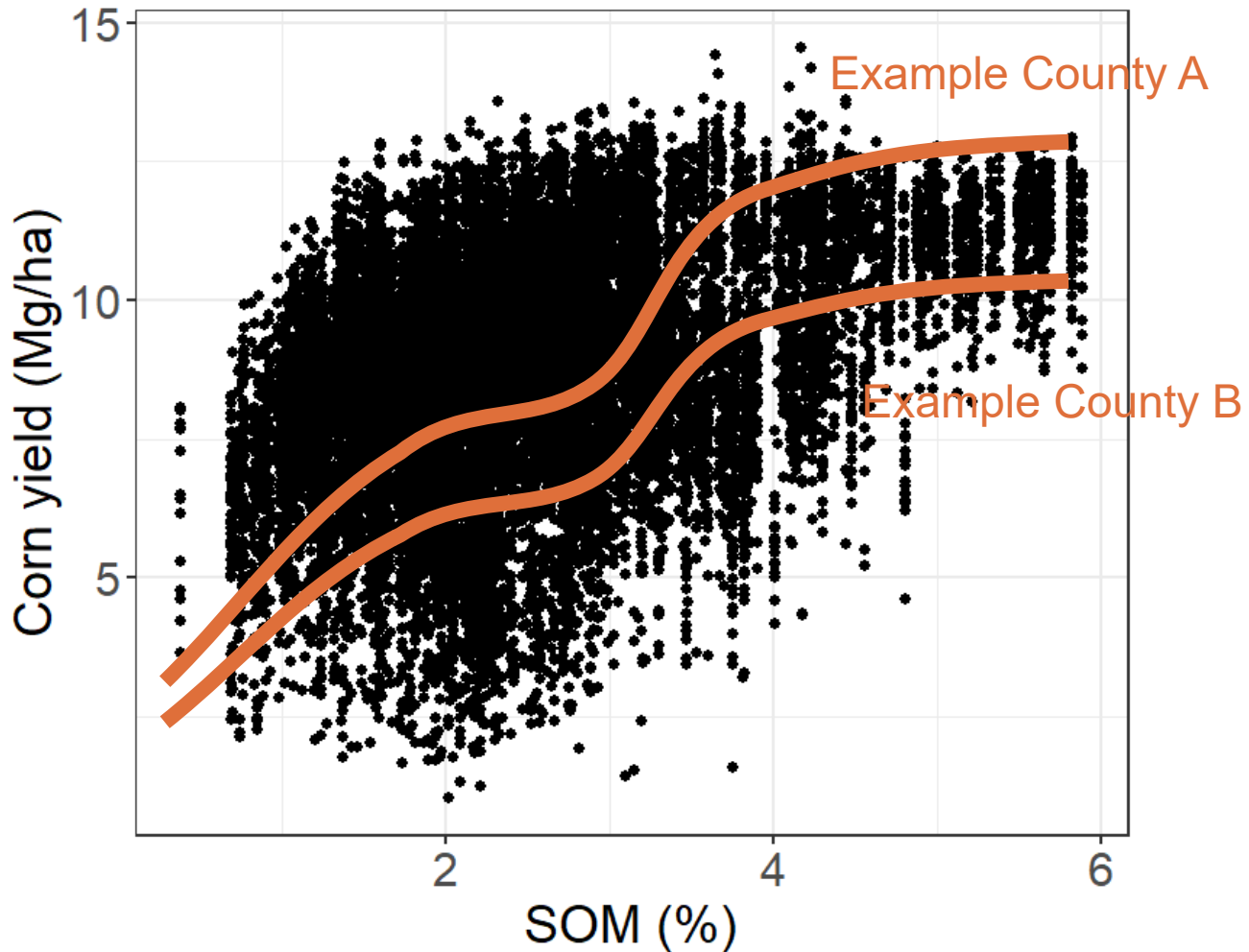
How P-SHEC estimates county-level yield changes based on SOM gains from soil health practices



- A general positive relationship between SOM and corn yield across U.S. counties -- aligns with global pattern

(Maples et al., 2026)

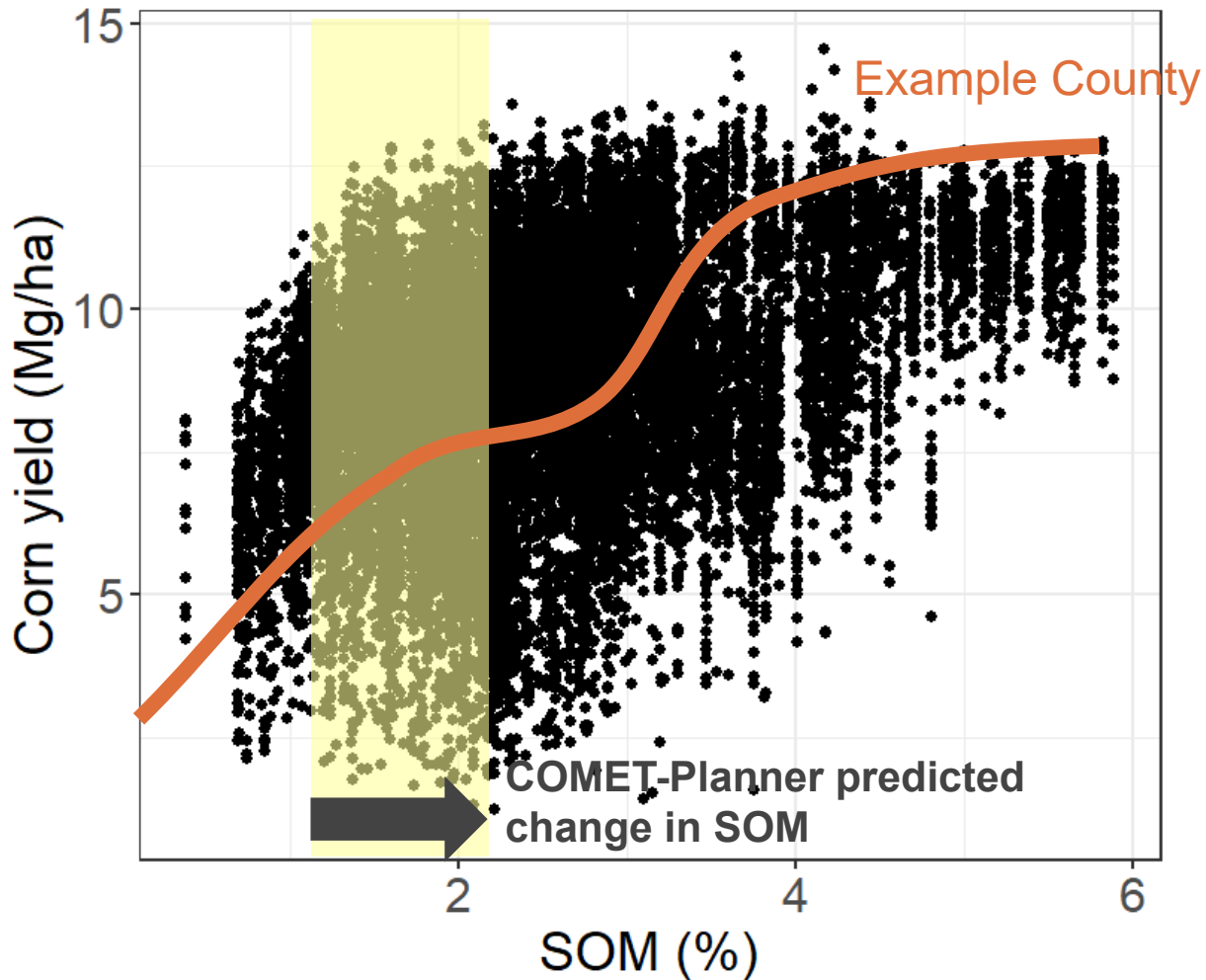
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- A general positive relationship between SOM and corn yield across U.S. counties -- aligns with global pattern
- P-SHEC estimates county-specific yield-SOM curves based on local soil and climate conditions
 - Counties respond differently

(Maples et al., 2026)

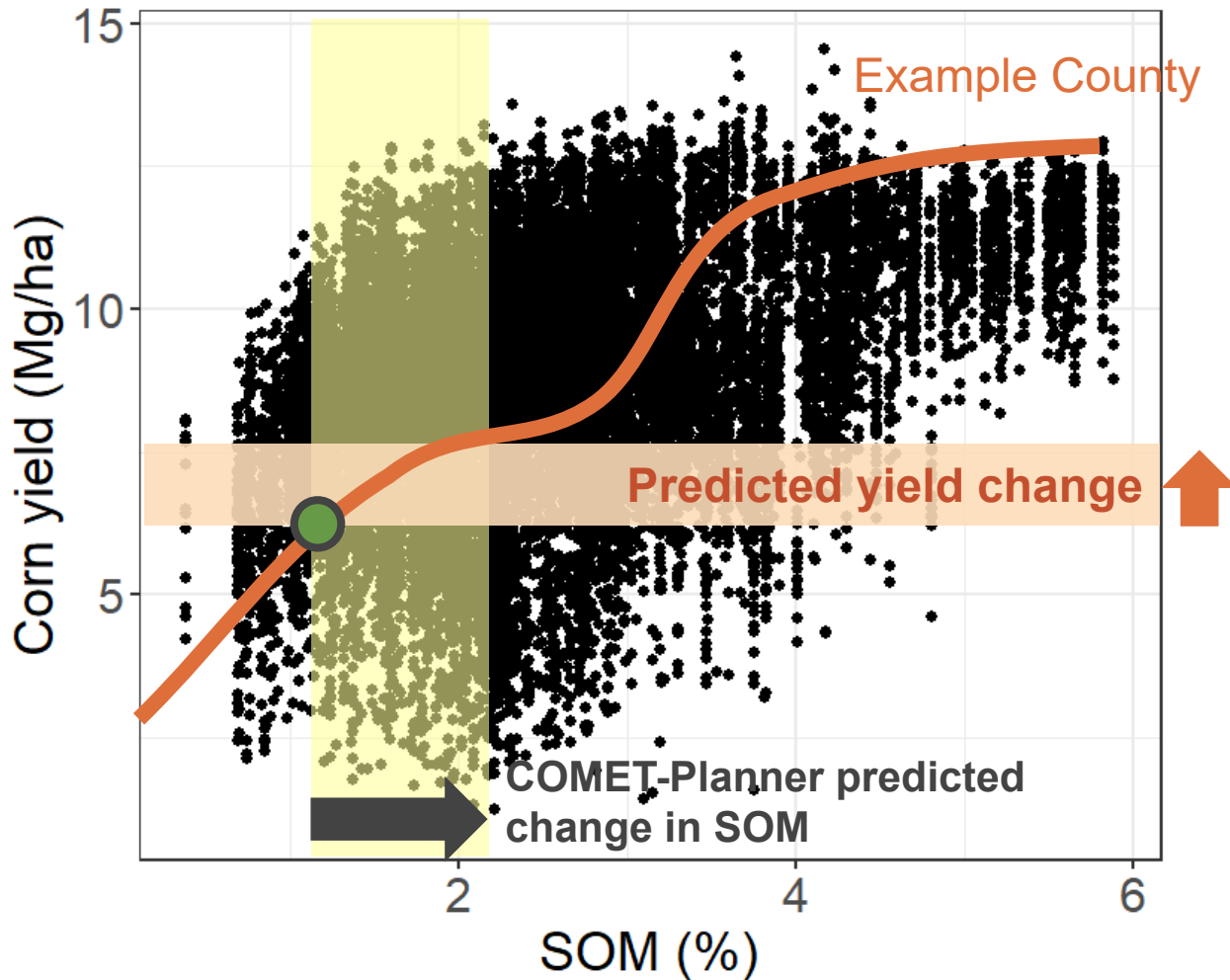
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- Use **COMET-Planner** derived estimates of 10-year SOM increases from practice adoption

(Maples et al., 2026)

How P-SHEC estimates county-level yield changes based on SOM gains from soil health practices

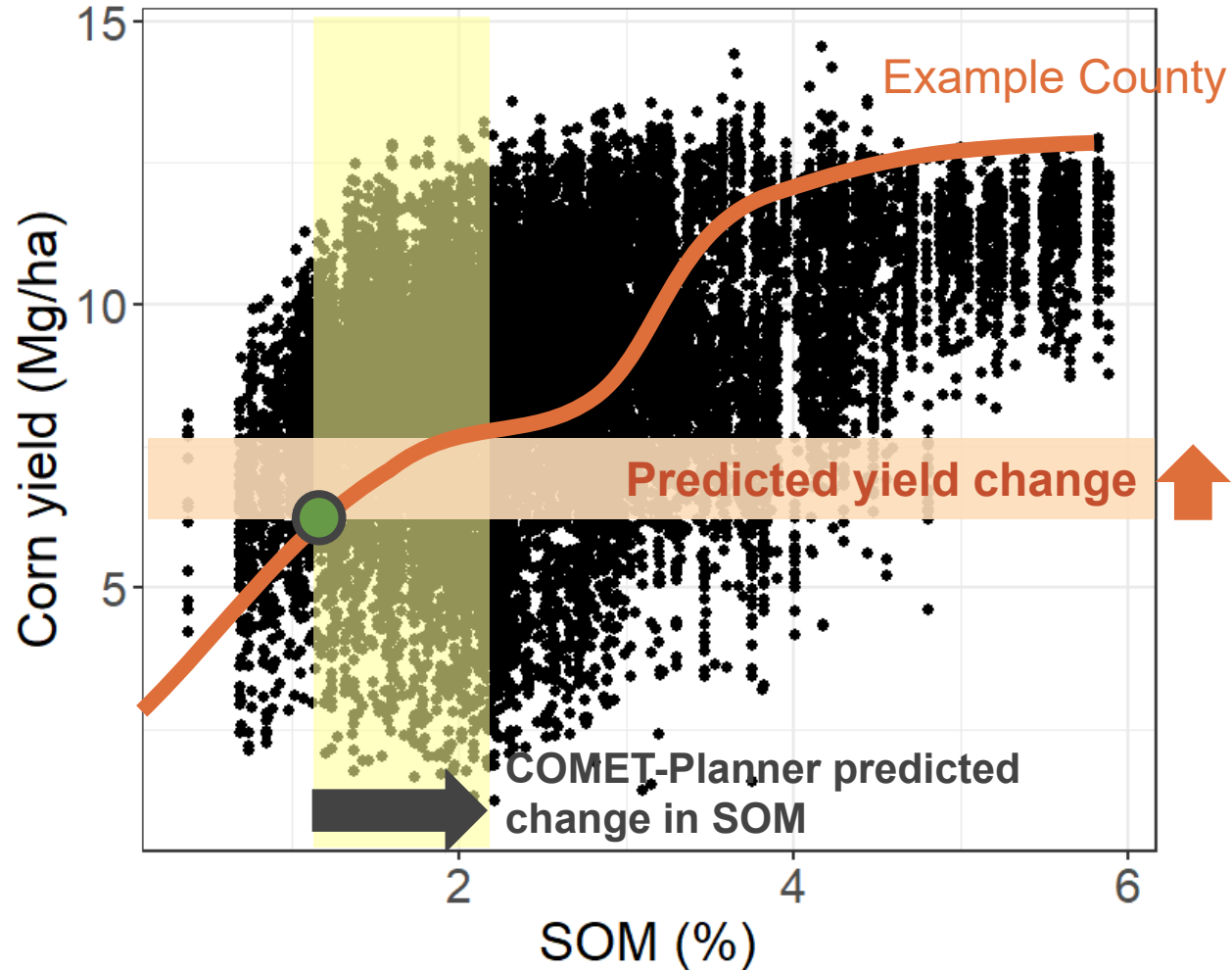


- A general positive relationship between SOM and corn yield across U.S. counties -- aligns with global pattern
- P-SEHC estimates county-specific yield-SOM curves based on local soil and climate conditions
 - Counties respond differently
- Use **COMET-Planner** derived estimates of 10-year SOM increases from practice adoption
- P-SHEC integrates SOM estimates with modeled county-specific yield-SOM relationships to generate 10-year yield estimates

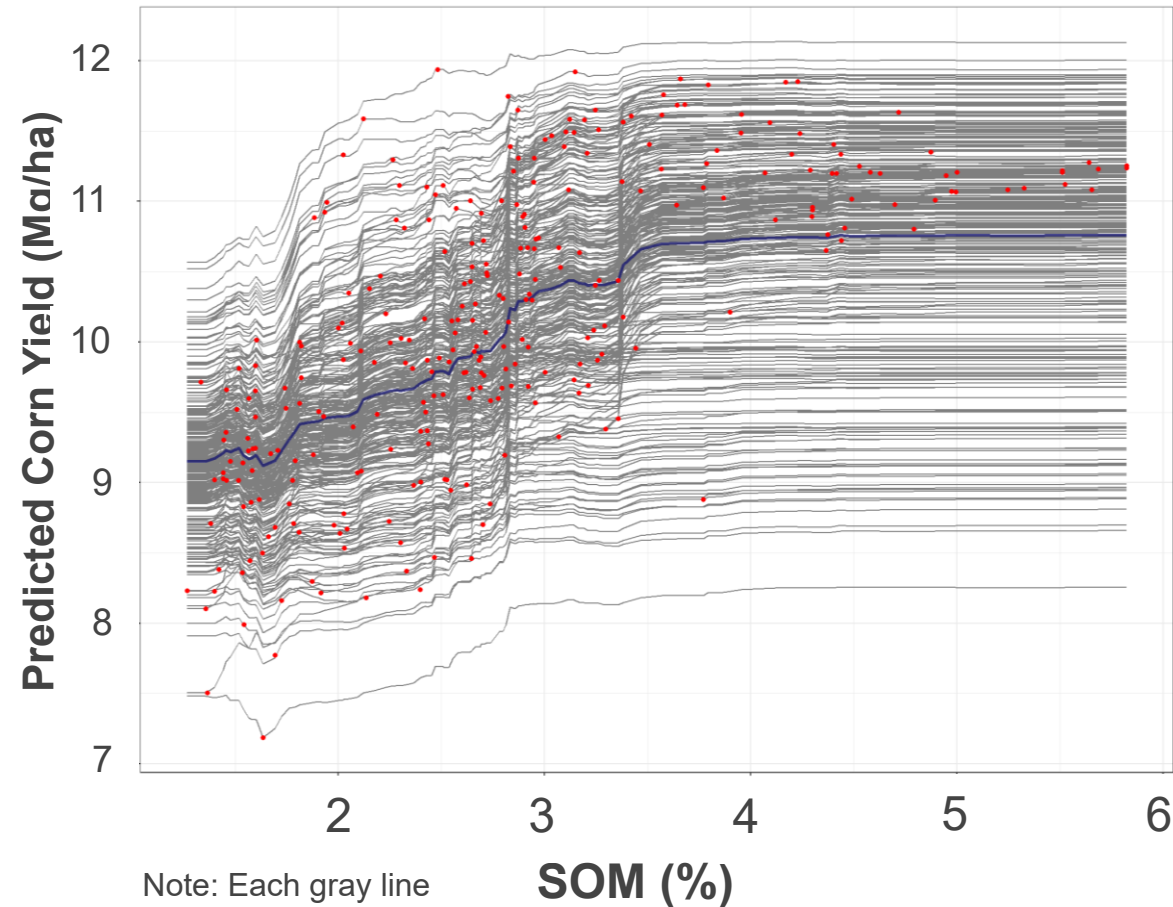
(Maples et al., 2026)

What the modeled yield results look like in practice

One example county



Modeled results across counties in IA, IL, IN, OH (Corn)



Note: Each gray line represents a county; red dots show baseline SOM.

(Maples et al., 2026)

Outcomes of Soil Health Practices

Provides crop yield resistance from drought
(Carroll, Ohio 2012)

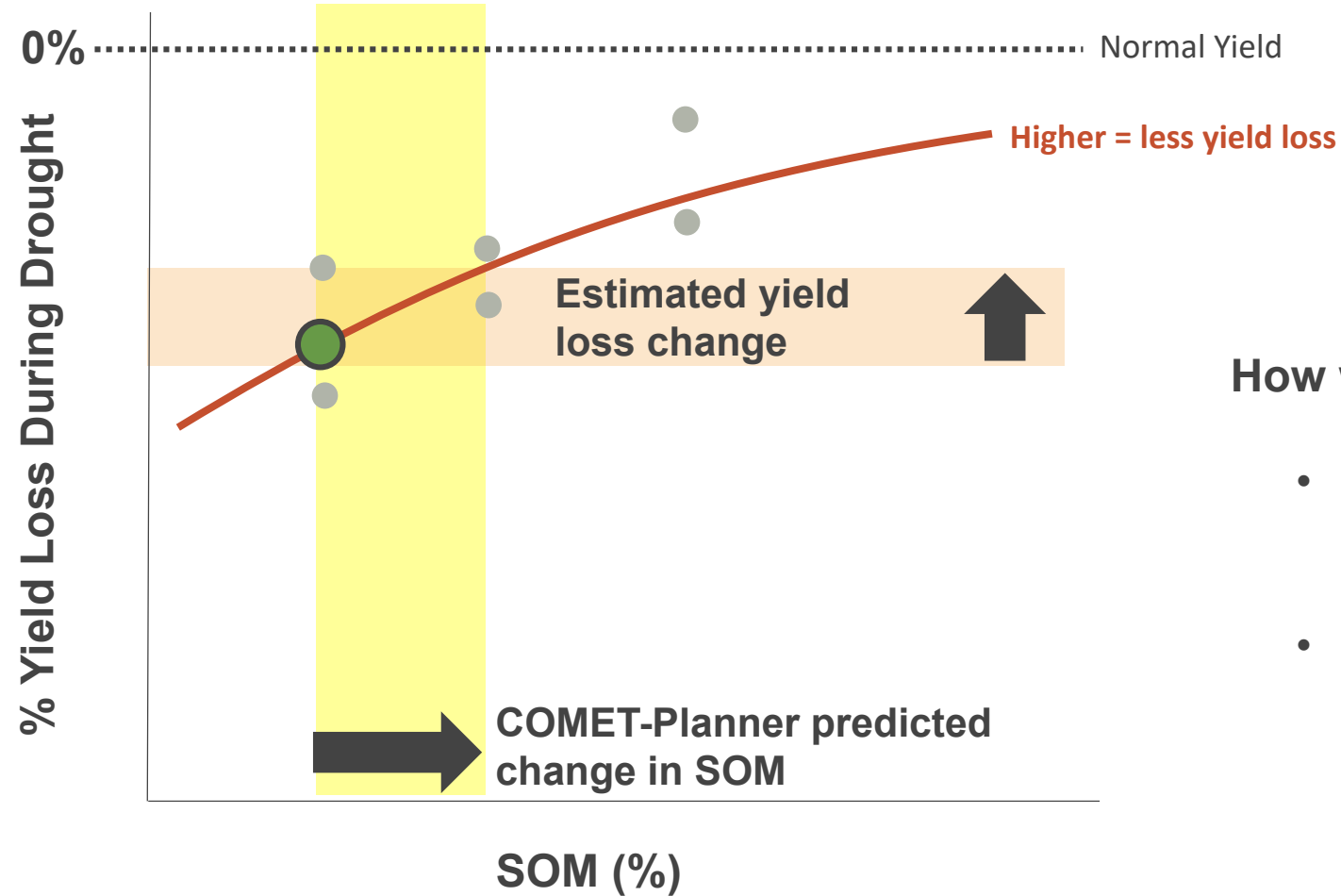


**40 yrs No-till & Winter Cover Crops:
144 bu/ac - Dave Brandt**



**>20 yrs Conventional Tillage:
40-80 bu/ac - Neighbor**

P-SHEC estimates how increased SOM can reduce DROUGHT yield loss

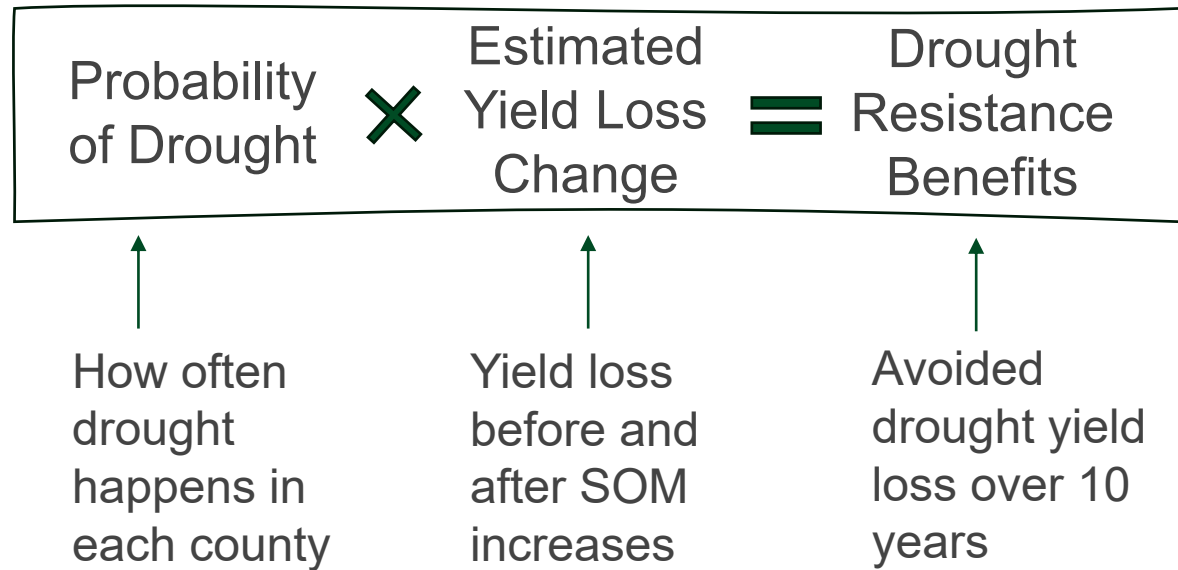
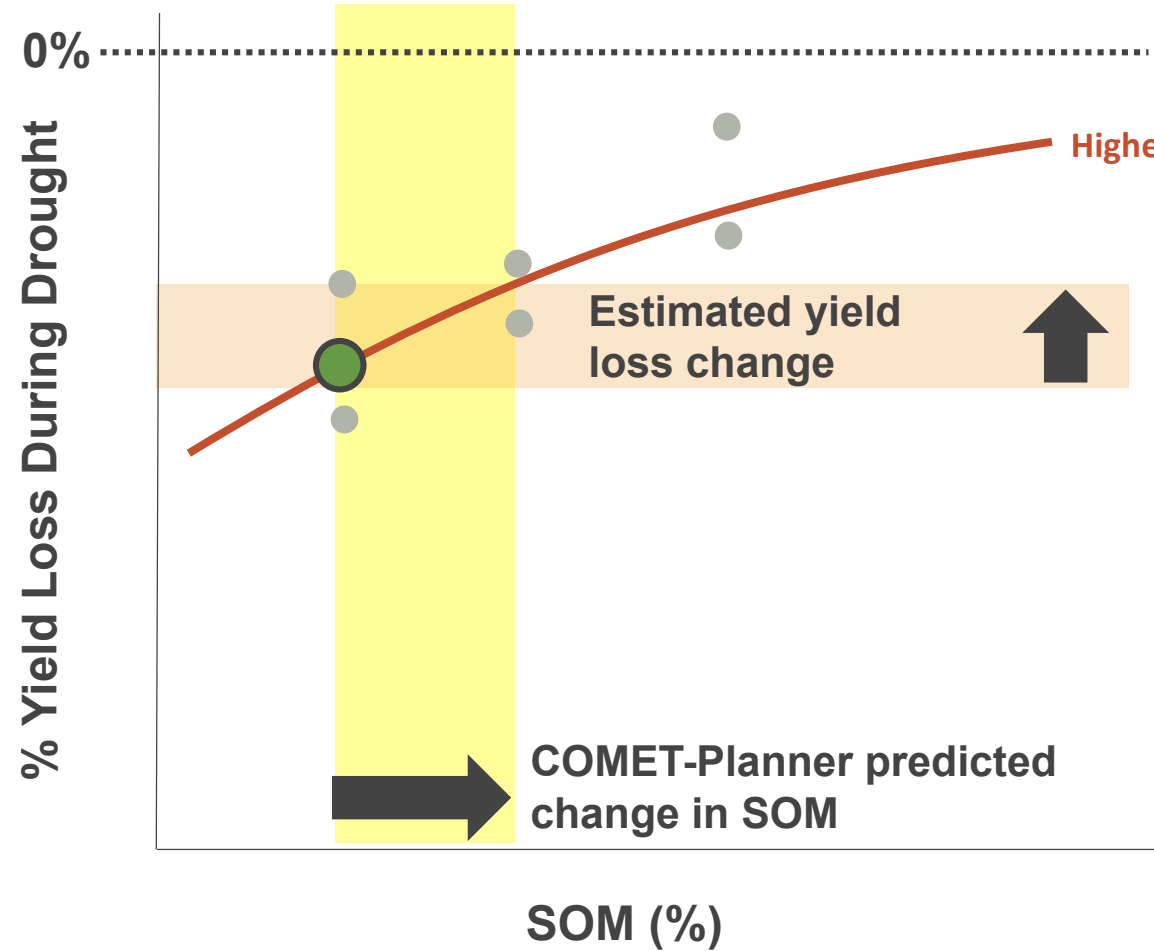


How we estimate drought benefits:

- Focus only on yield changes during drought years
- Compare yield loss before and after SOM increases

(Maples et al., 2026)

P-SHEC estimates how increased SOM can reduce DROUGHT yield loss



(Maples et al., 2026)

Variables in the Crop Yield Model

- **Crop yield** (NASS)
- **Soil** (gSSURGO)
 - Soil organic matter
 - Available water capacity
 - Soil texture
 - pH
 - Wilting point
 - CEC
- **Nitrogen input** (Zhang et al., 2021)
- **Climate** (PRISM, Oregon State U.)
 - Growing season cumulative precipitation
 - Growing season mean temperature
 - Growing degree days
- **Additional environmental covariates**
 - Irrigation area
 - Soil drainage class
 - Slope



Crops & practices selected based on criteria

Criteria

- **County-level yield data**
- **Consistent growing counties**
 - \geq 15 of 24 years, 2000-2023
- **Geographically representative crops**
 - \geq 50 counties nationwide
 - \geq 1,000 yield observations
- **Align with COMET-Planner**
 - Crops: e.g., **rice**, have unique cultivation methods and are not included in COMET-Planner, and these are **not included** in P-SHEC.
 - Practices are those available in COMET-Planner.

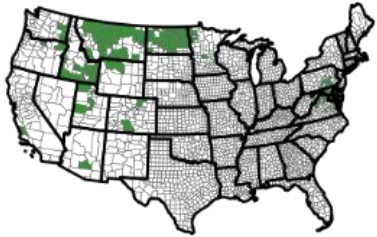
Examples of crops that do not meet the model's criteria

Crop	County-level yield	# of consistently growing counties (\geq 50)	# of observations (\geq 1000)
Cranberries	X	NA	NA
Sugarcane	✓	X (3 counties)	X (57 obs)
Processing tomatoes	✓	X (7 counties)	X (105 obs)

Only crops meeting both yield and practices criteria are included in P-SHEC. Crops like cranberries, sugarcane, and processing tomatoes are excluded.

P-SHEC Tool crop coverage maps

BARLEY



CORN



COTTON



WHEAT



OATS



PEANUTS



SORGHUM



 P-SHEC covered counties

SOYBEANS



SUGARBEETS



TOBACCO

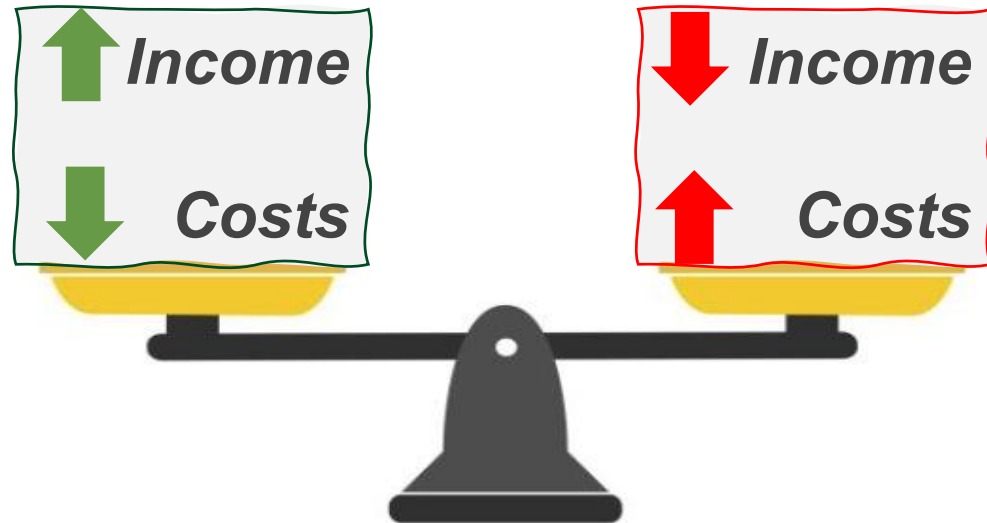


These ten crops generate 60% of all crop cash receipts; 91% of major row crop cash receipts (Source: ERS 2025)



Economic Analysis – (1) Recurring Costs

Use Partial Budget Analysis

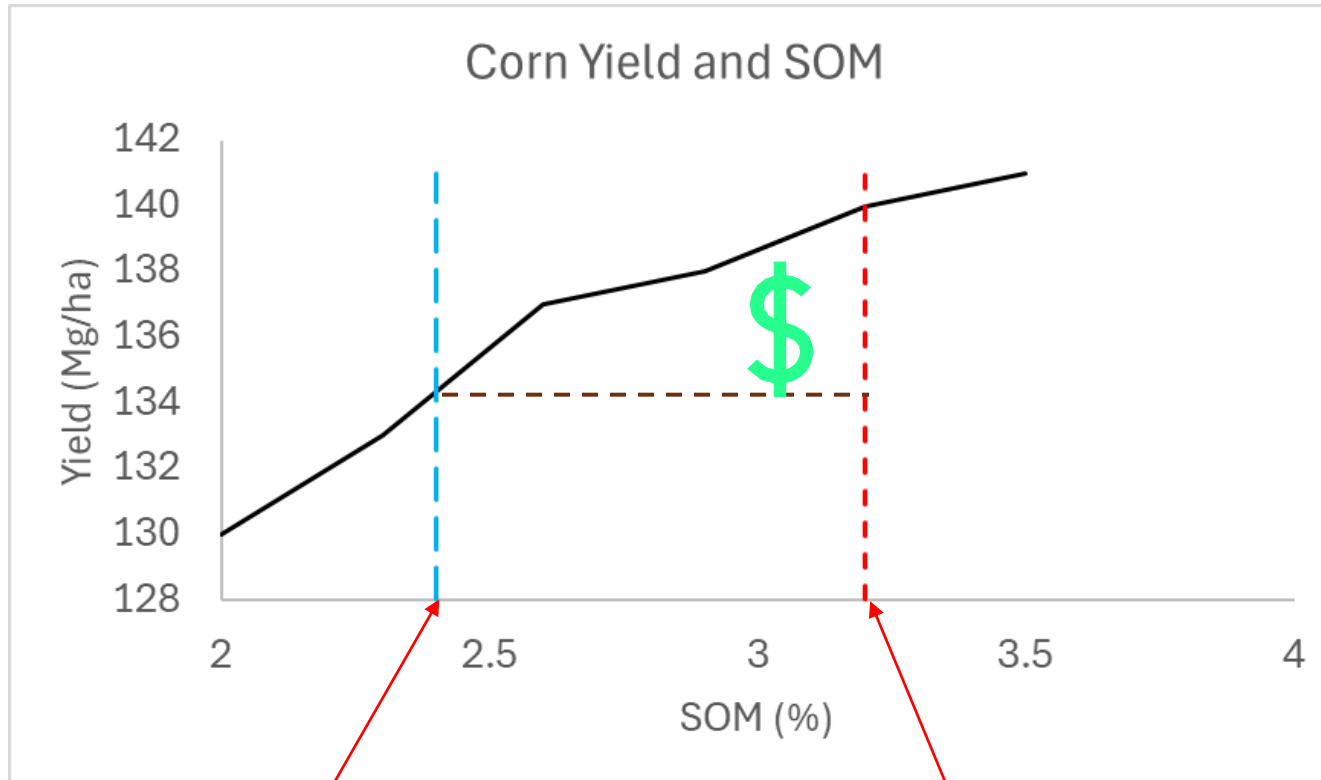


Budget data from University of Georgia, Louisiana State University, University of Minnesota, University of Illinois, & Mississippi State University

Examples of recurring cost categories:

- Equipment changes
- Cover crop seed costs
- Cover crop termination costs
- Changes in N, P, K
- Changes in chemical use

Economic Analysis – (2) Yield Changes



Base SOM

Improved
SOM

Long-Term: Yield Revenue Changes

- Identify baseline yield prediction at base SOM
- Identify ending yield prediction at improved SOM
- Calculate the yield difference

Pilot Testing

Overview

12 pilot testers:

Farmers, Researchers, Extension/Outreach,
and Conservation Professionals

Karl Anderson, NRCS Natural Resource
Specialist, conducted pilot testing

Process:

1. Each tester was asked to enter 1 of 3 scenarios
2. Karl asked follow-up questions
3. Testers were asked to take a post-test online survey

Key Takeaways

Results averaged **4.1 out of 5** across all overall useability questions

9 out of 12 would recommend the tool

User mentioned a desire for more field specific results.
Working on ways to incorporate this in a future version

Key Tool Changes

Redesigned results section to increase interpretability

Changed general info to have more strict filtering rule

Overall, testers wanted **more detailed instructions and user tips in the tool**

P-SHEC Demonstration

Location: Saline, IL

Crops: corn

Transition scenario:

Conventional tillage → no-till

No cover crops → non-legume cover crop



To access the tool: <https://farmlandinfo.org/predictive-soil-health-economic-calculator/>

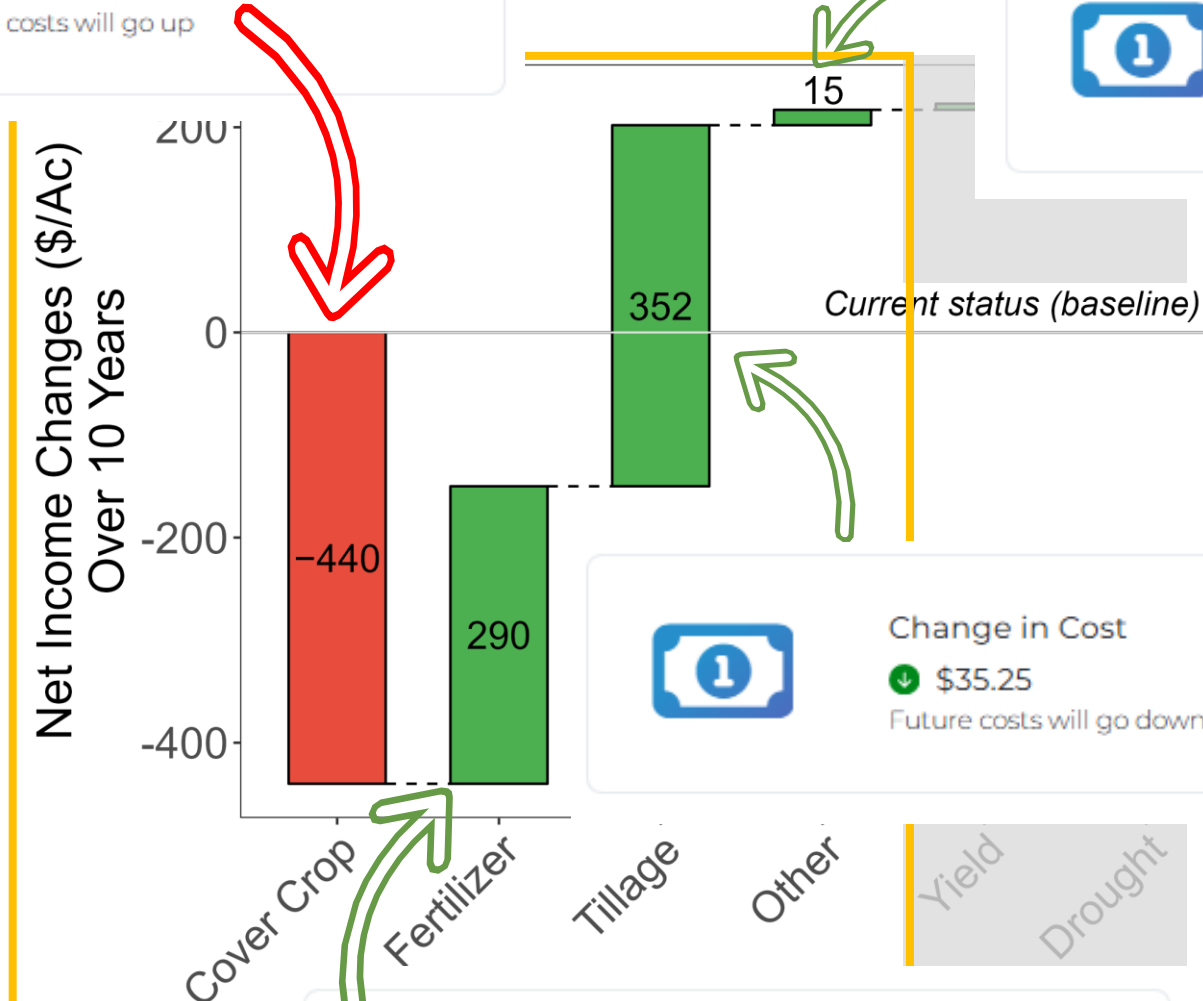
P-SHEC peer-reviewed journal article: <https://doi.org/10.1016/j.atech.2026.101834>

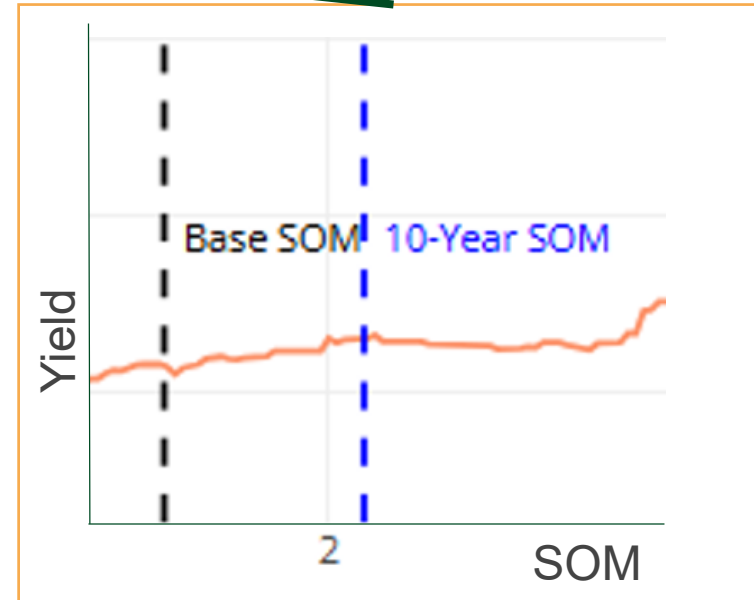
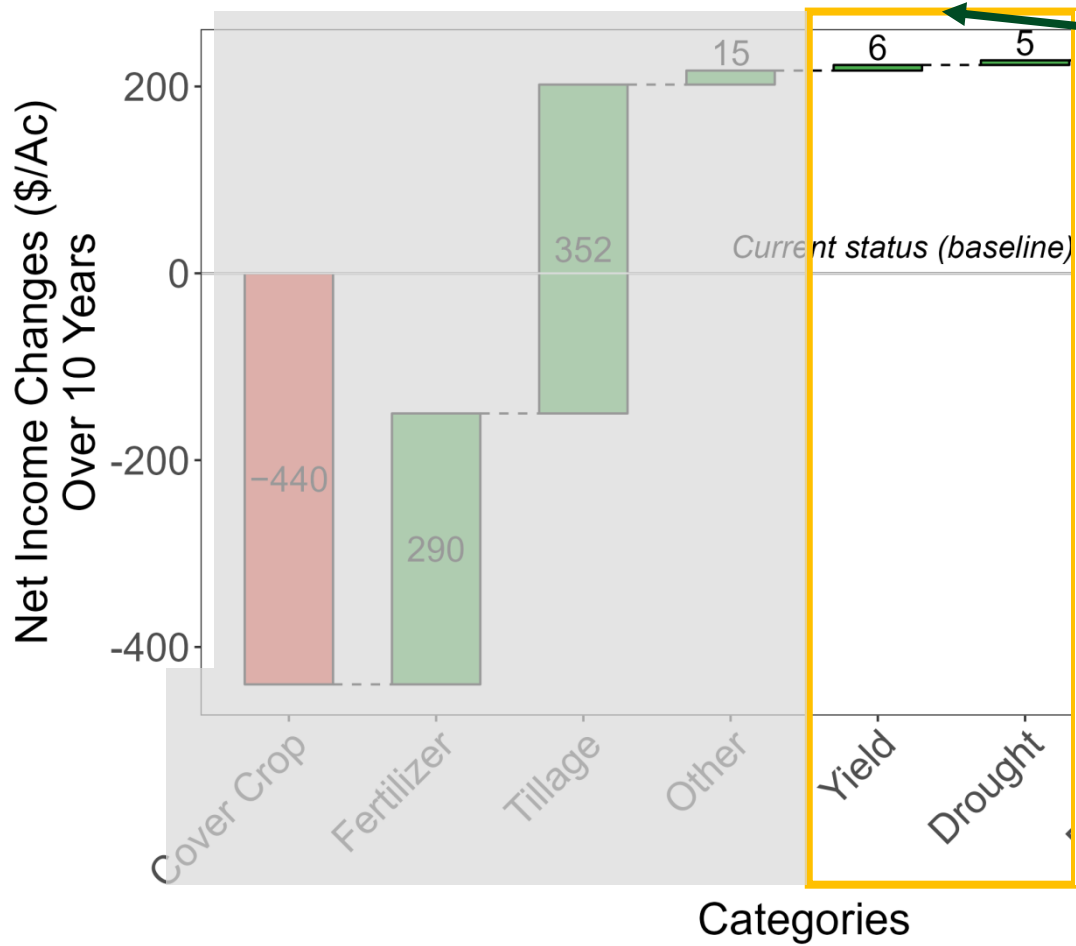
Linking Example Results back to Literature

Change in Cost
 ↓ \$44
 Future costs will go up



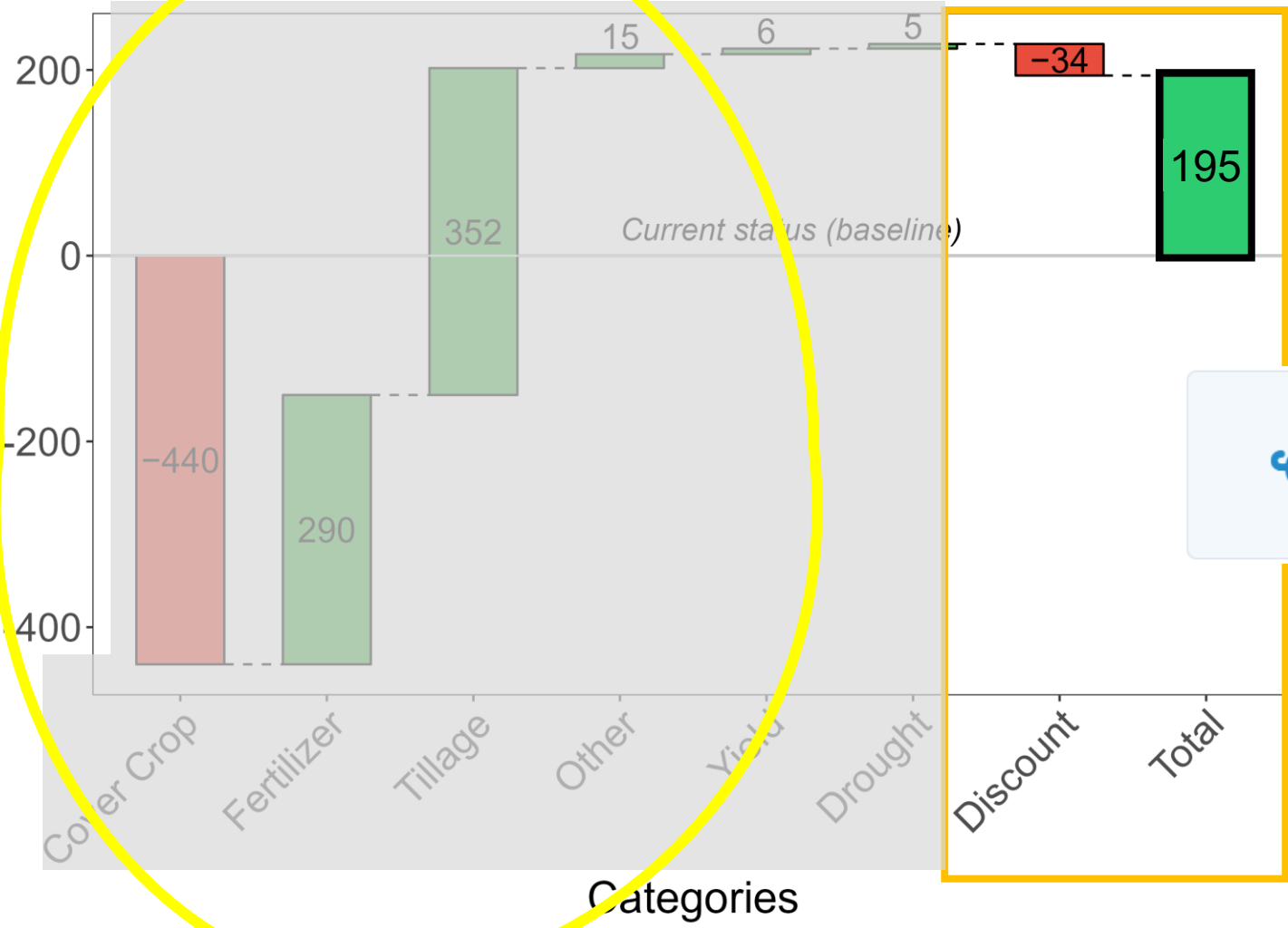
Change in Cost
 ↓ \$1.50
 Future costs will go down






Predicted Yield under Severe Drought	Yield Difference Due to SOM Increase Under Drought	Drought Yield Revenue Difference (\$/Ac)
63.47	27.41	127.77

Net Income Changes (\$/Ac)
Over 10 Years

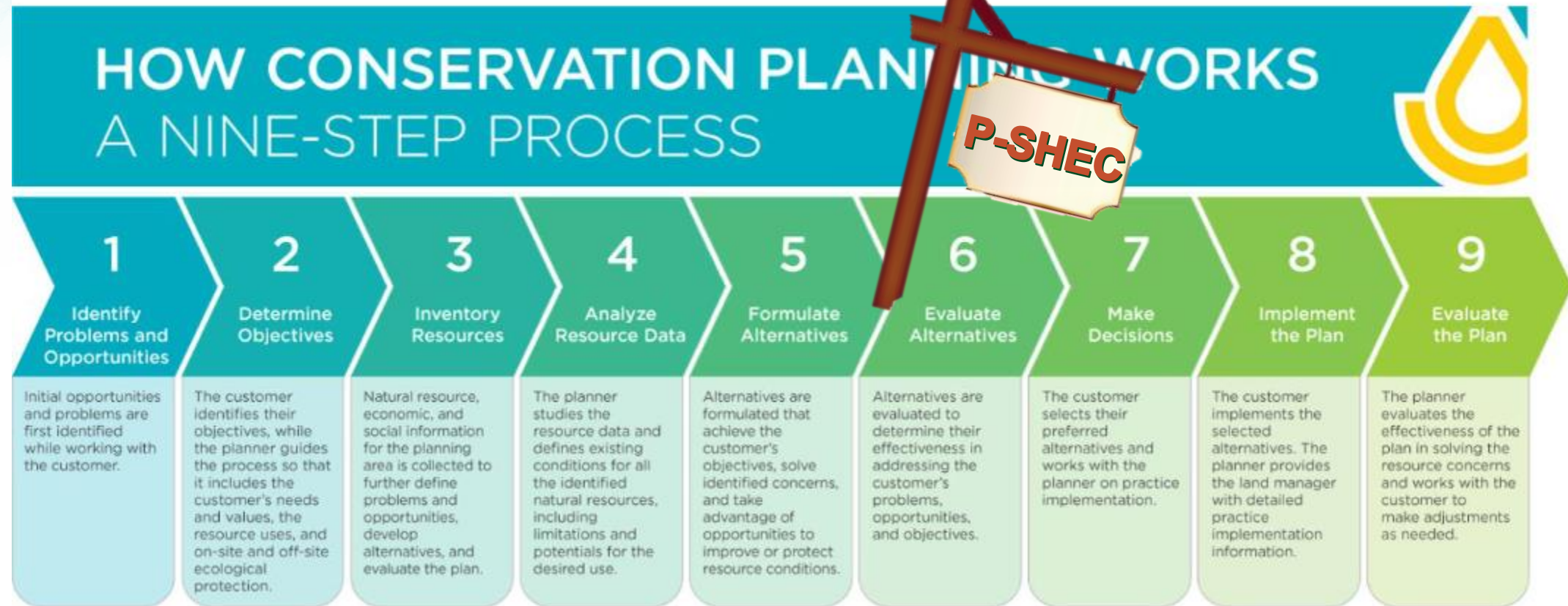


 **Net Income**
↑ \$195 per acre
Future income is expected to go up

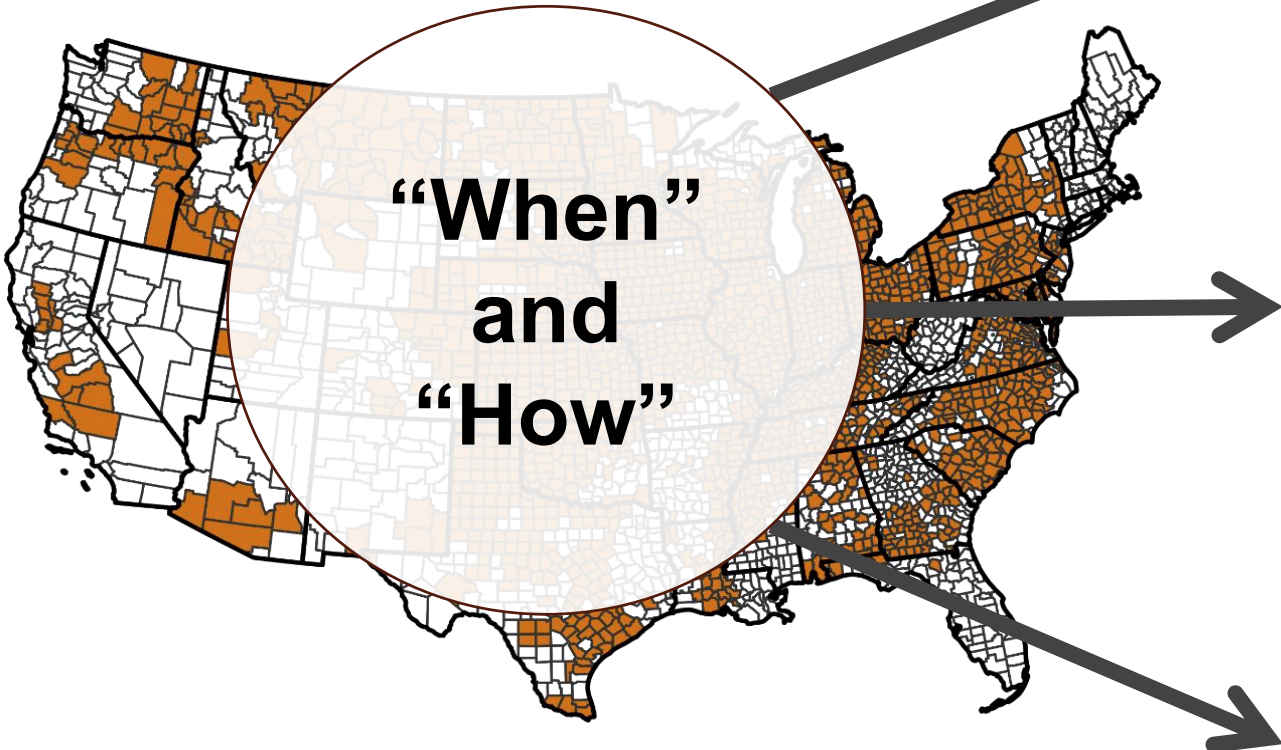
- Findings track with literature:
 - Large \$ changes related to recurring cost changes
 - Relatively lower yield gains

Where P-SHEC fits in conservation planning process

The Nine-Step Conservation Planning Process



P-SHEC Uses



**“When”
and
“How”**

Economic Analysis

- Use PSHEC projections to investigate and understand the financial viability of various conservation efforts

Decision-Making Facilitation

- PSHEC simplifies economic and agronomic modelling into user-friendly outputs meant to support decision-making.
- Empowers professionals to guide farmers through scenario planning of necessary changes and potential outcomes associated with soil health practice implementation.

Stakeholder Engagement

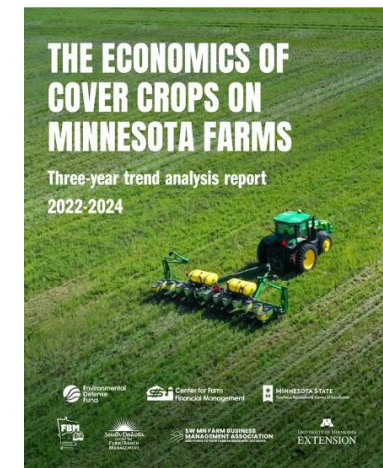
- Outputs from PSHEC can be used in presentations, workshops, and consultations to increase knowledge and build trust and transparency.

Use P-SHEC in conjunction with other economic resources

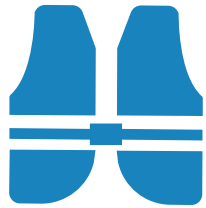
- [NACD Soil Health Champions Network](#)
- [NACD & Datu Case Studies](#)
- [U. of Minnesota Extension Soil Health Case Studies](#) featuring 9 farms
- [USDA Northeast Climate Hub Soil Health Economic projects page](#)
- [Soil Health Nexus](#)
- [EDF-UMN FB: The economics of cover crops on 41 Minnesota Farms over 3 years \(2022 to 24\)](#)



UNIVERSITY OF MINNESOTA
EXTENSION



Next steps



More in depth training desired?



Troubleshooting support?



Interpretation of results support?

Thank You!

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Scientist, Research Team

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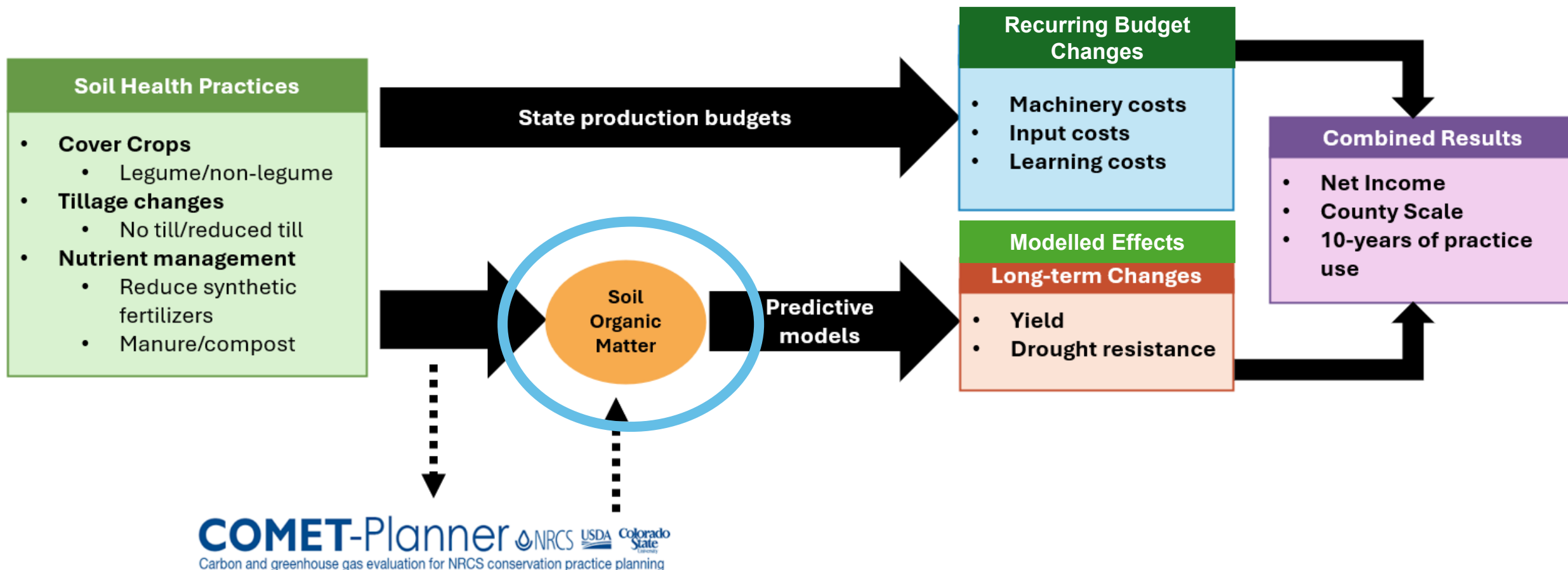
*Please
reach out!*

Dr. Chellie Maples, Agricultural
Economist, Research Team

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Predictive Soil Health Economic Calculator (P-SHEC)

What is it? A web-based decision-aid tool that generates 10-year Net Present Value (NPV) of soil health practice adoption at the county scale.

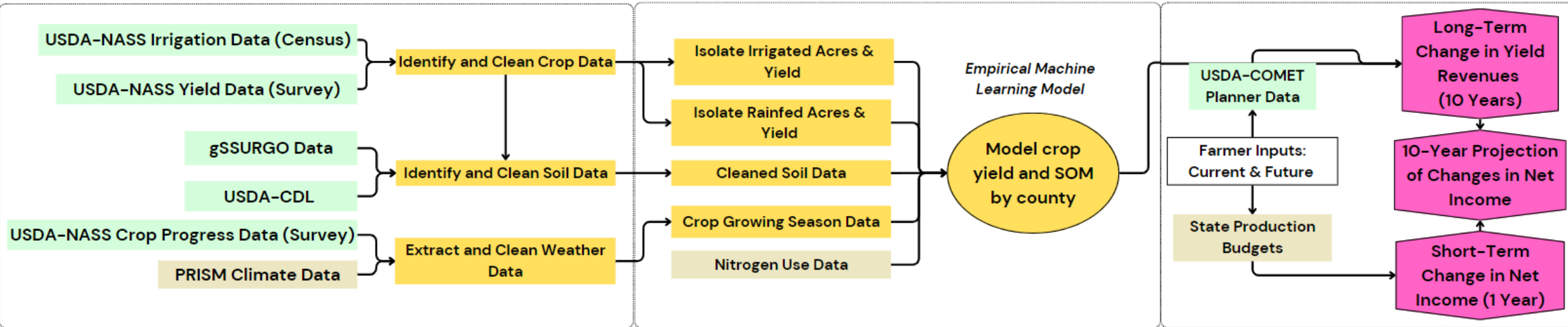


PSHEC – “Under the Hood”

Phase 1: Data Processing

Phase 2: Yield x SOM Modelling

Phase 3: Economic Analysis



USDA Datasets

Action Steps

External Datasets

Outputs

Note: The tool is based on national datasets. Field level experimental data will be used to validate model results.

