

Profitability and Conservation Practices

Results from Precision Conservation Management



Laura Gentry

Greg Goodwin

Megan Miller

Gary Schnitkey



precisionconservation.org



Precision Conservation Management

**Positioning farmers to benefit
from conservation outcomes**

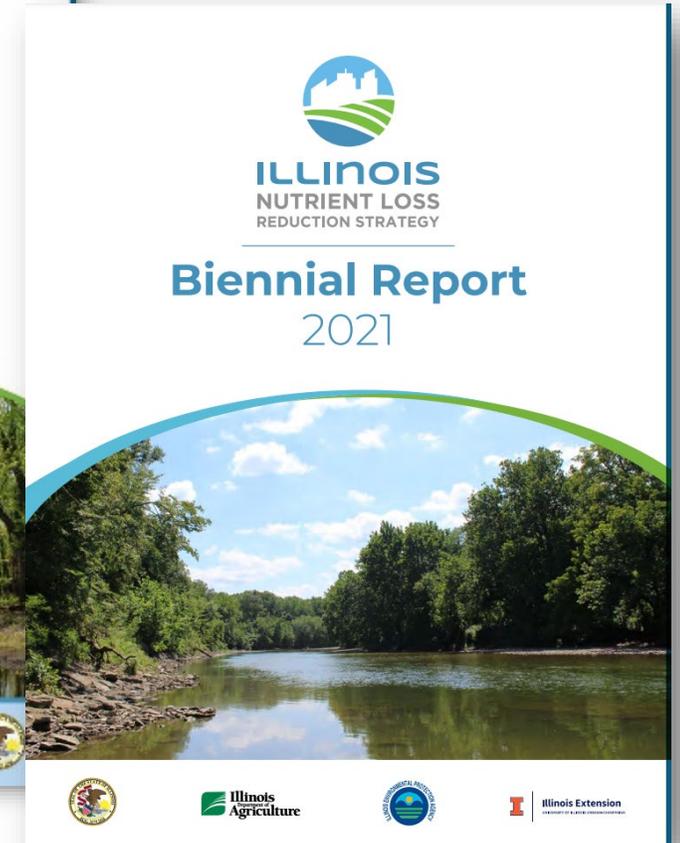
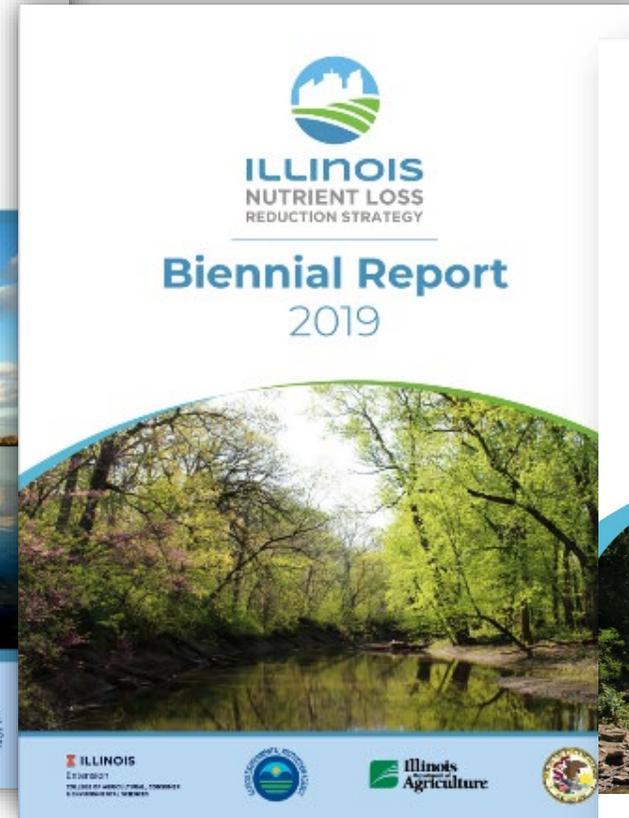
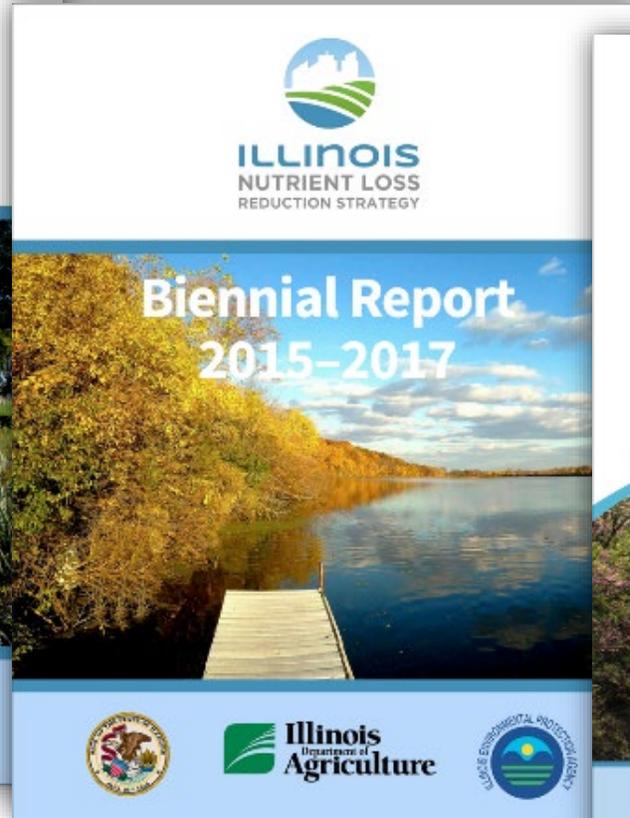
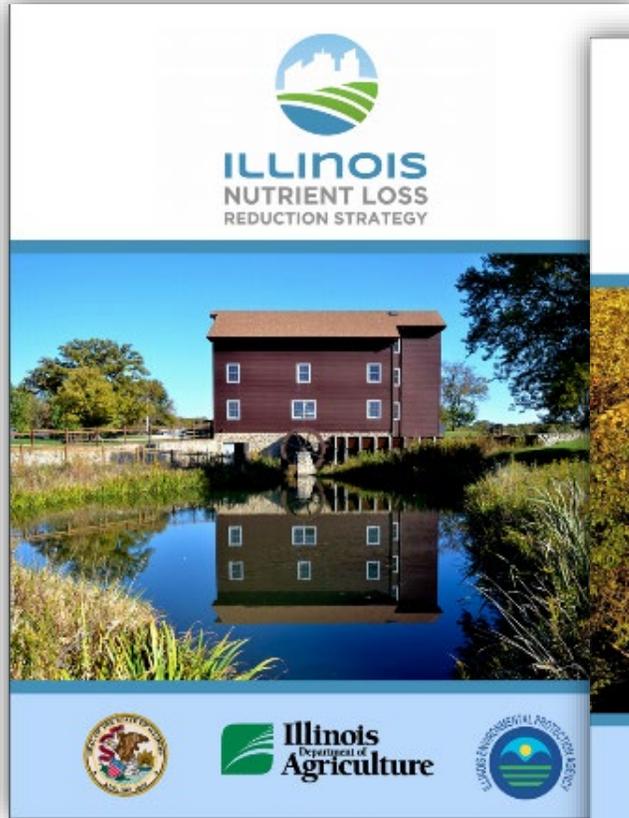


- **Understand how conservation practices impact farm net returns**
- **Address water quality concerns. Prevent agricultural regulation**
- **Position farmers to benefit from positive conservation outcomes**
- **1-on-1 technical support**
- **Data collection platform**
- **Individualized yearly RAAP report**
 - **Economic cost tables**
 - **Environmental assessments**
 - **Local practice comparisons**
- **\$750 participation payment**
- **Exclusive program offers**
cost share, other practice assistance
- **Networking & education opportunities**



Precision Conservation Management

Illinois Nutrient Loss Reduction Strategy



Goal: 45% Reduction in Total N & Total P Losses by **2035**

Interim: 15% Reduction in NO₃-N & **25% Reduction** in Total P by 2025

<https://epa.illinois.gov/topics/water-quality/watershed-management/excess-nutrients/nutrient-loss-reduction-strategy.html>



Clay Bess

PCM Operation Manager
cbess@precisionconservation.org
309-445-0278



Lou Liva

PCM Specialist
Rock Island, Mercer, Knox, and Henry Counties
lliva@precisionconservation.org
309-391-2346



Andrea Kohring

PCM Specialist
Monroe, St. Clair, Madison, Clinton, and Washington Counties
akohring@precisionconservation.org
309-319-8809



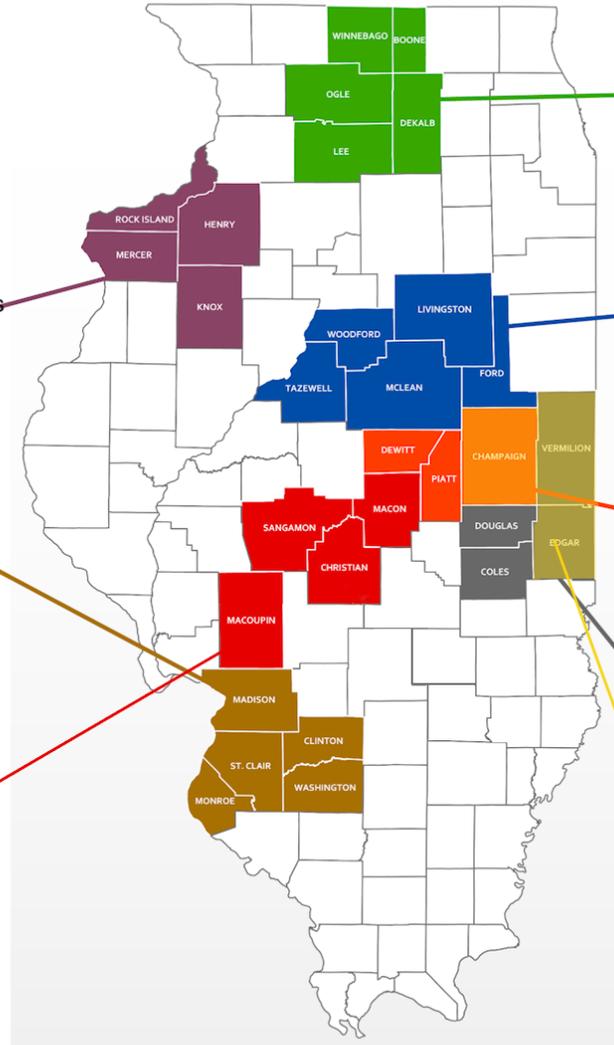
Darren Cudaback

PCM Specialist
Select counties in Nebraska
dcudaback@precisionconservation.org
308-216-1153



Andrew Hiser

PCM Specialist
Christian, Macoupin, Sangamon Counties
ahiser@precisionconservation.org
309-307-7520



Alexa Rutherford

PCM Specialist
Ogle, Lee, DeKalb, Boone, and Winnebago Counties
arutherford@precisionconservation.org
309-336-9779



Aidan Walton

PCM Specialist
Ford, Livingston, McLean, Tazewell, and Woodford Counties
awalton@precisionconservation.org
309-391-2345



Jonah Cooley

PCM Specialist
Piatt, DeWitt, and Champaign Counties
jcooley@precisionconservation.org
309-831-7558



Jacob Gard

PCM Specialist
Coles, Douglas, Edgar, and Vermilion Counties
jgard@precisionconservation.org
309-200-6180



Leyton Brown

PCM Specialist
Champaign, Vermilion and Edgar Counties
lbrown@precisionconservation.org
309-307-7515



Chris Stewart

PCM Specialist
Select counties in Kentucky
cstewart@precisionconservation.org
270-205-2258



Kent Bohnhoff

PCM Reserve Specialist & Advisor

PCM PARTNERS!



PEPSICO



SUSTAINABLE FOOD LAB



MIDWEST ROW CROP COLLABORATIVE



CERTIFIED CROP ADVISER



Illinois Pork Producers. Generations of Commitment.



NFWF



I ILLINOIS



Heartland Science and Technology Group



United States Department of Agriculture
Natural Resources Conservation Service



Check us out online: www.precisionconservation.org

A program of the *IL Corn Growers Association* and the *Illinois Soybean Association*

2015-2022 DATA SUMMARY

The Business Case for Conservation

Cost-Benefit Analysis of Conservation Practices



Precision Conservation Management

Annual Data Booklet in *PRAIRIE FARMER*

Incentives through USDA Climate Smart Grants



Incentive Programs

- Payments coming from USDA and PepsiCo/Walmart
- PepsiCo and Walmart sharing claim on the carbon asset



The Alliance for Sustainable Agriculture



2023 PAYMENT STRUCTURE

COVER CROPS	NO-TILL/STRIP-TILL	MRTN/10% NITROGEN REDUCTION
\$15, 1st/2nd year	\$10, 1st/2nd year	\$10, 1st year
\$10, 3+ year OLD	\$5, 3+ year OLD	–
	\$25, 1st/2nd year NEW	\$15, 3+ year OLD
\$20, 1st/2nd year	\$15, 3+ year OLD	–
		\$15, 1st/2nd year



PEPSICO

Incentive Programs

Transition Incentive Payments (TIP)

NEW cover crop acres

- \$25/acre Year 1
- \$15/acre Year 2
- \$10/acre Year 3
- Can enroll up to 1,000 acres/farmer
- Look back period for eligibility is 1 year (i.e. if field was not cover cropped previous year, it is eligible as a “new” field/acre)

Signing Incentive Payments (SIP)

OLD cover crop acres

- \$2/acre payment for 1 year (up to 600 acres)
- Access to DTN’s Digital Marketplace connecting you to other ecosystem service opportunities



Have you tried cover crops?

No

Yes, next crop soybeans

Yes, next crop corn

Yes, for both soybeans and corn as next crop

I'm not eligible (not a farmer)

TIAA | Center for Farmland Research

 **COMPEER**
FINANCIAL

 **CORTEVA**[™]
agriscience

 **FARM CREDIT**
ILLINOIS
Helping Farm Families Succeed

 **FS**

GROWMARK

 **ILCORN**
WWW.ILCORN.ORG

 **ILLINOIS**
SOYBEAN
ASSOCIATION

Soybeans

Gary
Schnitkey



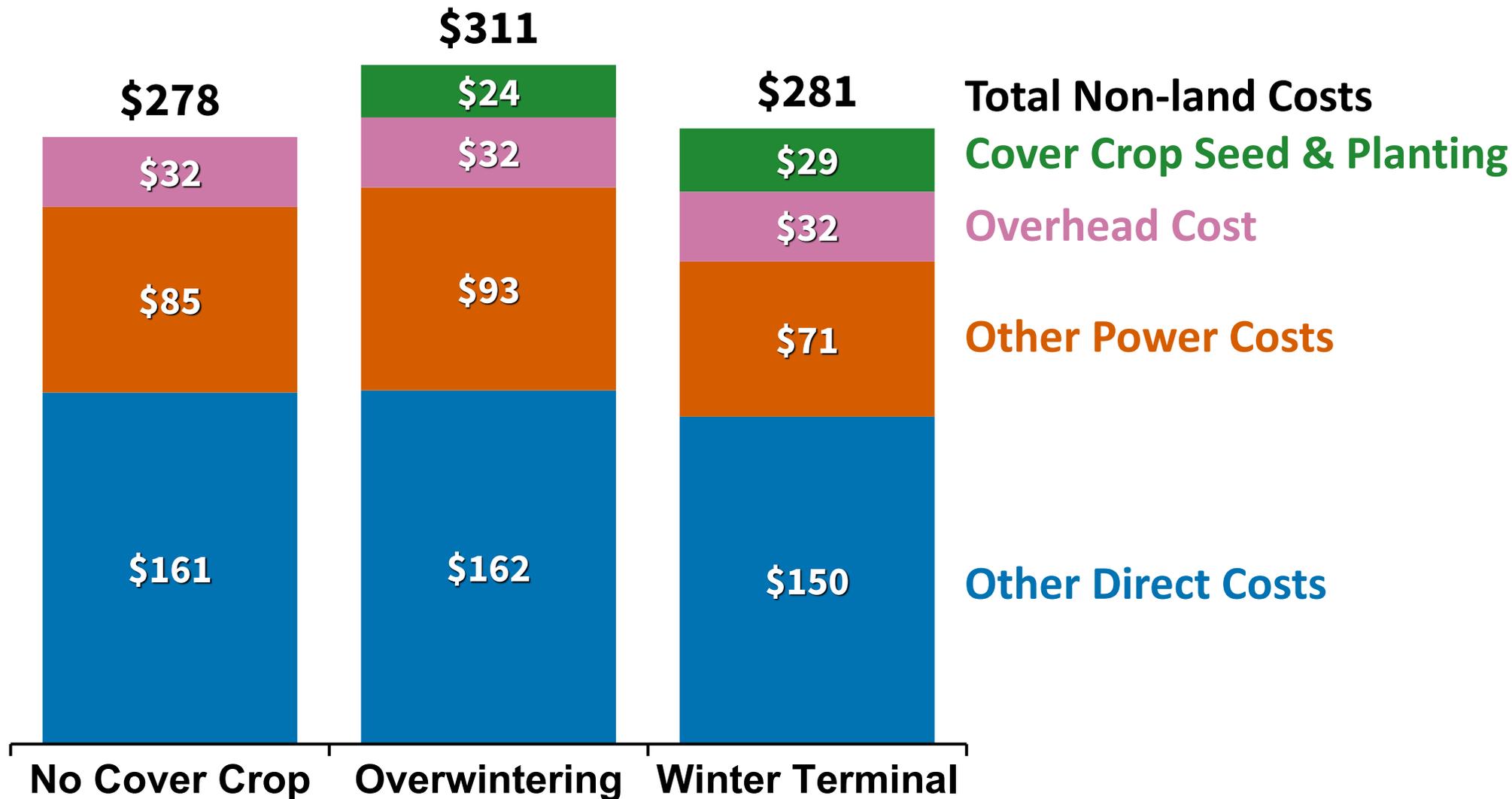
Cover Crops

Soybean, High SPR, Average from 2015 to 2022

	No Cover Crop	Overwintering	Winter Terminal
Number of fields	3,750	918	33
Yield per acre	70	68	69
Soil Productivity Rating	140	139	139
Gross Revenue	\$717	\$710	\$688
Total Non-land Costs	\$278	\$311	\$281
Operator & Land Return	\$439	\$399	\$407

Cover Crops

Soybean, High SPR, Average from 2015 to 2022



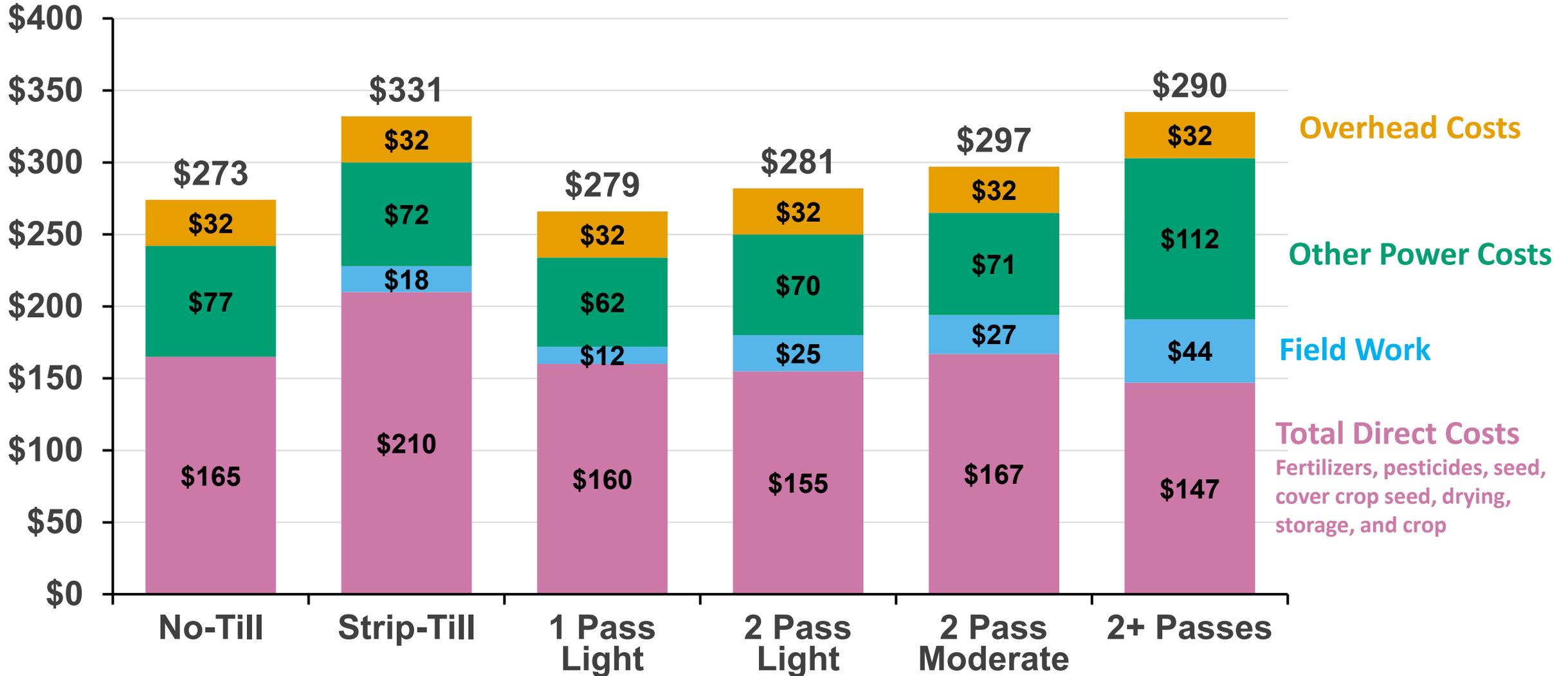
Tillage

Soybeans, High SPR, Average from 2015 to 2022

	No-Till	Strip-Till	1 Pass Light	2 Pass Light	2 Pass Moderate	2+ Passes
# fields	2,284	114	751	237	816	423
Yield per acre	68	72	70	69	71	70
Gross Revenue	\$697	\$755	\$718	\$716	\$737	\$719
Total Non-land Cost	\$273	\$331	\$279	\$281	\$297	\$290
Operator & Land Return	\$424	\$424	\$439	\$436	\$440	\$429

Tillage

Soybeans, High SPR, Average from 2015 to 2022



Soybeans: Statistical Results from Sarah Sellars Dissertation

Yields

- Later planting date reduced yields
- Cover crops no impact on yields
- No-till has lower yields (1.1 bushels less than one-pass system)
- Weather has a big impact

Returns

- Later planting date reduces returns
- Cover crops reduce returns (-\$30 per acre)
- Two-plus systems have lower returns (more than one pass tends to reduce yields, No-till not significant different)
- Weather has a large impact

Soybeans: Over-winter Cover Crops

What we see more of in the most profitable 25%

- Cereal rye (true also in low 25%), barley is next
- Drilled number 1 application system
(followed by broadcast with fertilizer, one-till pass)
- \$25 per acre less in pesticide costs
- Higher yields

Corn



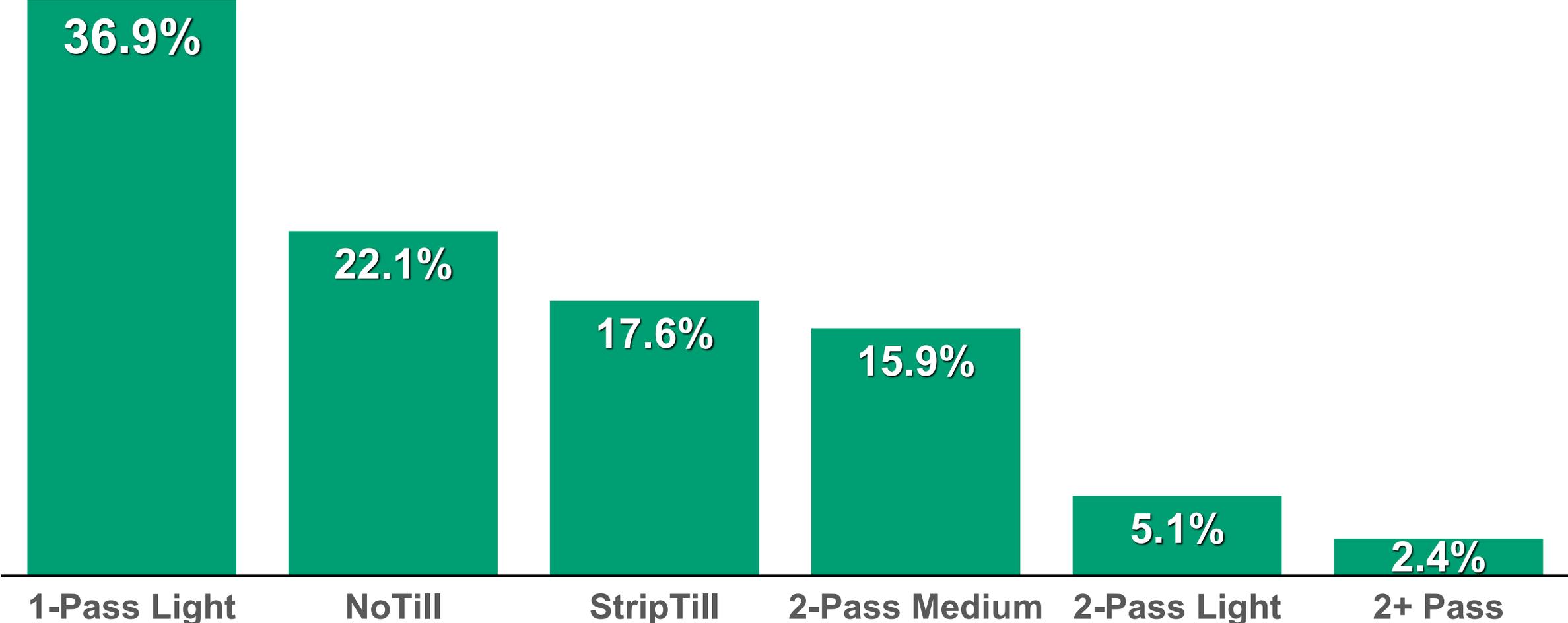
Cover Crops

Corn, High SPR, Average from 2015 to 2022

	No Cover Crop	Overwintering	Winter Terminal
Number of Fields	4,502	380	164
Yield per Acre	222	215	217
Soil Productivity Rating	140	139	140
Gross Revenue	\$938	\$922	\$918
Total Non-land Cost	\$543	\$598	\$572
Operator & Land Return	\$395	\$324	\$346

Most Profitable Fields by Tillage Class

Corn, High SPR, Average from 2015 to 2022



Corn: Statistical Results from Sarah Sellars Dissertation

Yields

- Later planting date reduced yields
- **Cover crops no impact on yields**
- Two pass systems had positive impact on yields (3 bushels per acre over one pass system)
- **Above MRTN nitrogen rates increased yields**
- Corn-after-corn reduced yields (-6 bushels per acre)

Returns

- Later planting date reduces returns
- **Cover crops reduce returns (-\$43 per acre)**
- Tillage had no impact on returns
- **Above MRTN nitrogen rates no impacts on returns (sign was negative)**
- Corn-after-corn reduced returns (-\$30 per acre)

Nitrogen and Conservation



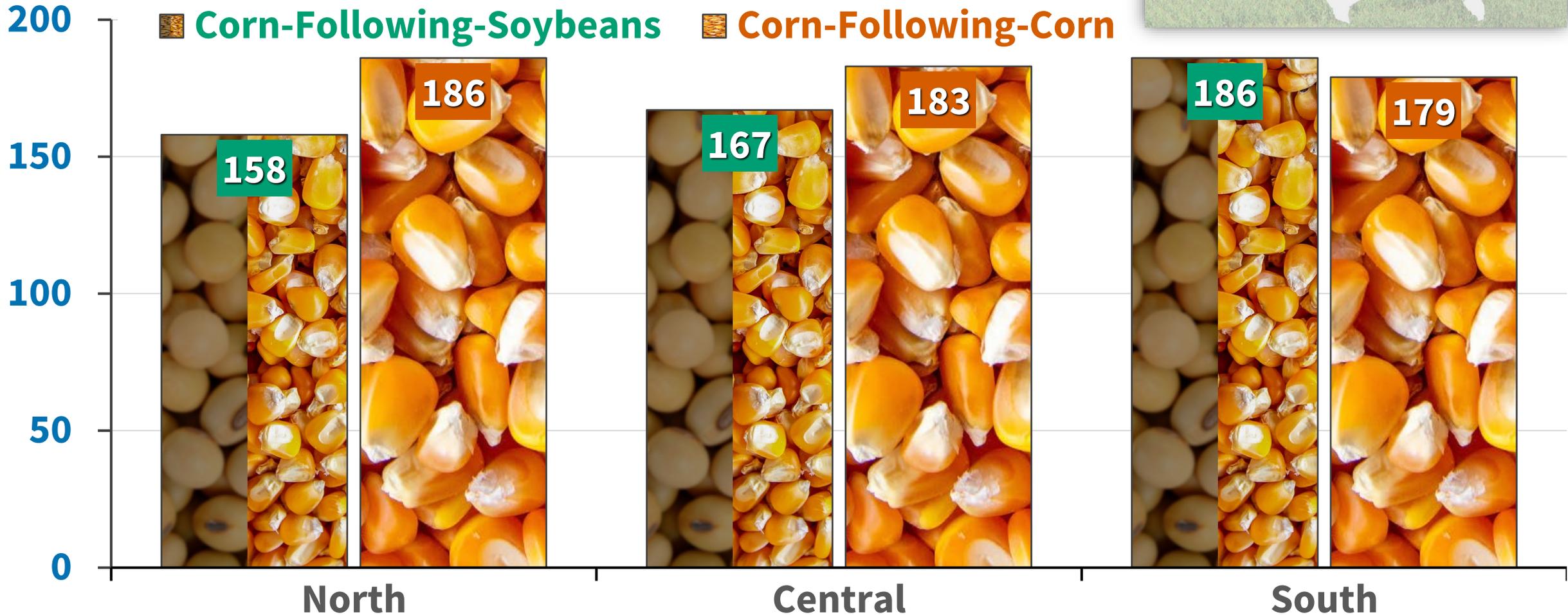
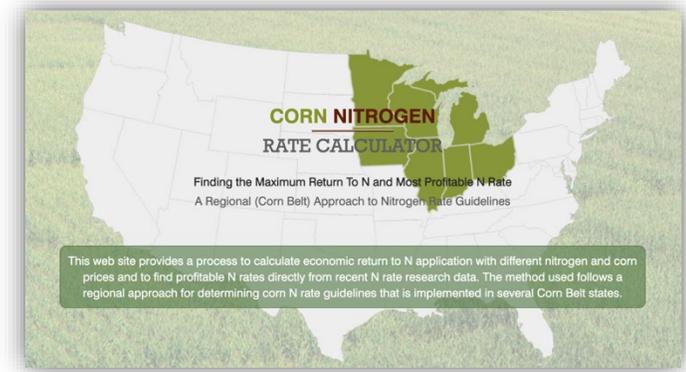
Laura Gentry

Net Financial Returns and N Fertilizer Timing

Corn, Hi SPR 2015-22 Average Values

	>40% Fall	Mostly Preplant	Mostly Sidedress	50% Pre/ 50% Sidedress	3-way Split
NUE (lb N/bu grain)	0.98	0.92	0.91	0.94	0.92
# fields	1,876	1,126	1,189	367	477
Yield per acre	222	218	221	220	224
Gross Revenue	\$941	\$918	\$933	\$929	\$948
N Fertilizer	\$93	\$87	\$86	\$96	\$92
Other Direct Costs*	\$335	\$308	\$321	\$324	\$348
Total Direct Costs*	\$428	\$395	\$407	\$420	\$440
Field Work	\$16	\$15	\$16	\$15	\$18
Other Power Costs**	\$102	\$94	\$100	\$100	\$100
Total Power Costs	\$118	\$109	\$116	\$115	\$118
Overhead Costs	\$38	\$38	\$38	\$38	\$38
Total Non-land Costs	\$585	\$542	\$561	\$573	\$596
Operator & Land Return	\$356	\$376	\$371	\$356	\$352

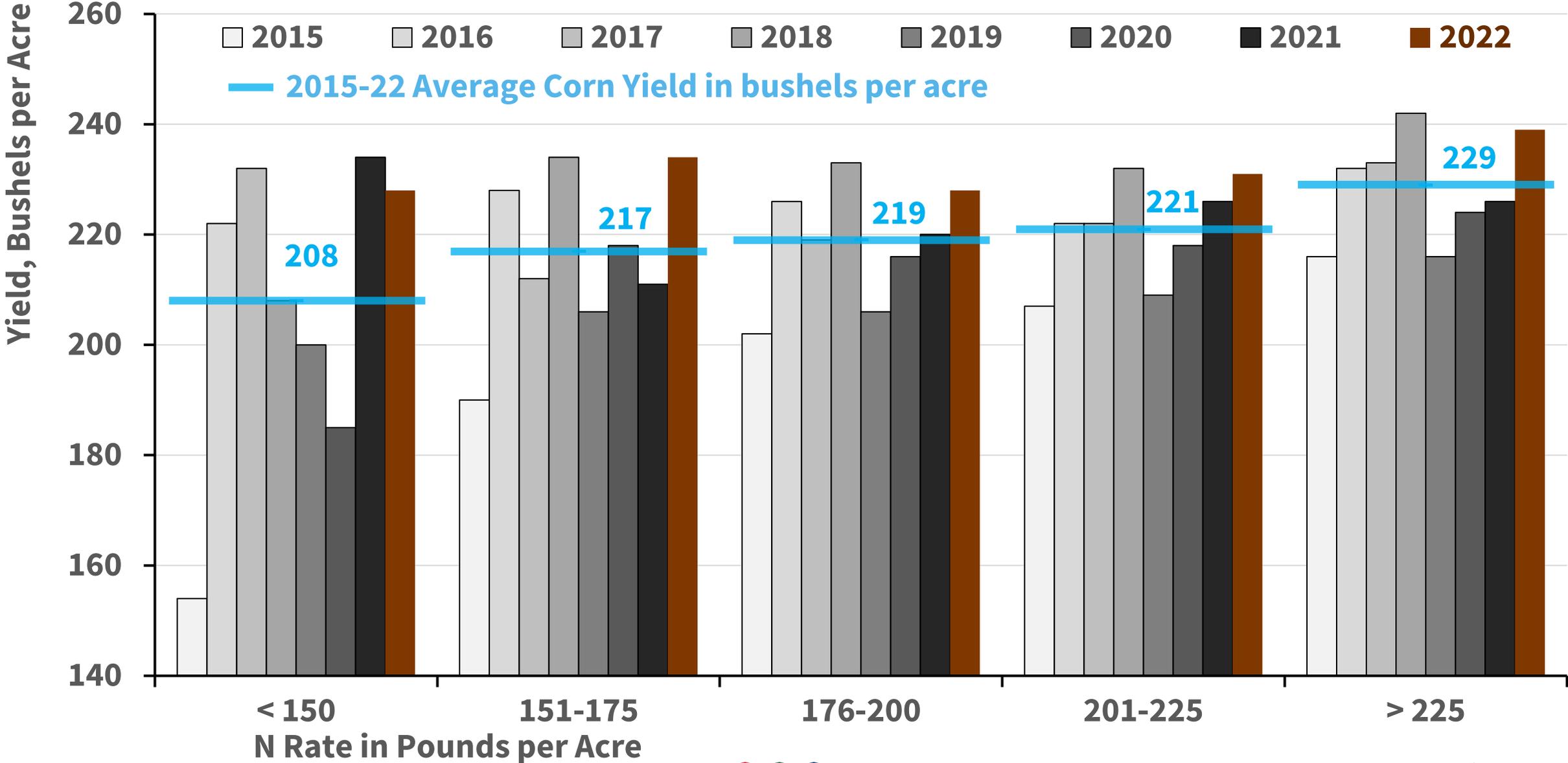
Illinois 2022 MRTN Recommendation in pounds of N applied^{1,2}



¹Taken from Corn Nitrogen Rate Calculator (<http://cnrc.agron.iastate.edu/nRate.aspx>) on June 22, 2022

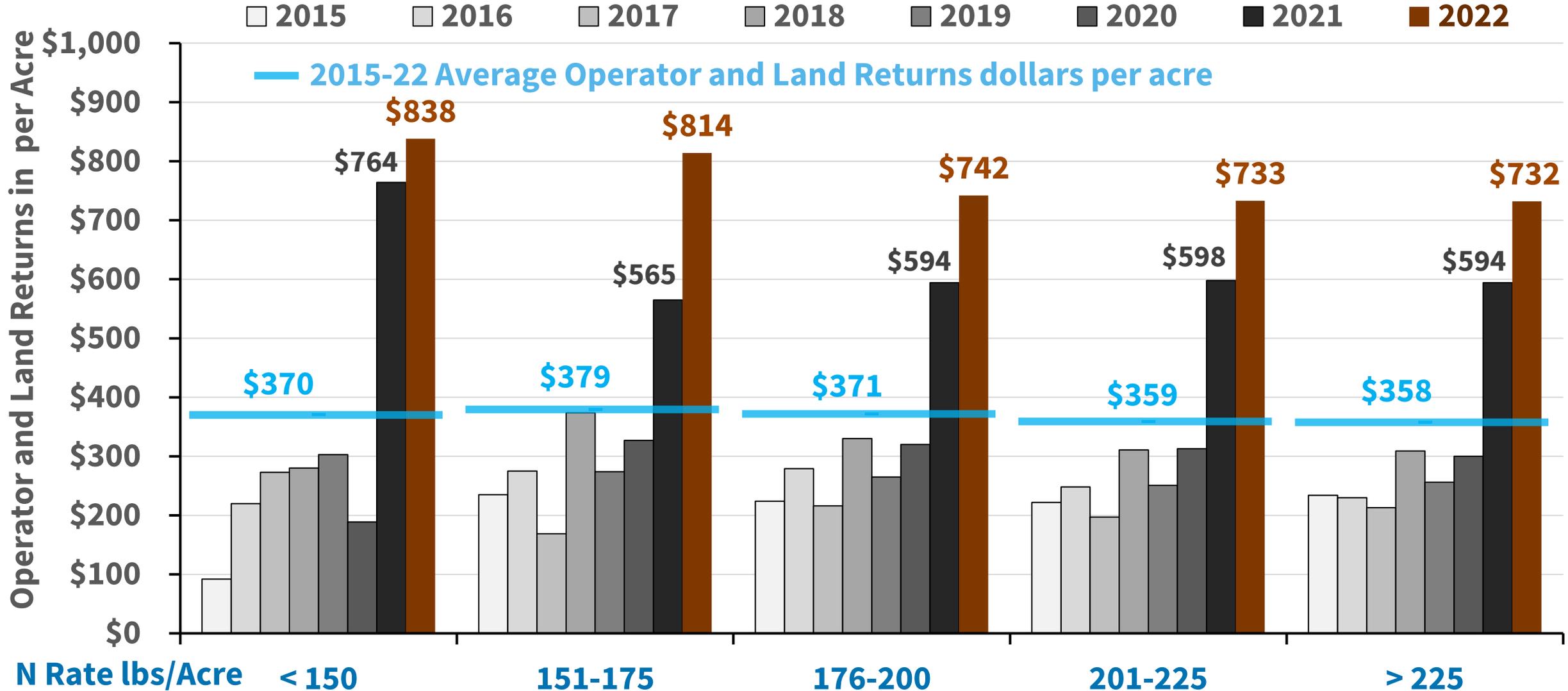
²MRTNs determined with a \$6.75 corn price, \$1,600 per ton anhydrous ammonia price, and \$630 per ton nitrogen solution price

Corn Yield, High SPR, N Rate, Pounds per Acre



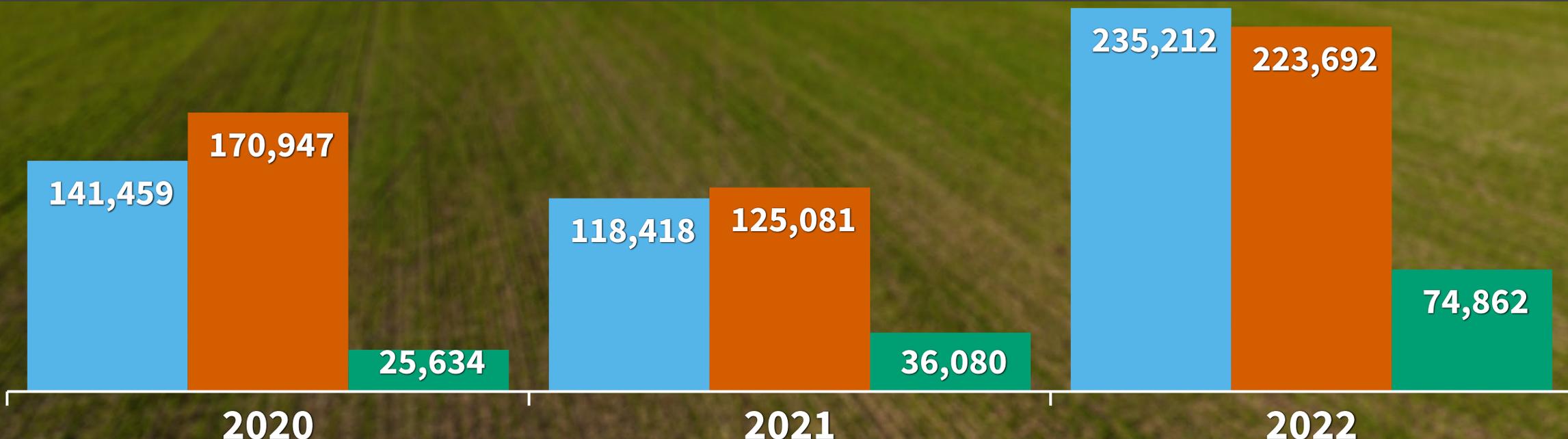
Operator and Land Returns

Corn, High Soil Productivity Rating (SPR)



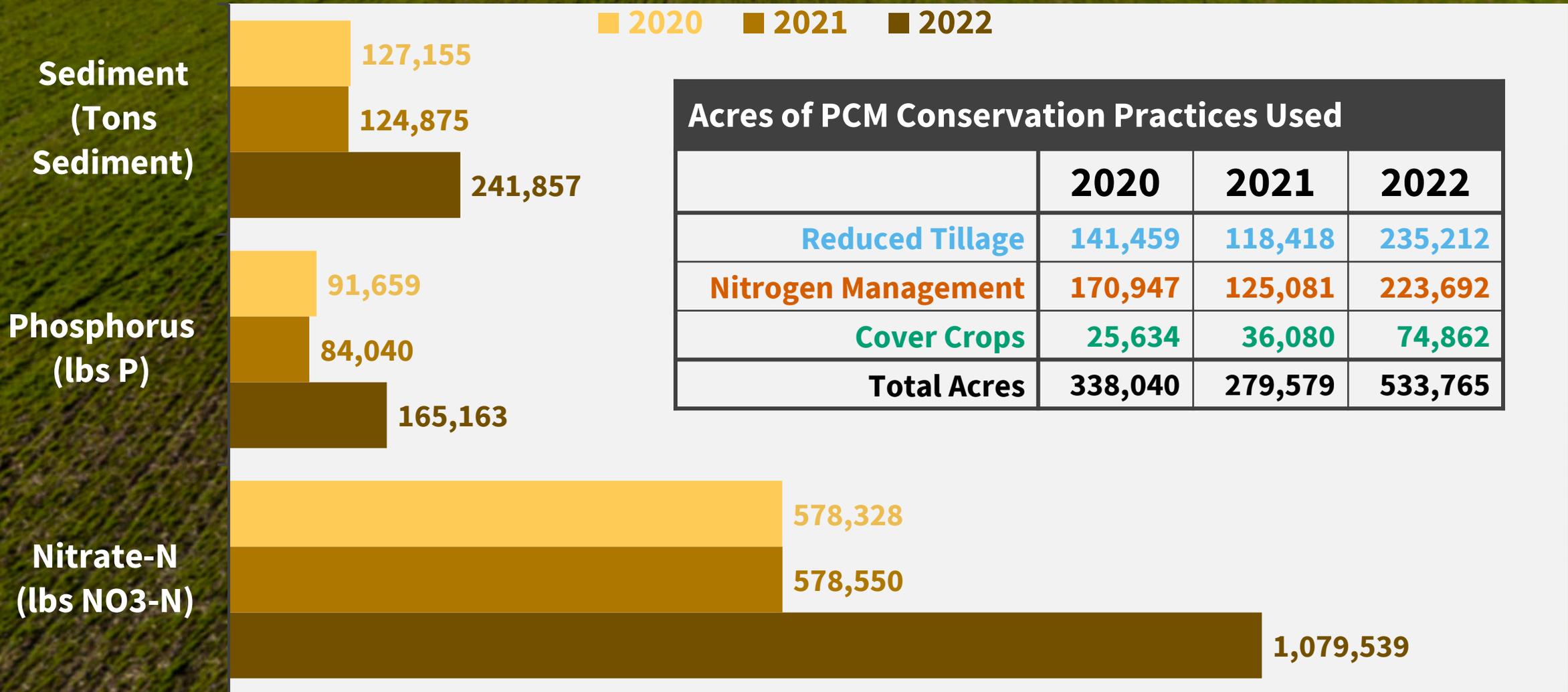
PCM Conservation Practices, Acres

	2020	2021	2022	TOTAL
Reduced Tillage	141,459	118,418	235,212	495,089
Nitrogen Management	170,947	125,081	223,692	519,719
Cover Crops	25,634	36,080	74,862	136,576
Total Acres	338,040	279,579	533,765	1,151,384



PCM Conservation Practices

Loss Reductions



What value would you place on a ton of soil loss?

<\$5 per ton

\$5 to \$10 per ton

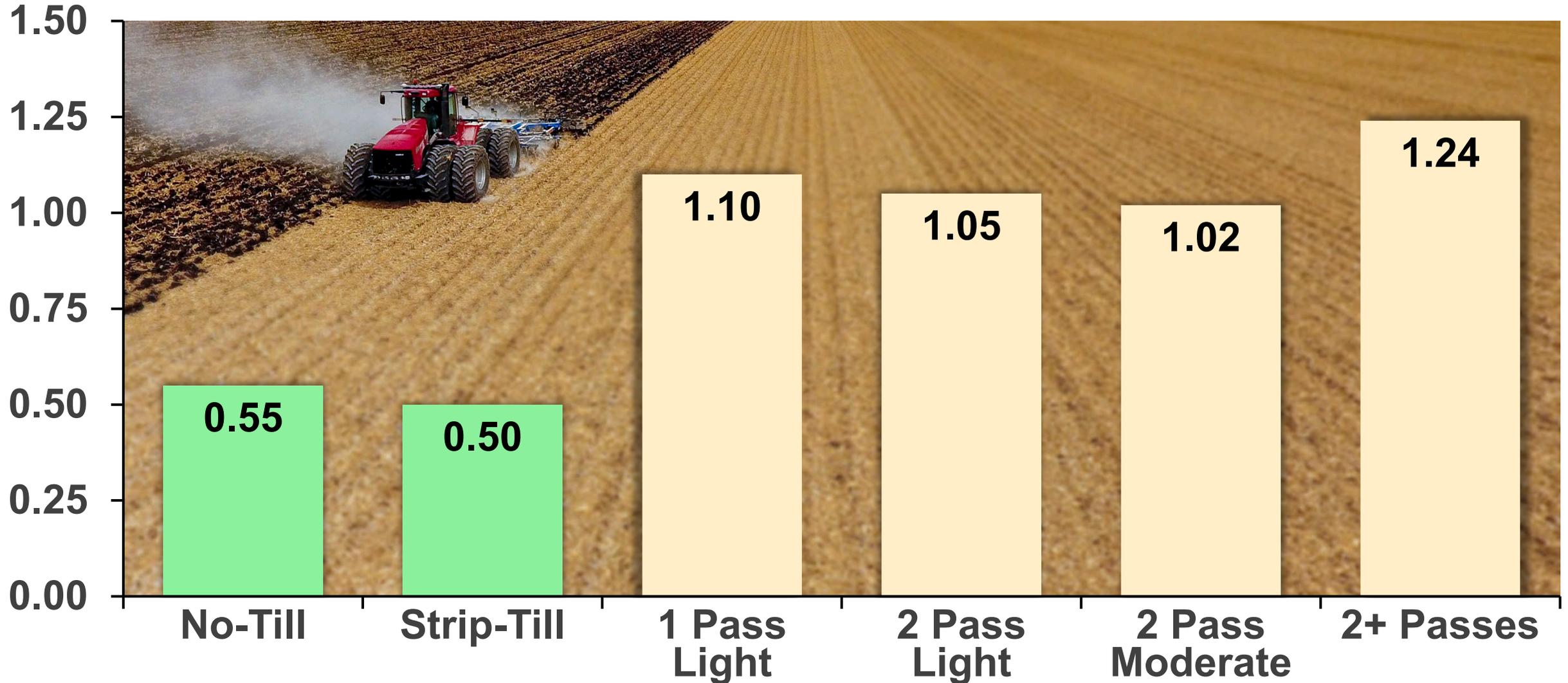
>\$10 to \$25 per ton

>\$25 to \$40 per ton

>\$40 per ton

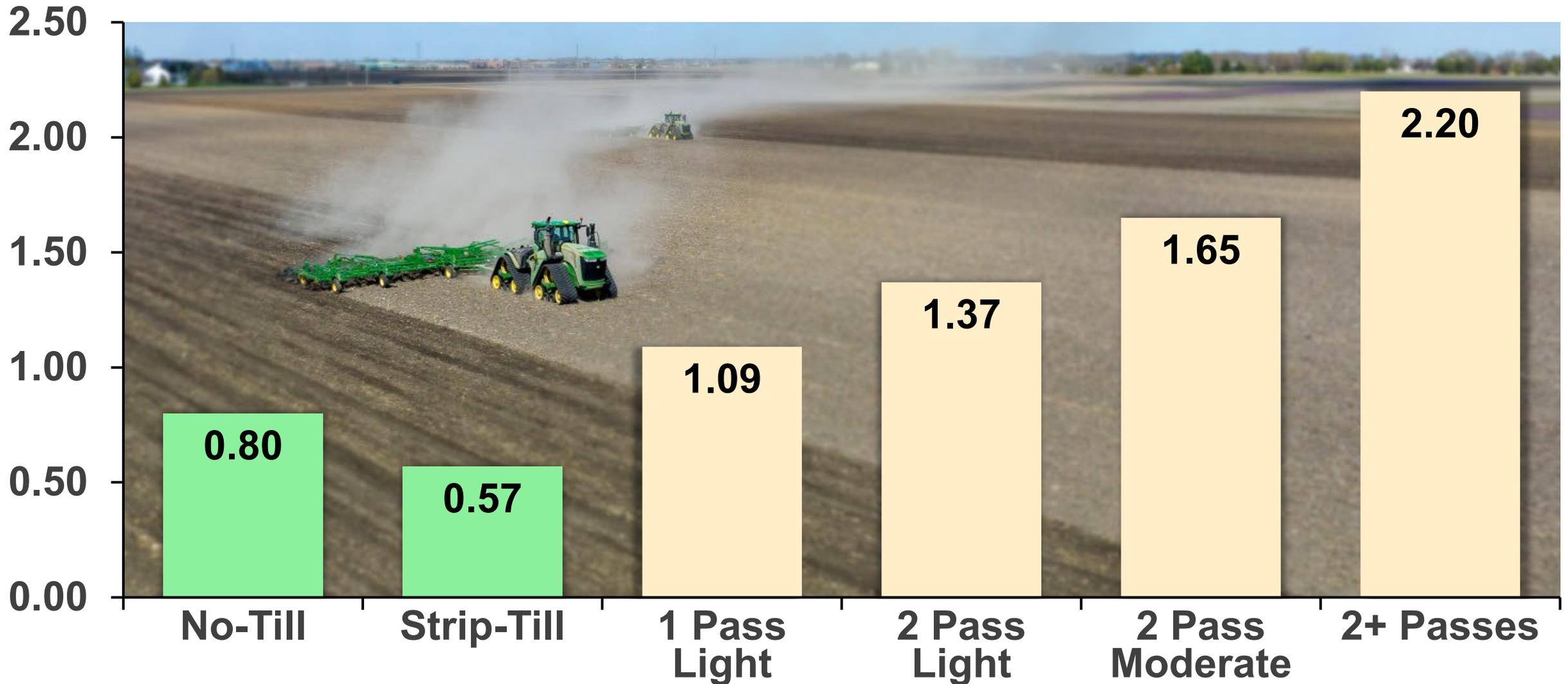
Soil Loss (Tons/acre), by Tillage Class

Averages from 2015 to 2022, Corn, High SPR



Soil Loss (Tons/acre), by Tillage Class

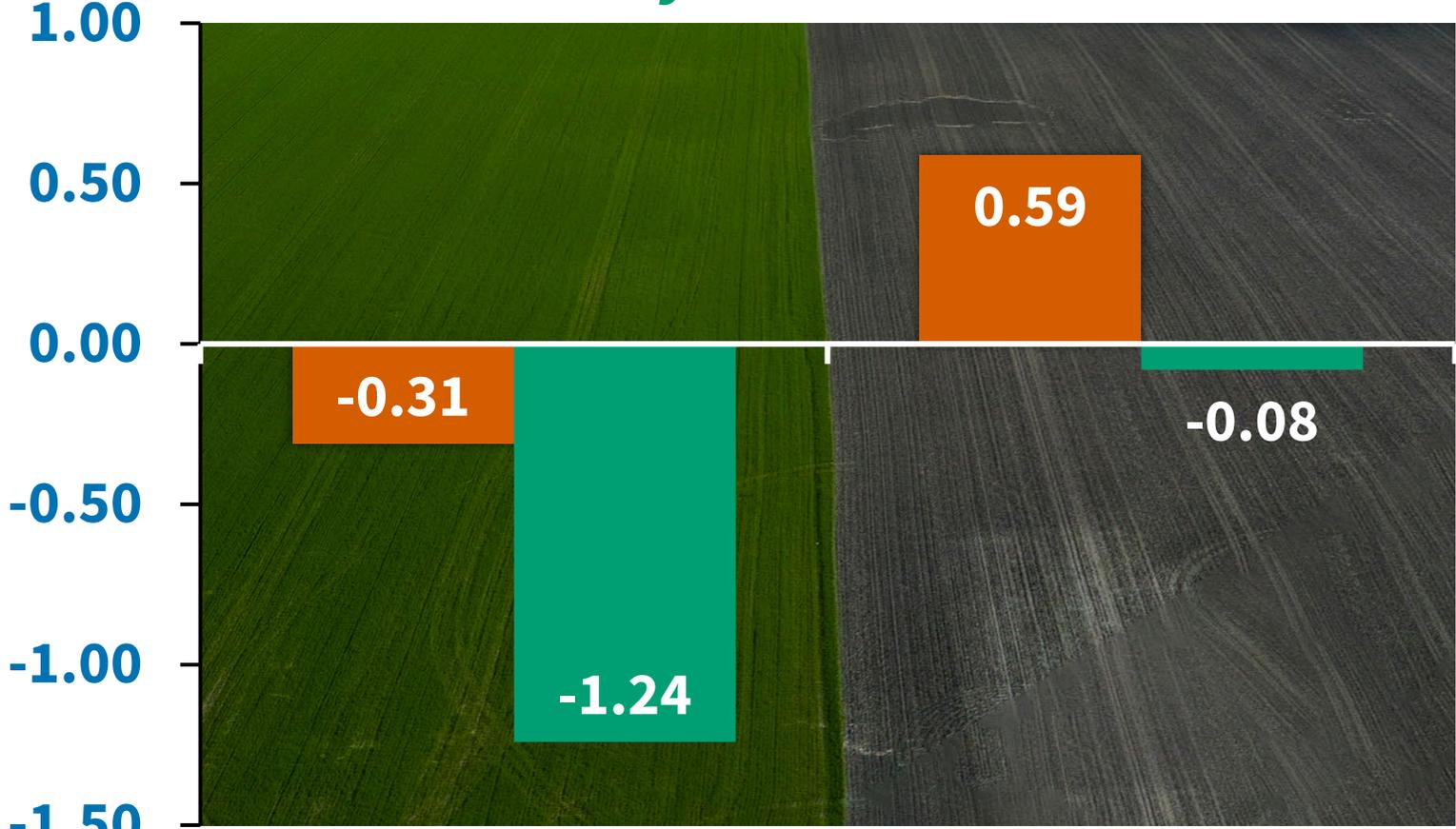
Averages from 2015 to 2022, Soybeans, High SPR



GHG emissions in metric tons CO²e/acre

Averages from 2015 to 2022, High High Soil Productivity Rating (SPR)

■ Corn ■ Soybean

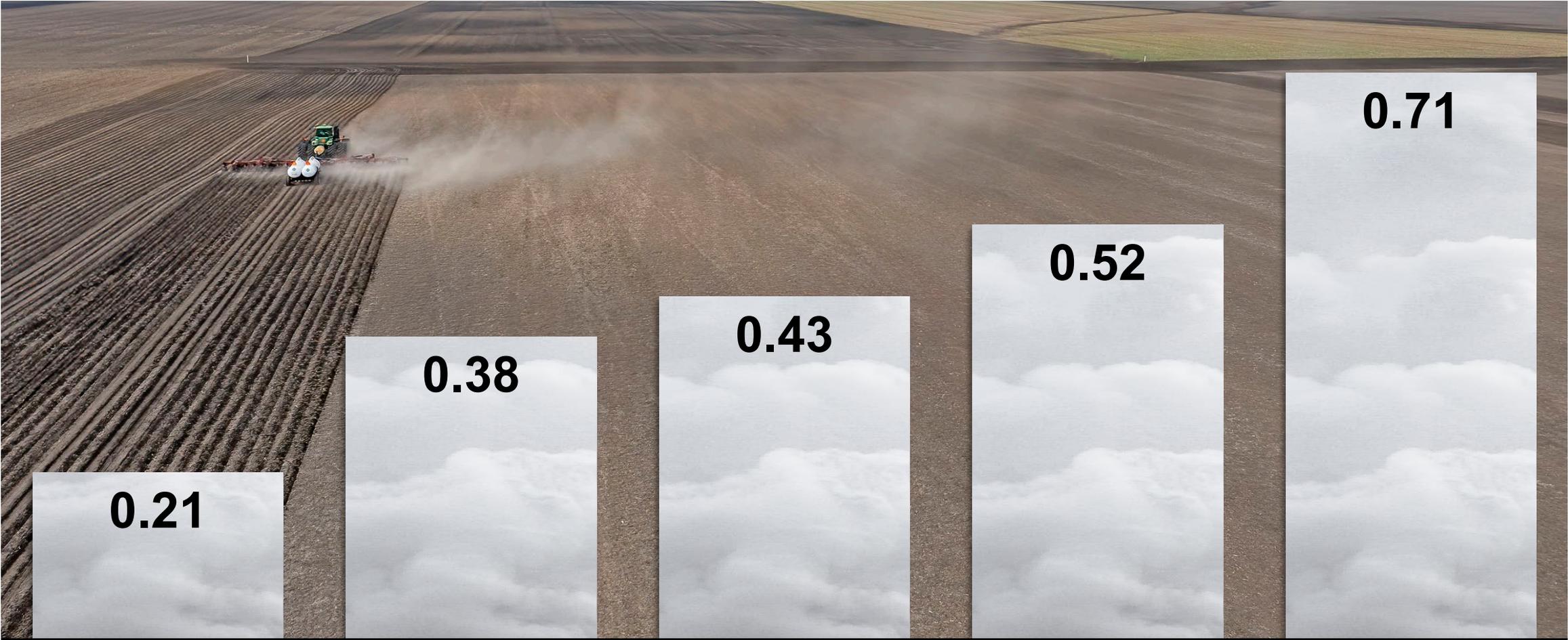


Cover Crop Overwintering & Winter Terminal

No Cover Crop



GHG Emissions in metric tons CO₂e/acre



< 150 151 to 175 176 to 200 201 to 225 > 225
N Rate in Pounds per Acre

Understanding Carbon Credits

Megan Miller

Agronomic Programs Manager
millerm@ilsoy.org



ILLINOIS
SOYBEAN
ASSOCIATION



Carbon markets?

- Already using
- Been approached by a carbon market
- Have not been approached by a carbon market
- Not interested
- I'm not eligible (not a farmer)



PEPSICO

Goal is to reduce their
Scope 3 emissions

by 40%

by 2030

Scope Emissions Defined

Scope 1 Emissions

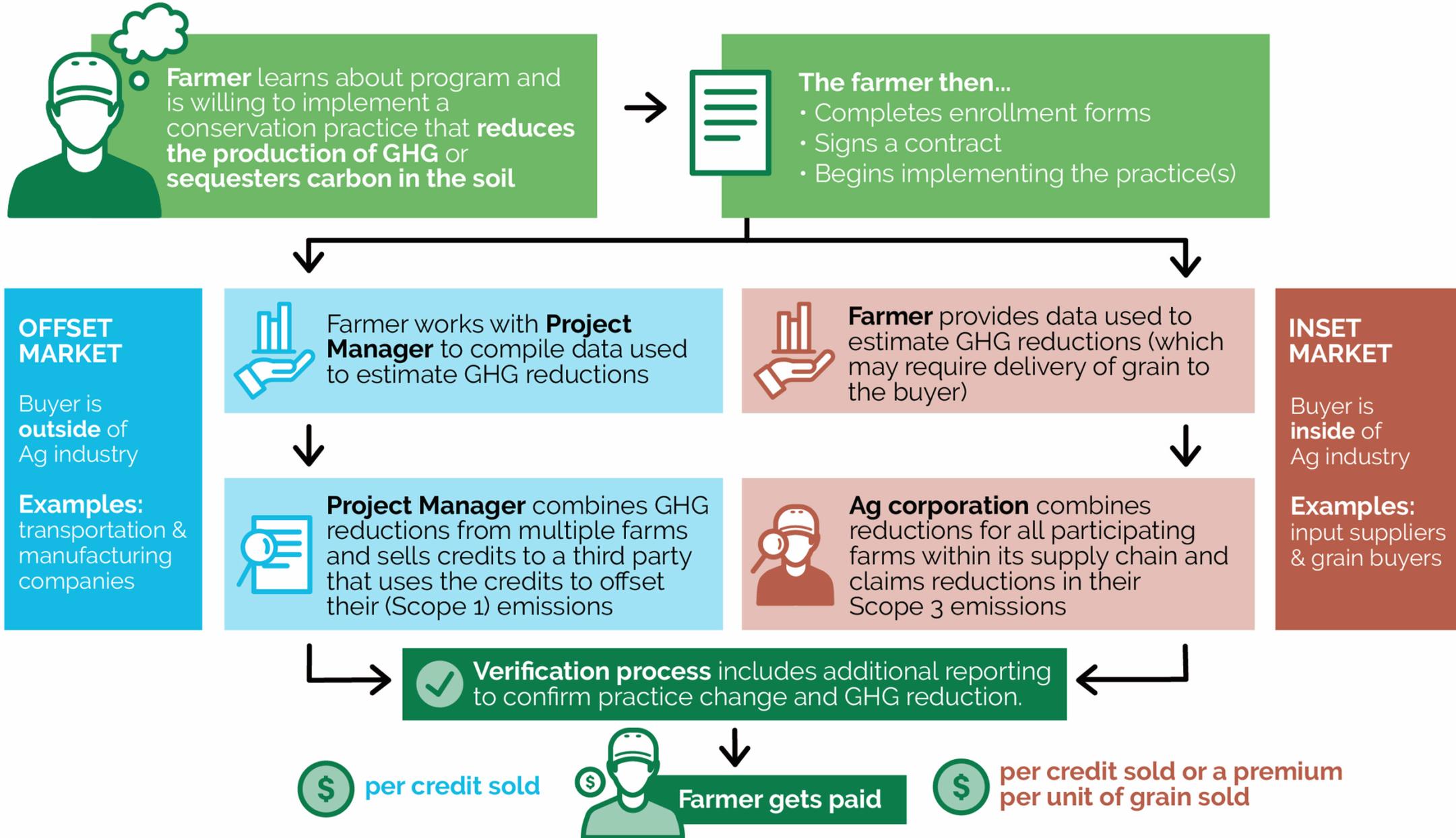
Are direct emissions from owned or controlled sources.

Scope 2 Emissions

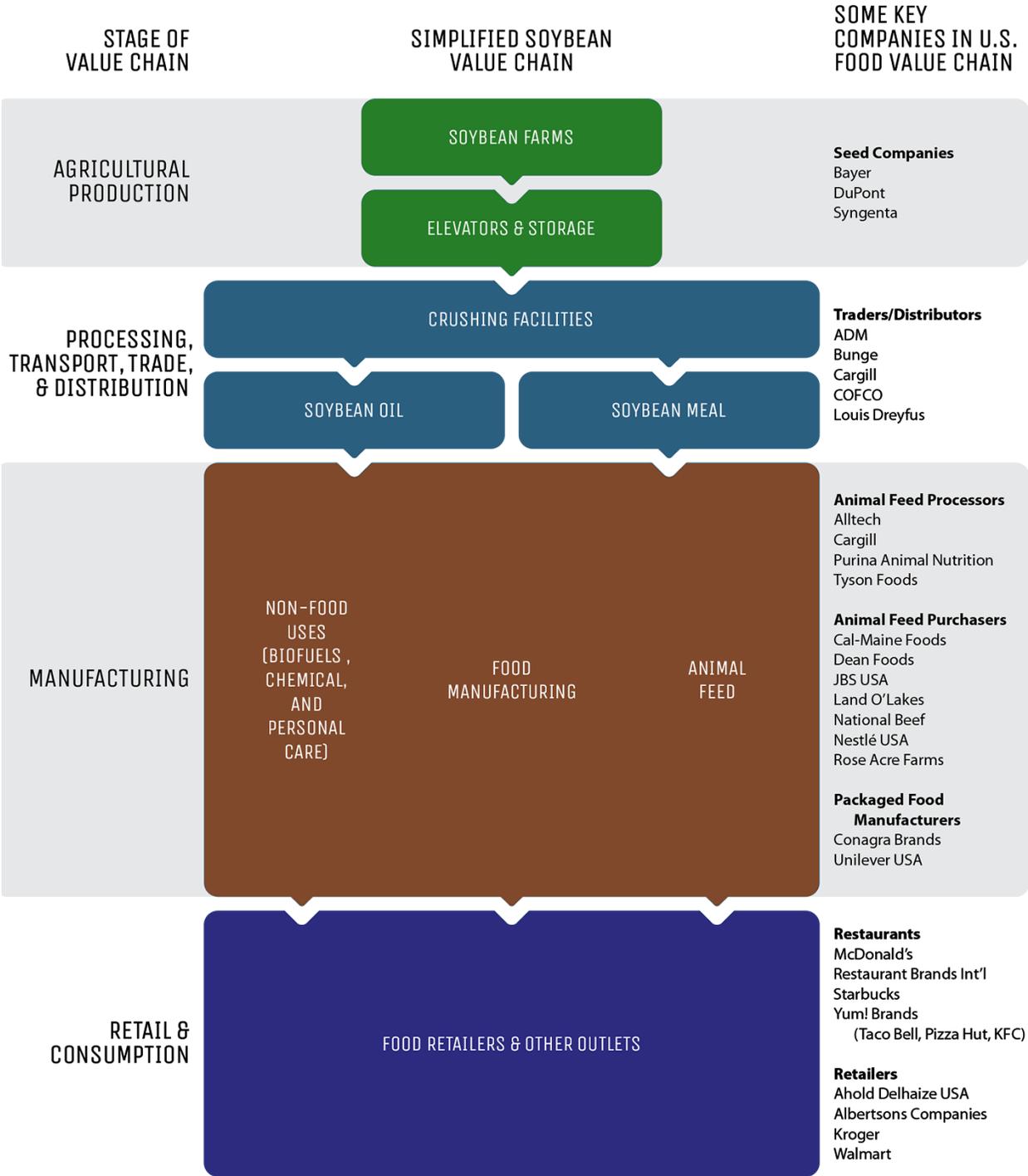
Are indirect emissions from the generation of purchased energy consumed by a company. This typically includes emissions from the generation of electricity, heat, or steam purchased by the company from utility providers.

Scope 3 Emissions

Are all indirect emissions (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream.



Row crops are ingredients sold by small businesses to publicly traded companies



An Overview of Voluntary Carbon Markets for Illinois Farmers



- 15 Ecosystem Service Markets are available in Illinois
- Payment Types
 - Pay for Practice
 - Pay for outcomes (per Tonnes of CO₂e)
 - Pay for outcomes (per bushel)
- Combinations of pay for practice + Pay for Outcome
- Confirmed 760,979 acres enrolled (2.8% of IL Farmland)
- Average price of CO₂e = **\$19.27 per tonne CO₂e**



Partnerships for Climate-Smart Commodities

www.usda.gov/climate-solutions/climate-smart-commodities



\$3.1 billion in funding nationwide

23 projects available in Illinois

- Row crop, specialty crop, forestry, and livestock projects
- All multi-state projects
- **\$844,112,299** total across all states included
- **\$45,855,218** estimated to be in Illinois

How to prepare for market enrollment?

Understand your conservation goals

Carbon markets may not be the best financial mechanism to help you achieve your goal

Its probably too early to enroll the whole farm

Start with a few fields at a time

Be prepared with good conservation agronomy

Find a conservation agronomist to help you with your transition into conservation agriculture

Get your data ready

Records and data are the key to receiving the highest dollar for your work

Visit www.ilsoyadvisor.com/carbon-data-guidebook



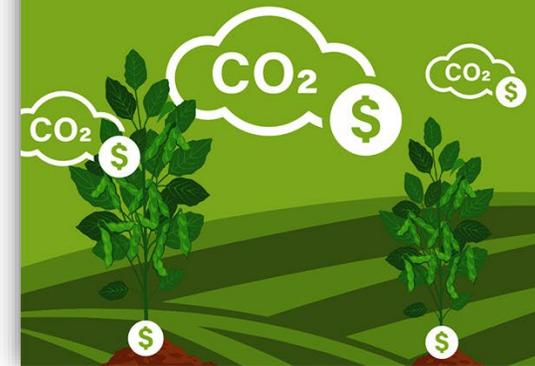
CARBON & DATA GUIDEBOOK

ORGANIZE THE DATA HOUSE TO UNLOCK
\$\$ FOR YOUR FARMING OPERATION

It's been nearly a decade since Monsanto announced its \$1 Billion acquisition of Climate Corp. It's been even longer for farmers waiting to realize the full yield and cost savings promises of precision ag, much less getting paid for their farm data. Sometimes progress is more of a slow march than a forward leap.

The carbon and ecosystem programs that have exploded onto the scene in the last couple years, however, are starting to look like the first real circumstance where good farm data converts into – or at least is required to access – hard dollars. Whether or not your farming operation is pursuing a carbon or conservation program, it's time to take a harder look at how you are collecting, managing, and storing your farm data.

In the following pages, this Carbon and Data Guidebook covers the basics of emerging carbon and ecosystem programs, their farm data needs, and how you can better position your farm operation for any program or precision ag initiative.



Pay attention to

Contract length v land rental agreements

Will you be farming that field for the length of your contract?

Inset v Offset

Are you enrolling in an inset market or an offset market?

Contract fine print

Understand the full terms of your agreement

Data usage

How will the carbon market use your data?

Pay attention to

Verification methods

Receipt audits, field visits, modeling, satellites all common

Program Exclusion

Whether enrollment excludes the grower from participating in other markets or government programs

Cost-share programs

Many non-governmental cost share programs are now associated with a carbon asset

farmdoc Sponsors

TIAA

Center for
Farmland Research



farmdoc Educational Partners



I ILLINOIS

Extension

COLLEGE OF AGRICULTURAL, CONSUMER
& ENVIRONMENTAL SCIENCES

I ILLINOIS

Agricultural & Consumer Economics

COLLEGE OF AGRICULTURAL, CONSUMER
& ENVIRONMENTAL SCIENCES



Thank You for joining us!

Please submit your questions



Visit us at

farmdocDAILY
.Illinois.edu

✉ Subscribe for Latest News Updates



I ILLINOIS

Agricultural & Consumer Economics

COLLEGE OF AGRICULTURAL, CONSUMER
& ENVIRONMENTAL SCIENCES

You **Tube**

For the webinar archives and **5-minute** farmdoc
Subscribe to our channel [YouTube.com/@farmdoc](https://www.youtube.com/@farmdoc)



Learn more at www.precisionconservation.org

PCM
Precision Conservation Management

ABOUT US ▾ NEWS ▾ PARTNERS ▾ LOG-IN COMING SOON - QUICK STATS EVENTS

Increasing Farm Incomes and Environmental Outcomes

An Innovative Farm Conservation Service Program serving Illinois, Nebraska and Kentucky

[Join Now](#) [Questions? Contact Us](#)

Field Level Farm Data

Farm Data – Farmers collect detailed field data using the *free Farmer Portal* tool

Services – PCM provides analysis & one-on-one consultations with conservation experts

Data Security Guarantee – Individual farm data is protected [not shared] unless the farmer chooses to do so

[Read More...](#)

Data Analysis for Business Decision Support

Projections & Reports – Based on the unbiased, detailed conservation practices of **Real Farmers**

Results – Improved economic performance & measurable improvements in conservation practices

[Read More...](#)

Conservation, Government Program & Supply Chain Support

Data – Supporting improvement in precision farming practices

Farmer Access – To projects & partners that support their conservation efforts

[Read More...](#)

Environmental Impact & Measureable Improvements

Measurable Improvements – For Farmers, Supply Chain Members, Consumers & Legislators

End Goal – Continue to move the needle to improve water quality & soil health

[Read More...](#)

