

# 2025 Summary of PCM



**College of ACES**  
UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN



**Gary Schnitkey**

2015-2025 DATA

# The Business Case for Conservation

Cost-Benefit Analysis of Conservation Practices

P | C | M

Precision Conservation Management

*A program of the IL Corn Growers Association*

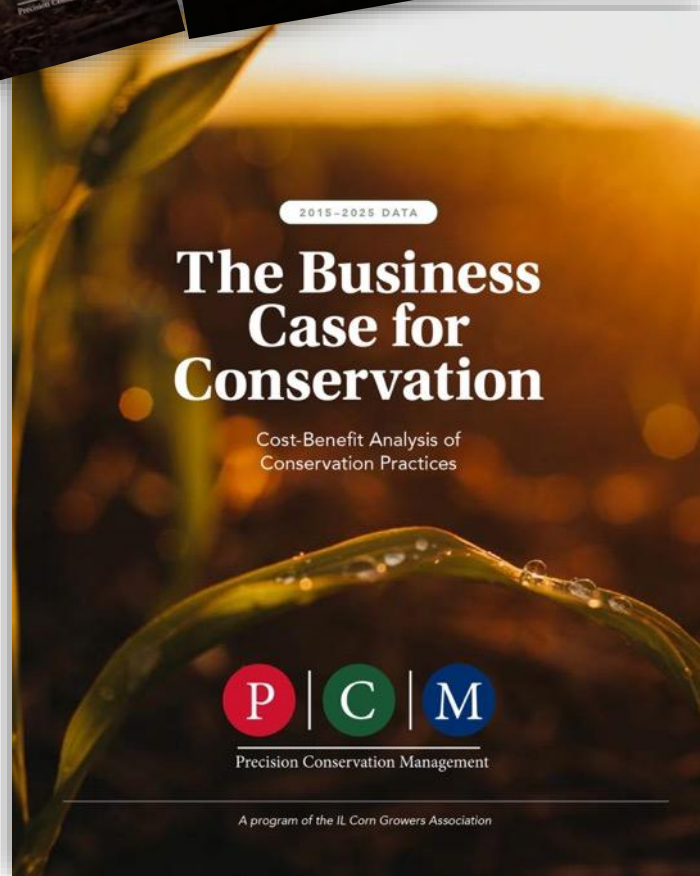
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**Laura Gentry**



**PCM's Business Case  
for Conservation  
Published every year  
since 2019**



# Practice Standards

Precision Conservation Management

- Tillage
- Nitrogen Management
- Cover Crops
- Most Profitable Farms

# Tillage



# Tillage Benchmark

**NT**

**No-till**

No tillage passes

**ST**

**Strip tillage**

In-row tillage with a  
strip-till bar

**1PL**

**1-Pass Light**

One low-disturbance  
tillage pass

**2PL**

**2-Pass Light**

Two low-disturbance  
tillage passes

**2PM**

**2-Pass Moderate**

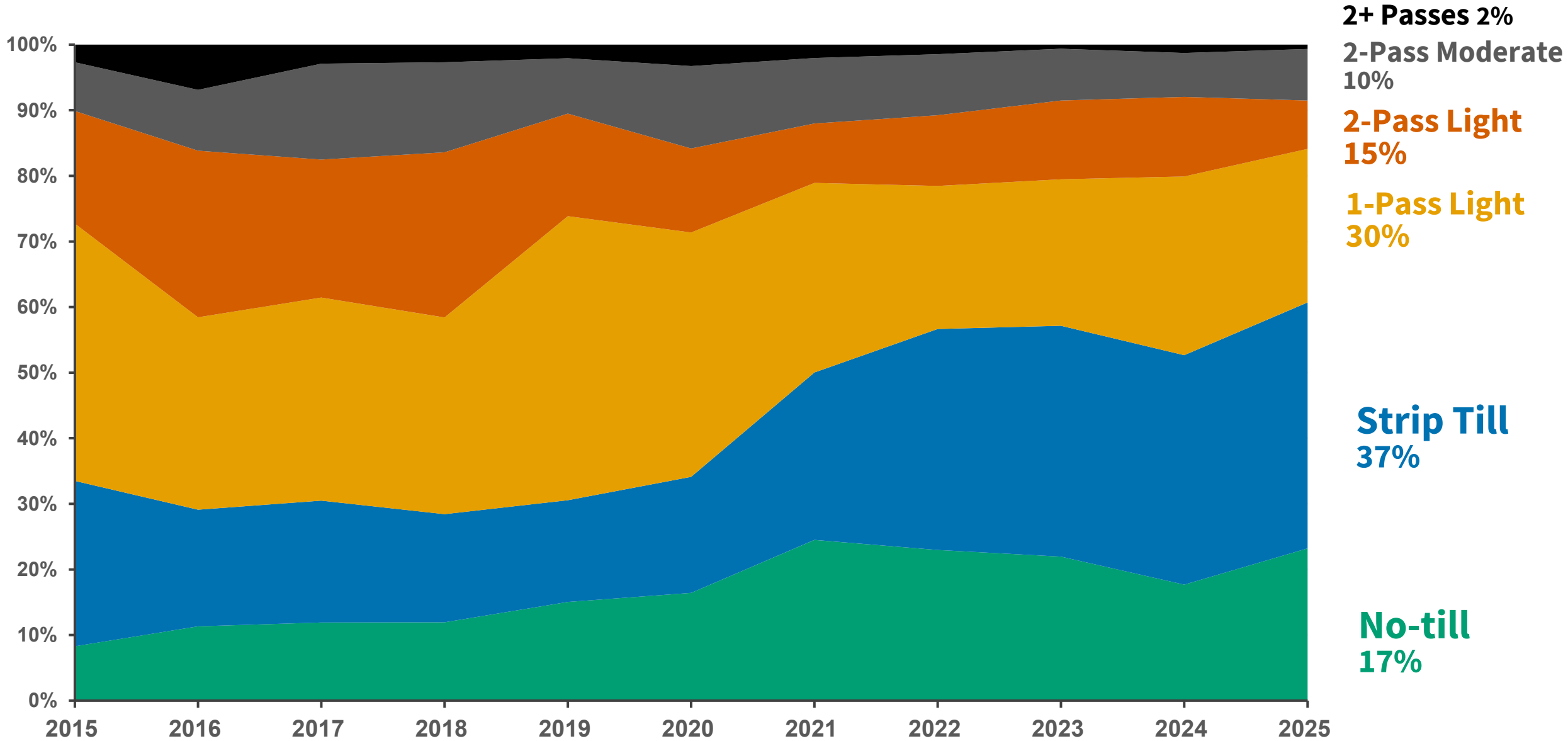
1 low-disturbance and  
1 higher-disturbance  
tillage pass

**2+ Pass**

More than 2 tillage  
passes, any kind

*Note: Tillage Benchmark relates to number of tillage passes*

# Tillage Acreage Over Time, High SPR Corn



**2+ Passes 2%**

**2-Pass Moderate 10%**

**2-Pass Light 15%**

**1-Pass Light 30%**

**Strip Till 37%**

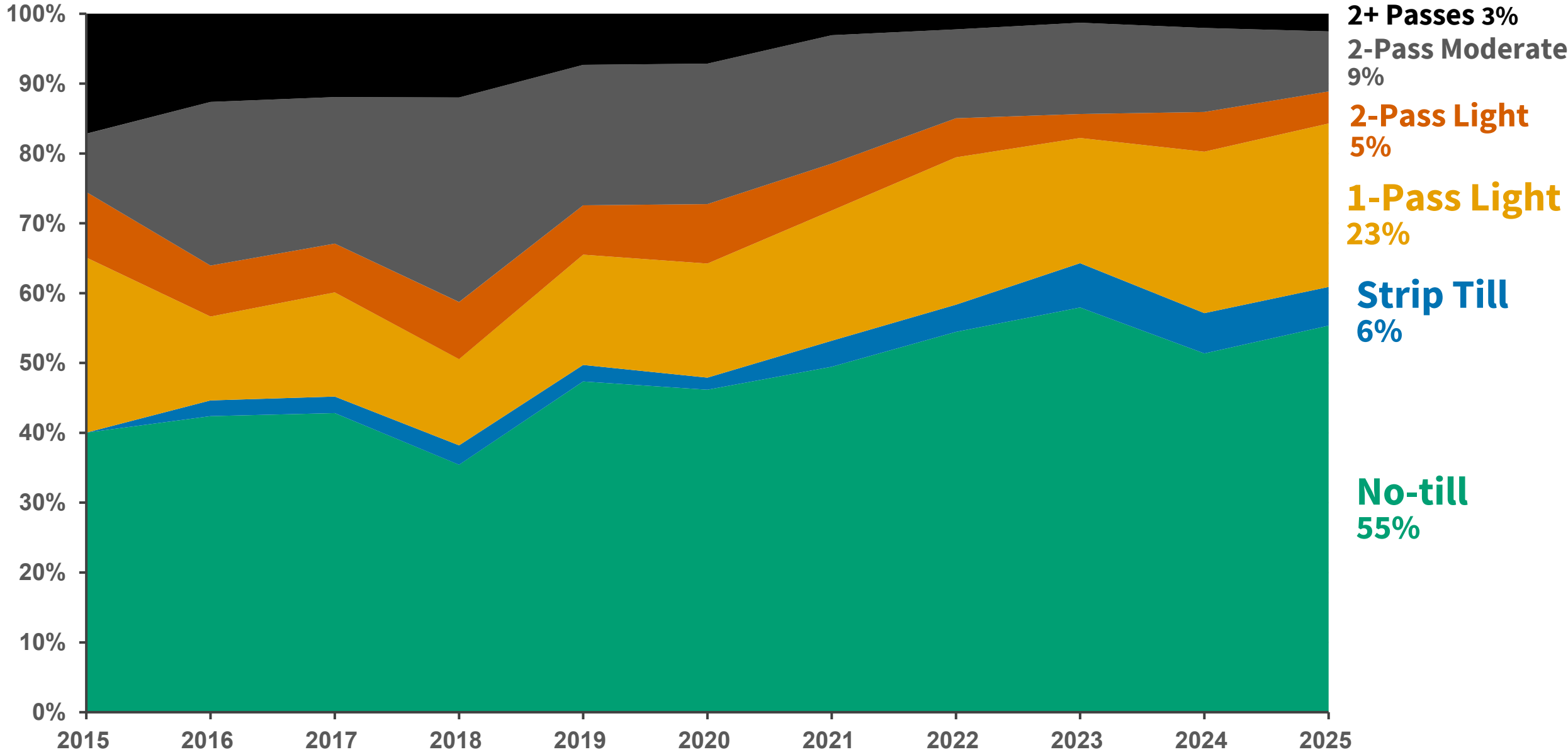
**No-till 17%**

<b>Corn</b> HIGH-SPR   2015-25 AVG VALUES	<b>NO-TILL</b>	<b>STRIP-TILL</b>	<b>1-PASS LIGHT</b>	<b>2-PASS LIGHT</b>	<b>2-PASS MODERATE</b>	<b>2+ TILLAGE PASSES</b>
# of fields	1,907	2,671	2,765	1,296	776	139
Yield per acre	223	227	226	229	233	232
<b>GROSS REVENUE</b>	<b>\$951</b>	<b>\$967</b>	<b>\$959</b>	<b>\$975</b>	<b>\$989</b>	<b>\$985</b>
<b>TOTAL DIRECT COSTS*</b>	<b>\$457</b>	<b>\$478</b>	<b>\$456</b>	<b>\$461</b>	<b>\$484</b>	<b>\$465</b>
Field work	\$0	\$21	\$12	\$26	\$32	\$44
Other power costs**	\$106	\$108	\$101	\$104	\$103	\$103
<b>TOTAL POWER COSTS</b>	<b>\$106</b>	<b>\$129</b>	<b>\$113</b>	<b>\$130</b>	<b>\$135</b>	<b>\$147</b>
<b>OVERHEAD COSTS</b>	<b>\$42</b>	<b>\$42</b>	<b>\$42</b>	<b>\$42</b>	<b>\$42</b>	<b>\$42</b>
<b>TOTAL NON-LAND COSTS</b>	<b>\$605</b>	<b>\$649</b>	<b>\$611</b>	<b>\$633</b>	<b>\$661</b>	<b>\$654</b>
<b>OPERATOR &amp; LAND RETURN</b>	<b>\$346</b>	<b>\$318</b>	<b>\$348</b>	<b>\$341</b>	<b>\$327</b>	<b>\$331</b>

# Soybean Tillage



# Fields by Tillage Benchmarks Over Time, Soybeans



**2+ Passes 3%**

**2-Pass Moderate 9%**

**2-Pass Light 5%**

**1-Pass Light 23%**

**Strip Till 6%**

**No-till 55%**

<b>Soybean</b> HIGH-SPR   2015-25 AVG VALUES	NO-TILL	STRIP-TILL	1-PASS LIGHT	2-PASS LIGHT	2-PASS MODERATE	2+ TILLAGE PASSES
# of fields	4,410	305	1,472	519	1,211	463
Yield per acre	69	73	72	72	74	71
<b>GROSS REVENUE</b>	<b>\$732</b>	<b>\$786</b>	<b>\$760</b>	<b>\$765</b>	<b>\$782</b>	<b>\$755</b>
<b>TOTAL DIRECT COSTS*</b>	<b>\$193</b>	<b>\$236</b>	<b>\$188</b>	<b>\$187</b>	<b>\$195</b>	<b>\$172</b>
Field work	\$0	\$20	\$13	\$27	\$32	\$76
Other power costs**	\$82	\$85	\$81	\$78	\$80	\$46
<b>TOTAL POWER COSTS</b>	<b>\$82</b>	<b>\$105</b>	<b>\$94</b>	<b>\$105</b>	<b>\$112</b>	<b>\$122</b>
<b>OVERHEAD COSTS</b>	<b>\$35</b>	<b>\$36</b>	<b>\$35</b>	<b>\$35</b>	<b>\$35</b>	<b>\$35</b>
<b>TOTAL NON-LAND COSTS</b>	<b>\$310</b>	<b>\$377</b>	<b>\$318</b>	<b>\$328</b>	<b>\$342</b>	<b>\$329</b>
<b>OPERATOR &amp; LAND RETURN</b>	<b>\$423</b>	<b>\$409</b>	<b>\$442</b>	<b>\$437</b>	<b>\$440</b>	<b>\$426</b>

# Economic and Environmental Considerations

- Tillage costs add up quickly...make every pass pay
- Tillage generally has a yield advantage, but may not be cost effective
- Less tillage is better from soil erosion and carbon intensity standpoints, although relies on herbicides. Glyphosate was key to the adoption of no-till

# Farms: Same Tillage Systems

## Percent of farms with only one or two benchmarks, Corn

No of Benchmarks	2021	2022	2023	2024
One benchmark	78%	79%	81%	71%
Two benchmarks	18%	19%	17%	29%

## Percent of farms with only one or two benchmarks, Soybeans

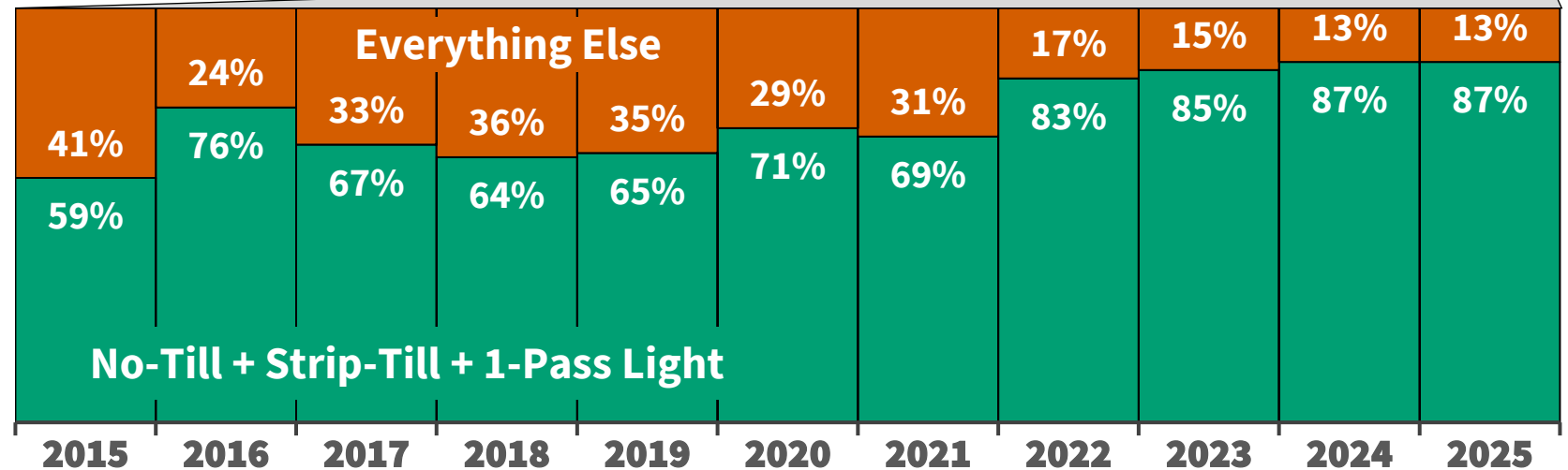
No of Benchmarks	2021	2022	2023	2024
One benchmark	74%	76%	74%	66%
Two benchmarks	22%	19%	22%	27%

# What does your Tillage Practice say about you?

No-Till and 1-Pass Light corn fields receive N at lower rates **AND** are **more profitable**.



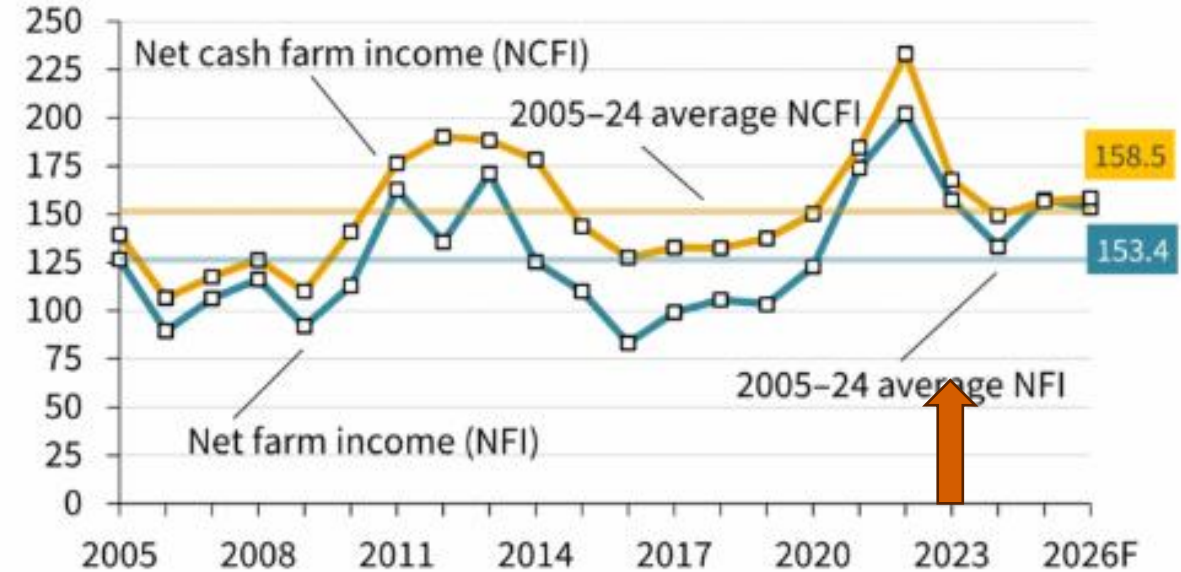
**% of Top 25% Most Profitable Fields**



**U.S. net farm income and net cash farm income, inflation adjusted, 2005–26F**

UIUC Extension Farm Policy News Summary 2/2/2026

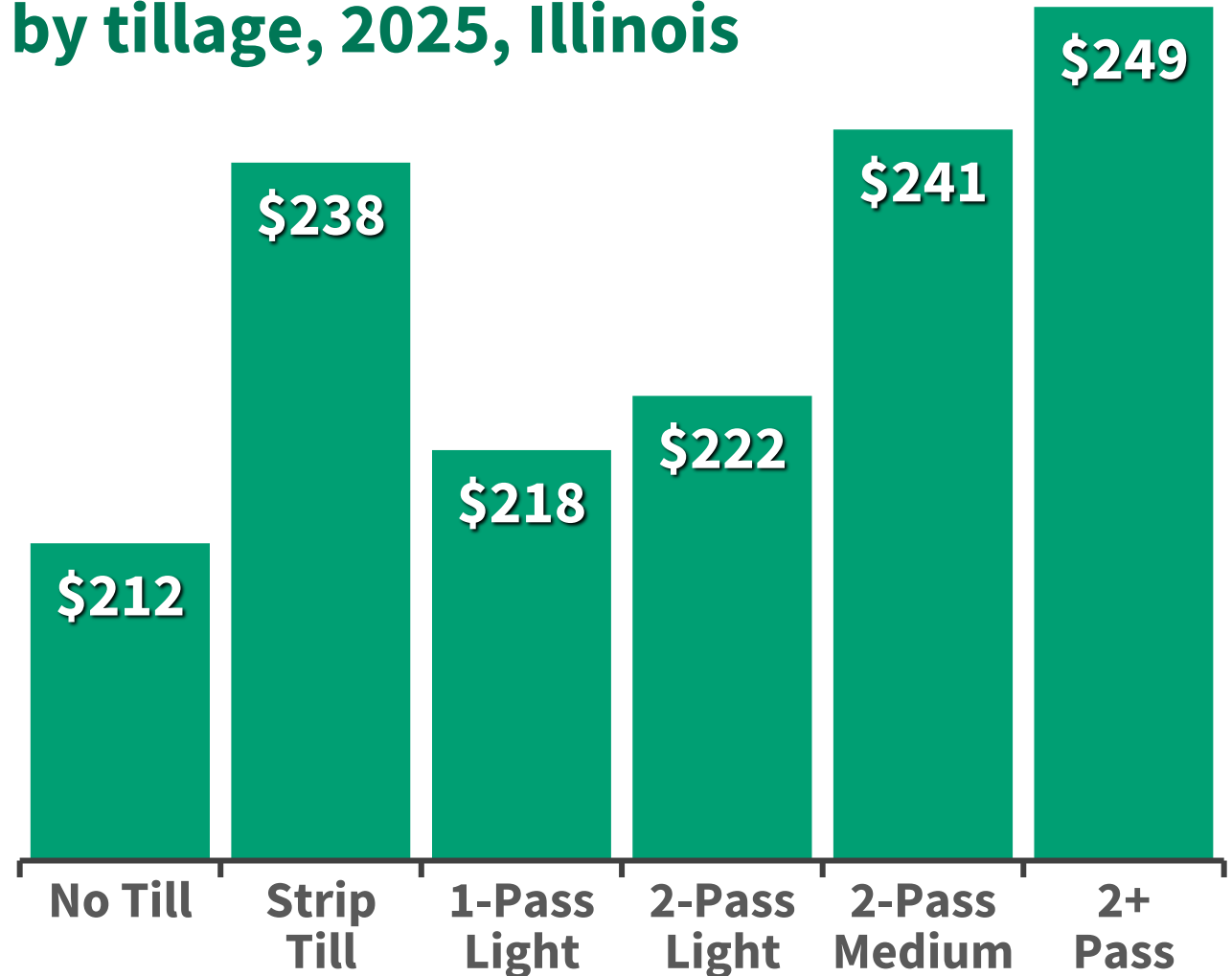
2026 dollars (billions)



# Strip Till and N rates

- Strip till farmers have higher-than-expected Direct Costs
- Extra costs are often for N application resulting in higher-than-expected N fertilizer costs for strip-tilled corn fields

Hi SPR Corn - N Fertilizer Costs (\$/a), by tillage, 2025, Illinois



# What does your Tillage Practice say about you?

Strip Till (ST) has **great yields** and we've seen it become more popular in the past 5 years.

BUT strip till farmers have **higher-than-expected Direct Costs**, largely due to higher N fertilizer rates. ST farmers apply N at rates similar to farmers who do more tillage.

There is a complication with ST: It's more difficult, logistically, to take advantage of the ability to apply dry fertilizer with the ST. Those farmers who figure it out, do well.

# Transition matrix across Tillage Benchmark

## Soybean, 2023 to 2024



		To					
		No-Till	Strip	1-Pass Light	2 Passes	3+	Mixed
From	No-Till	79%	7%	3%	3%	0%	3%
	Strip	2%	89%	2%	2%	0%	5%
	1-Pass Light	2%	7%	62%	5%	2%	22%
	2 Passes	3%	6%	21%	65%	0%	6%
	3+	0%	0%	0%	25%	25%	50%
	Mixed	12%	17%	10%	15%	0%	46%

# **What does your Tillage Practice say about you?**

**No-Till is, by far, the most popular tillage class for High-SPR soybean fields**

**More No-Till fields than all the other tillage classes added together**

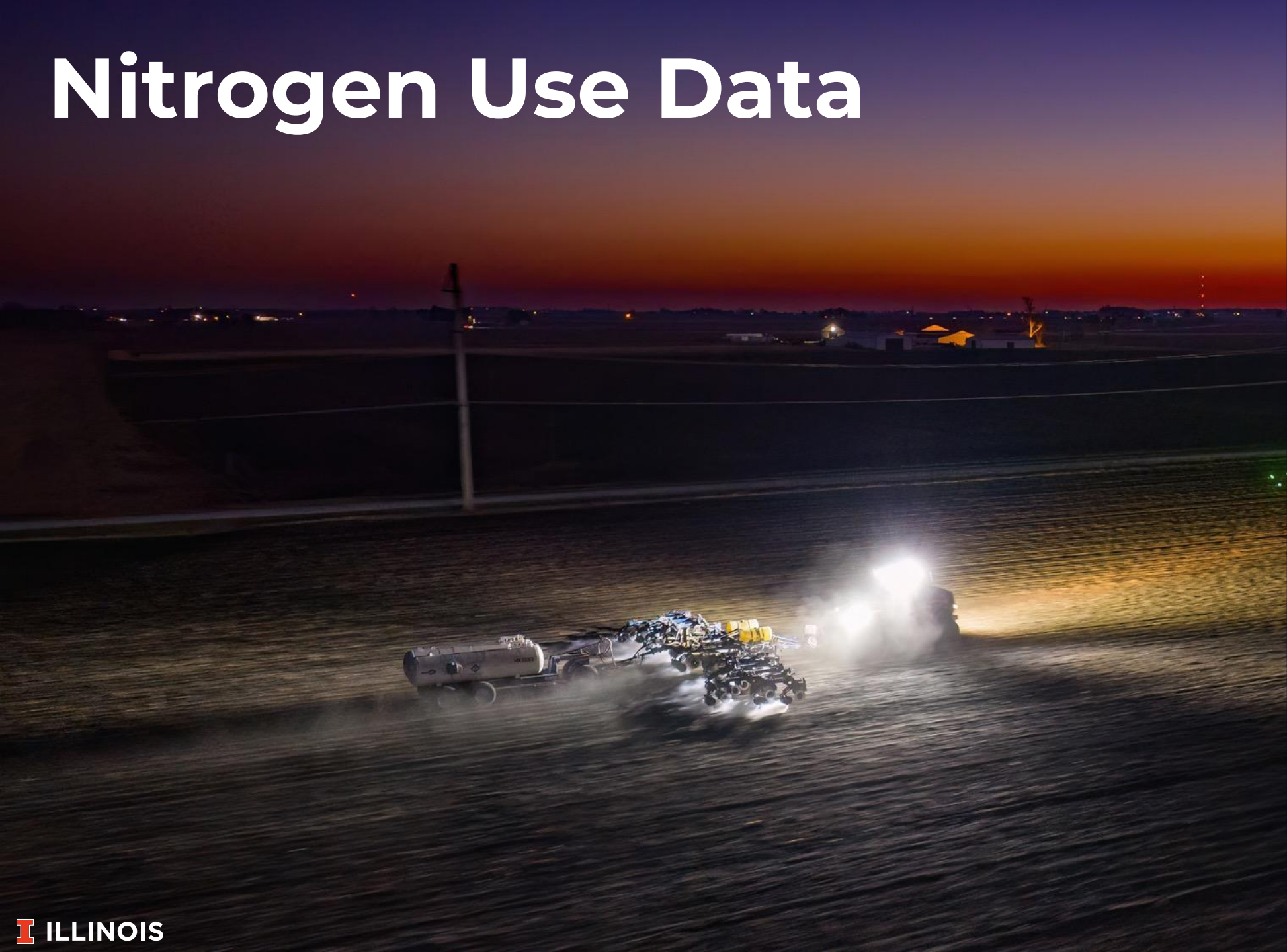
**But No-Till is not the most profitable tillage class (was only most profitable class 1 of 11 years)**

# What does your Tillage Practice say about you?

**1-Pass Light** tillage has been **most-profitable** more years (4 of 11) and, when you consider that it is eligible for a reduced tillage payment, it is a very safe bet.

In some years, **2-Pass Moderate** can be the most profitable (when soybean prices are higher).

# Nitrogen Use Data



# Nitrogen Application Timing Standards

## Fall

Majority of N  
applied in fall

## Pre-Plant

Majority of N  
applied before  
planting

## Post-Plant

Majority of N  
applied after  
planting

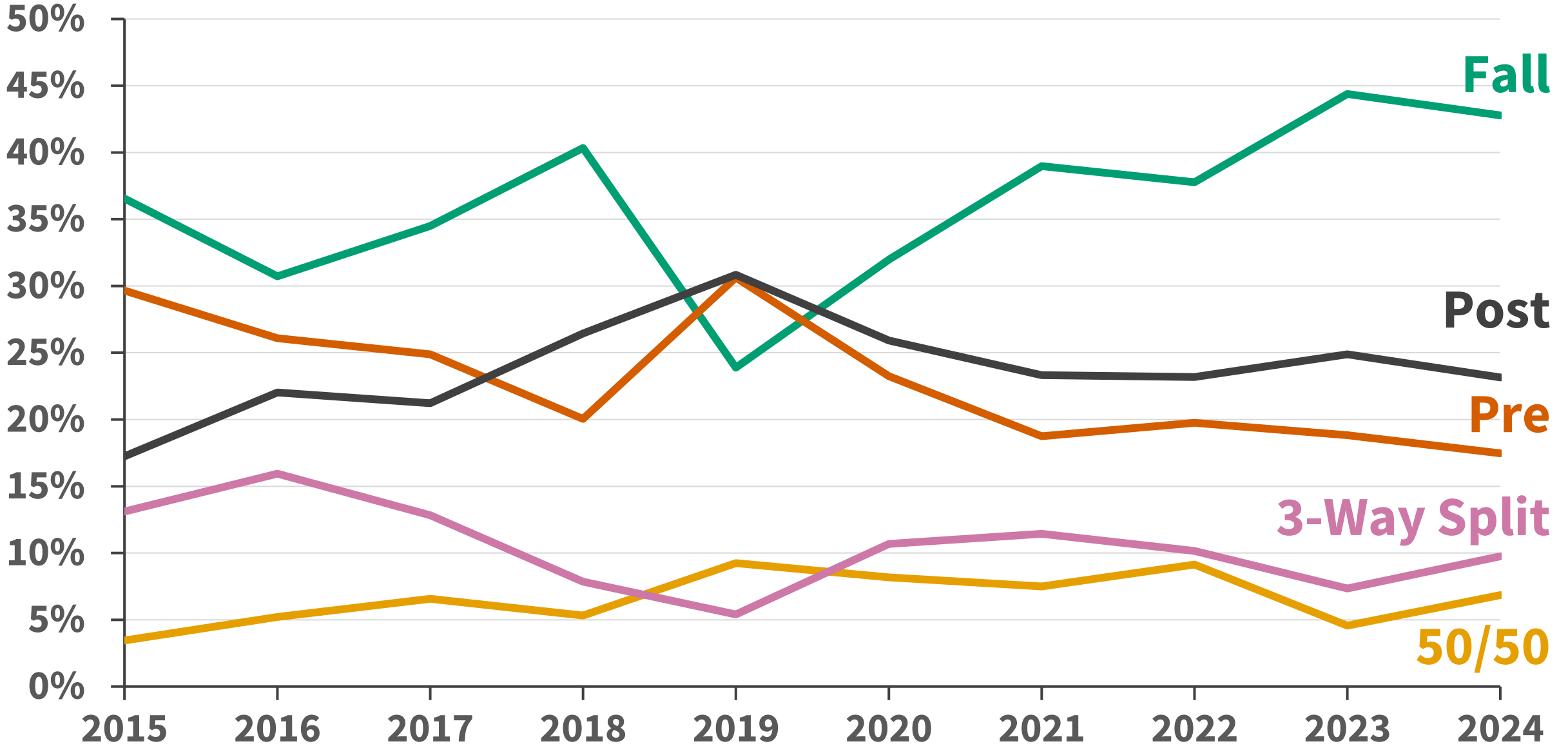
## 2-Way Split

50% pre-plant  
& 50% post-plant

## 3-Way Split

Fall, pre-plant &  
post-plant

# Fields by Nitrogen Benchmarks Over Time



# Farms: Same Nitrogen Benchmark: All Fields

## Percent of farms with only one or two benchmarks, corn

No of Benchmarks	2021	2022	2023	2024
One benchmark	79%	82%	83%	82%
Two benchmarks	19%	16%	14%	17%

## Rate difference across fields, within ranges

Rate Diff	2021	2022	2023	2024
Less than 10 pounds	68%	73%	68%	70%
10 to 20 pounds	7%	8%	9%	8%
20 to 30 pounds	6%	7%	10%	9%

**Corn** HIGH-SPR,  
N TIMING | 2015-25 AVG VALUES

>40%  
FALL

MOSTLY  
PREPLANT

MOSTLY  
SIDEDRESS

50% PRE/  
50%  
SIDEDRESS

3-WAY  
SPLIT

NUE (lb N/bu grain)	0.96	0.92	0.89	0.92	0.91
# fields	3,904	2,025	2,091	669	865
Yield per acre	228	222	227	227	230
<b>GROSS REVENUE</b>	<b>\$972</b>	<b>\$945</b>	<b>\$964</b>	<b>\$965</b>	<b>\$979</b>
N fertilizer	\$104	\$100	\$101	\$115	\$110
Other direct costs	\$367	\$344	\$355	\$364	\$387
<b>TOTAL DIRECT COSTS*</b>	<b>\$471</b>	<b>\$444</b>	<b>\$456</b>	<b>\$479</b>	<b>\$497</b>
Field work	\$16	\$16	\$19	\$17	\$21
Other power costs**	\$102	\$97	\$109	\$110	\$109
<b>TOTAL POWER COSTS</b>	<b>\$118</b>	<b>\$113</b>	<b>\$128</b>	<b>\$127</b>	<b>\$130</b>
<b>OVERHEAD COSTS</b>	<b>\$42</b>	<b>\$42</b>	<b>\$42</b>	<b>\$42</b>	<b>\$42</b>
<b>TOTAL NON-LAND COSTS</b>	<b>\$632</b>	<b>\$599</b>	<b>\$625</b>	<b>\$648</b>	<b>\$669</b>
<b>OPERATOR &amp; LAND RETURN</b>	<b>\$340</b>	<b>\$346</b>	<b>\$339</b>	<b>\$317</b>	<b>\$311</b>



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# **N Management - Corn**

**Mostly Pre-Plant N application is most profitable in most years.**

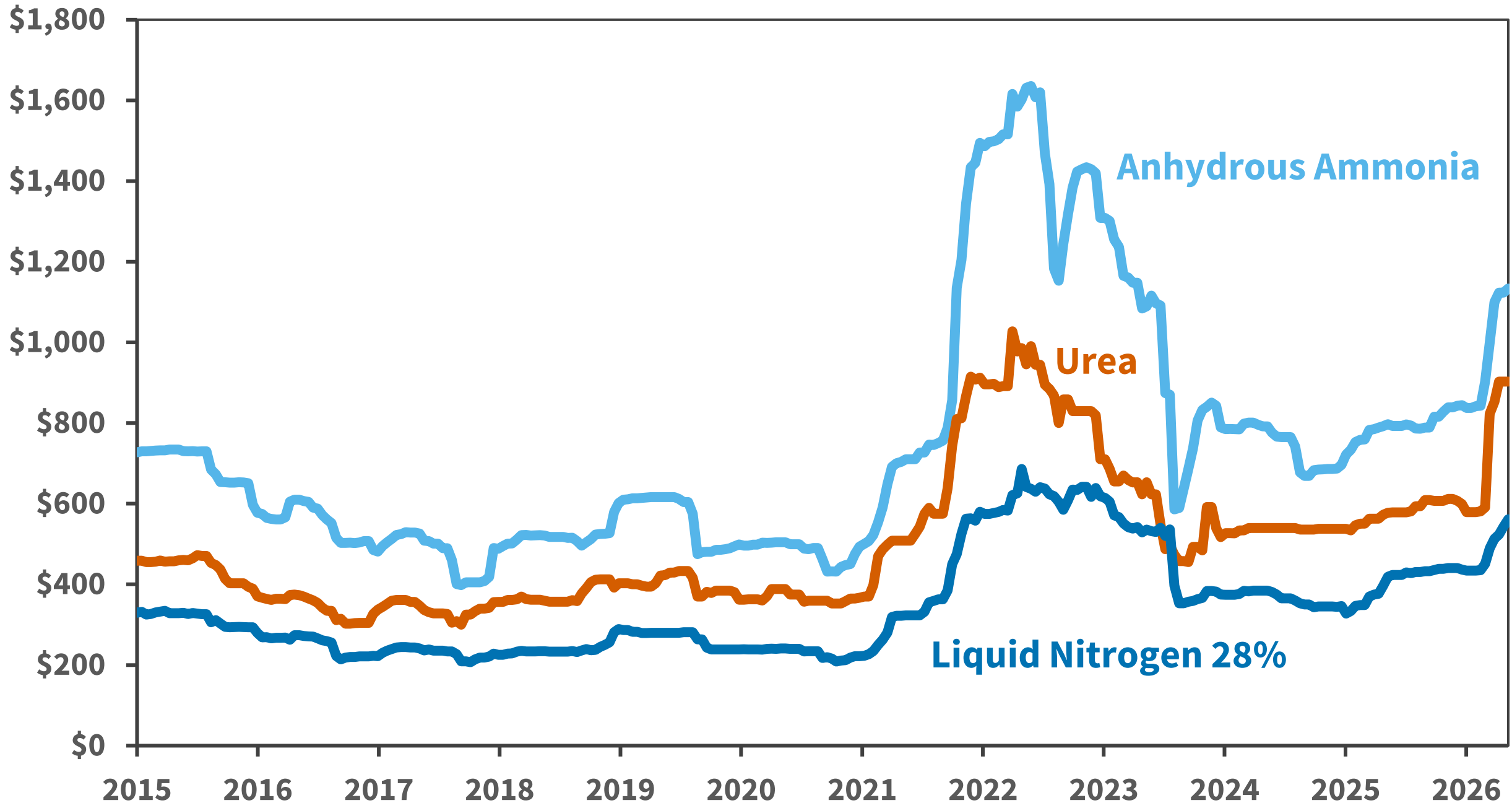
**Mostly Fall N has good yields, but farmers apply more N to these fields **AND** many apply an inhibitor. In some years, it pays off in terms of higher profitability but in recent years, it has not.**

# N Management - Corn

We often think mostly Sidedress is less profitable because the N type (*often Urea-Ammonium Nitrate (UAN) or another liquid N source*) is more expensive. But this is not true because these fields offset the higher N price with a lower total rate, resulting in lower or comparable total N costs for Sidedress relative to other N timing classes

The lower profitability for sidedress is clearly related to higher total power costs. Total power costs are higher for sidedress N fields every year.

		Pounds of N per Acre				
		<150	151-175	176-200	201-225	225+
# of fields		247	828	2,509	3,654	2,318
Operator & Land Return	2020	\$189	\$338	\$323	\$314	\$306
	2021	\$772	\$573	\$589	\$602	\$598
	2022	\$765	\$809	\$756	\$767	\$722
	2023	\$348	\$314	\$302	\$287	\$253
	2024	\$218	\$239	\$252	\$235	\$223
	2025	\$304	\$275	\$261	\$237	\$211
Average 2015 to 2025 in Dollars/Acre		\$343	\$354	\$345	\$336	\$328
Average Corn Yield 2015 to 2025 in bushels/Acre		211	223	224	227	234



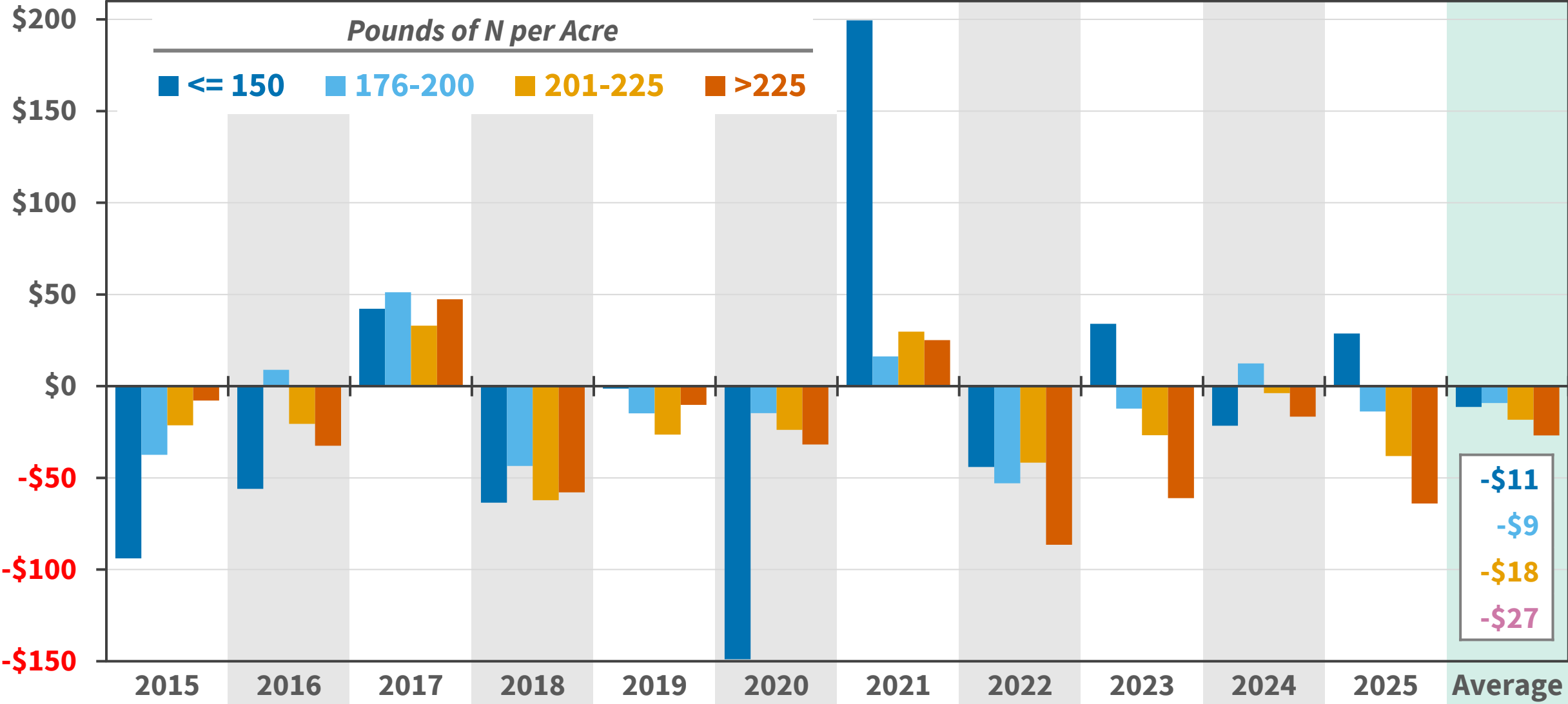
Anhydrous Ammonia

Urea

Liquid Nitrogen 28%

# Operator & Land Return Dollar Difference from 151-175 lbs N/acre

for Central Illinois with High Soil Productivity Rating (SPR)



Rate in Pounds of N per Acre	Dollar Difference from Lowest Return Rate Range by Year in \$/acre											Number of Years	
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Lowest Return	Highest Return
	≤ 150	\$151	\$221	+\$42	\$313	+\$25	\$189	+\$199	+\$42	+\$95	\$218	+\$93	5 45%
151-175	+\$94	+\$56	\$172	+\$64	+\$26	+\$149	\$573	+\$86	+\$61	+\$22	+\$64	2 18%	5 45%
176-200	+\$56	+\$65	+\$51	+\$20	+\$12	+\$134	+\$16	+\$34	+\$49	+\$34	+\$50	0	3 27%
201-225	+\$73	+\$35	+\$33	+\$1	\$254	+\$125	+\$30	+\$45	+\$34	+\$18	+\$26	1 9%	
>225	+\$86	+\$23	+\$47	+\$6	+\$16	+\$117	+\$25	\$722	\$253	+\$5	\$211	3 27%	

# Nitrogen Rates

Higher rates are less profitable

– especially in the current financial environment

Across 11 years, the most profitable N rate has always been **below 200 lb N/acre**

**In 2025,**

68% of high SPR corn acres received >200 lbs N/acre but the most profitable N rate class was <150 lbs N/acre.

Fields applying <150 lbs N/acre netted more than \$65/acre than those that applied >200 lbs N/acre.

# Cover Crops Ahead of Corn



# Corn

HIGH-SPR | 2015-25 AVG VALUES

OVERWINTERING

WINTER TERMINAL

NO COVER CROP

# of fields	917	433	8,206
Yield per acre	222	225	228
Soil Productivity Rating (SPR)	138	140	139
<b>GROSS REVENUE</b>	<b>\$953</b>	<b>\$958</b>	<b>\$969</b>
COVER CROP SEED	\$17	\$16	\$0
<b>TOTAL DIRECT COSTS*</b>	<b>\$476</b>	<b>\$463</b>	<b>\$466</b>
COVER CROP PLANTING	\$12	\$15	\$0
Other power costs**	\$117	\$119	\$120
<b>TOTAL POWER COSTS</b>	<b>\$129</b>	<b>\$134</b>	<b>\$120</b>
<b>OVERHEAD COSTS</b>	<b>\$43</b>	<b>\$42</b>	<b>\$42</b>
<b>TOTAL NON-LAND COSTS</b>	<b>\$648</b>	<b>\$640</b>	<b>\$628</b>
<b>OPERATOR &amp; LAND RETURN</b>	<b>\$280-\$330</b>	<b>\$294-\$344</b>	<b>\$341</b>
Estimated soil loss (tons/a)	1.06	1.06	1.56
GHG emissions (metric tons CO <sub>2</sub> e/a)	0.82		1.27



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# Cover crops before corn

- Most important message for cover crops ahead of corn is to eliminate as many additional passes across the field as possible
- No clear N cost differences between cover and no-cover fields
- Need to examine the pesticide differences
- The yield difference between covers and no-cover fields is small, 3-6 bushels per acre on average, but we can't sacrifice yield in this low-price commodity environment

# Cover Crops Ahead of Soybeans



# Soybean

HIGH-SPR | 2015-25 AVG VALUES

	OVERWINTERING	WINTER TERMINAL	NO COVER CROP
# of fields	2,153	87	6,176
Yield per acre	69	70	71
Soil Productivity Rating (SPR)	139	140	140
<b>GROSS REVENUE</b>	<b>\$735</b>	<b>\$756</b>	<b>\$756</b>
COVER CROP SEED	\$15	\$18	\$0
<b>TOTAL DIRECT COSTS*</b>	<b>\$198</b>	<b>\$201</b>	<b>\$190</b>
COVER CROP PLANTING	\$10	\$15	\$0
Other power costs**	\$83	\$85	\$94
<b>TOTAL POWER COSTS</b>	<b>\$93</b>	<b>\$100</b>	<b>\$94</b>
<b>OVERHEAD COSTS</b>	<b>\$35</b>	<b>\$36</b>	<b>\$35</b>
<b>TOTAL NON-LAND COSTS</b>	<b>\$326</b>	<b>\$337</b>	<b>\$319</b>
<b>OPERATOR &amp; LAND RETURN</b>	<b>\$383-\$433</b>	<b>\$394-\$444</b>	<b>\$437</b>
Estimated soil loss (tons/a)	1.68	2.26	2.29
GHG emissions (metric tons CO <sub>2</sub> e/a)	-0.34		0.07



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# System that works in Soybeans

**Plant after corn harvest**

**Cereal rye**

**Plant: Broadcast, broadcast and light tillage, Drill or plant**

**Plant soybeans early**

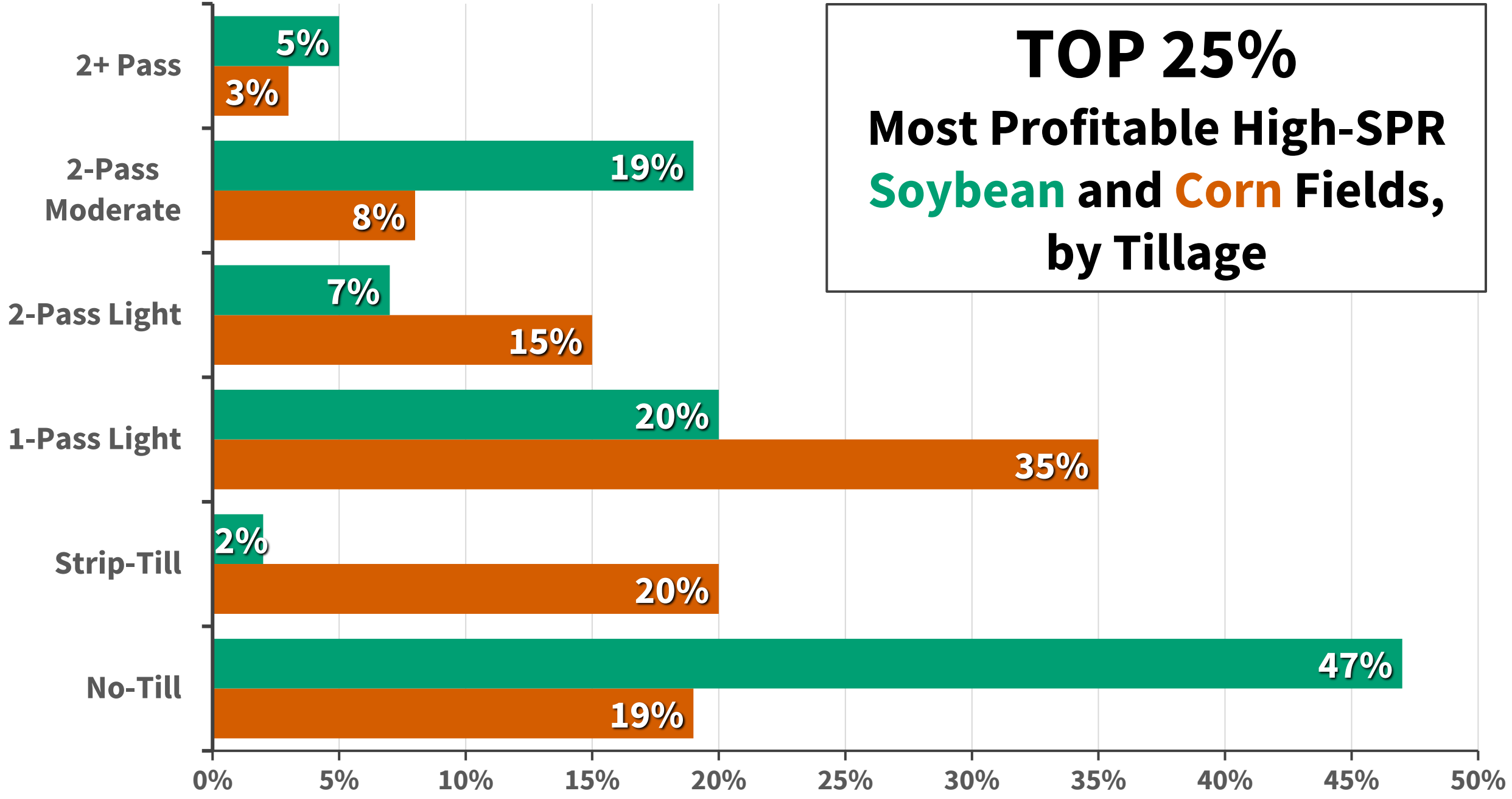
**Terminate cereal rye around soybean planting**

**Use no-till in spring**



# TOP 25%

## Most Profitable High-SPR Soybean and Corn Fields, by Tillage



# Most Profitable Fields - Corn

- ✓ Strip till could do better if farmers used less N fertilizer and watched their other direct costs
- ✓ One pass system is most consistently Top-25% Most Profitable class
- ✓ Lower N rates win every time.  
Mostly Preplant is often the best N timing strategy.
  - Especially true in high-input cost years
  - Control what you can. Leaner N rates are paying off.
  - Chase Profit. Not yield.

# Position farmers to benefit from positive environmental outcomes with soil health incentive programs.

## Farmers for Soil Health



Year 1	\$35
Year 2	\$35
Year 3	\$35



## Soil Health Incentives

Cover Crops	\$15/acre (year 1&2) \$10/acre (year 3+)
Tillage Reductions	\$10/acre (year 1&2) \$5/acre (year 3+)
10% N reduction	\$10/acre 1 <sup>st</sup> year





# Improving Farm Incomes & Environmental Outcomes

Serving farmers in Illinois, Nebraska, Kentucky, and soon in Missouri!

ENROLL TODAY

LOG IN



## TECHNICAL ASSISTANCE

PCM Farmers receive ongoing one-on-one support from their regional Specialist including data collection, agronomic recommendations, and data review.



## COST-SHARE OPPORTUNITIES

PCM Supply Chain Partnerships create a financial advantage for farmers who use reduced tillage, nitrogen management, and/or cover crops.



## DATA ANALYSIS

Secure personal data analysis PLUS aggregated, anonymized data demonstrating financial and environmental impact of practices.



[www.precisionconservation.org](http://www.precisionconservation.org)

# Regional 1-on-1 Support



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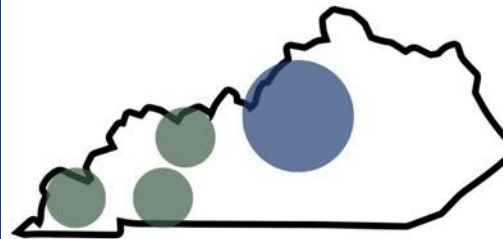
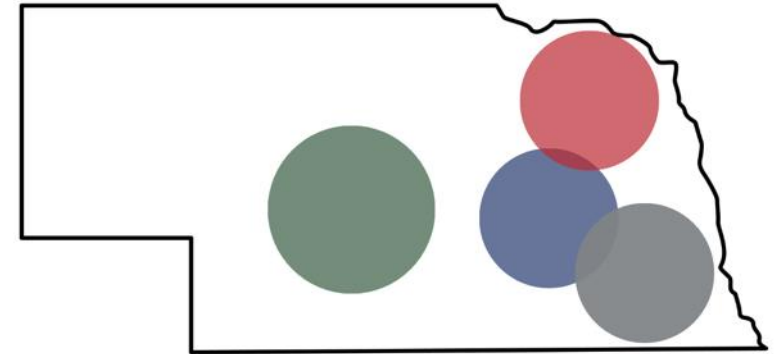
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