

Financial and Environmental Impact of Conservation Practices



Precision Conservation Management

I ILLINOIS



Gary Schnitkey

Sarah Sellars

Laura Gentry

Greg Goodwin



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



Precision Conservation Management

- 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 & educational opportunities

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

PCM GROWER ENGAGEMENT



Clay Bess

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



Lou Liva

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



Shane Sinclair

PCM Specialist, Christian, Macoupin and Sangamon Counties
ssinclair@precisionconservation.org
309-445-5017



Andrea Kohring

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



Kent Bohnhoff

PCM Reserve Specialist & Adviser



Alexa Rutherford

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



Aidan Walton

PCM Specialist, Livingston, McLean, Tazewell, & Woodford counties
awalton@precisionconservation.org
309-391-2345



Frank Rademacher

PCM Specialist, Piatt, DeWitt, & Macon counties
frademacher@precisionconservation.org
309-336-0765



Chris Stewart

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



Darren Cudaback

PCM Specialist, Nebraska
dcudaback@precisionconservation.org

PCM

PARTNERS!



Heartland Science and
Technology Group



United States Department of Agriculture
Natural Resources Conservation Service

KFBM



CHECK US OUT ONLINE: WWW.PRECISIONCONSERVATION.ORG

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



HOT OFF THE PRESS!
JUNE EDITION
PRAIRIE FARMER



Practice Standards

Precision Conservation Management

- Cover Crops
- Nitrogen Management
- Tillage



Do you “another” expect a “Federal” Cover crop program making payments for cover crop usage

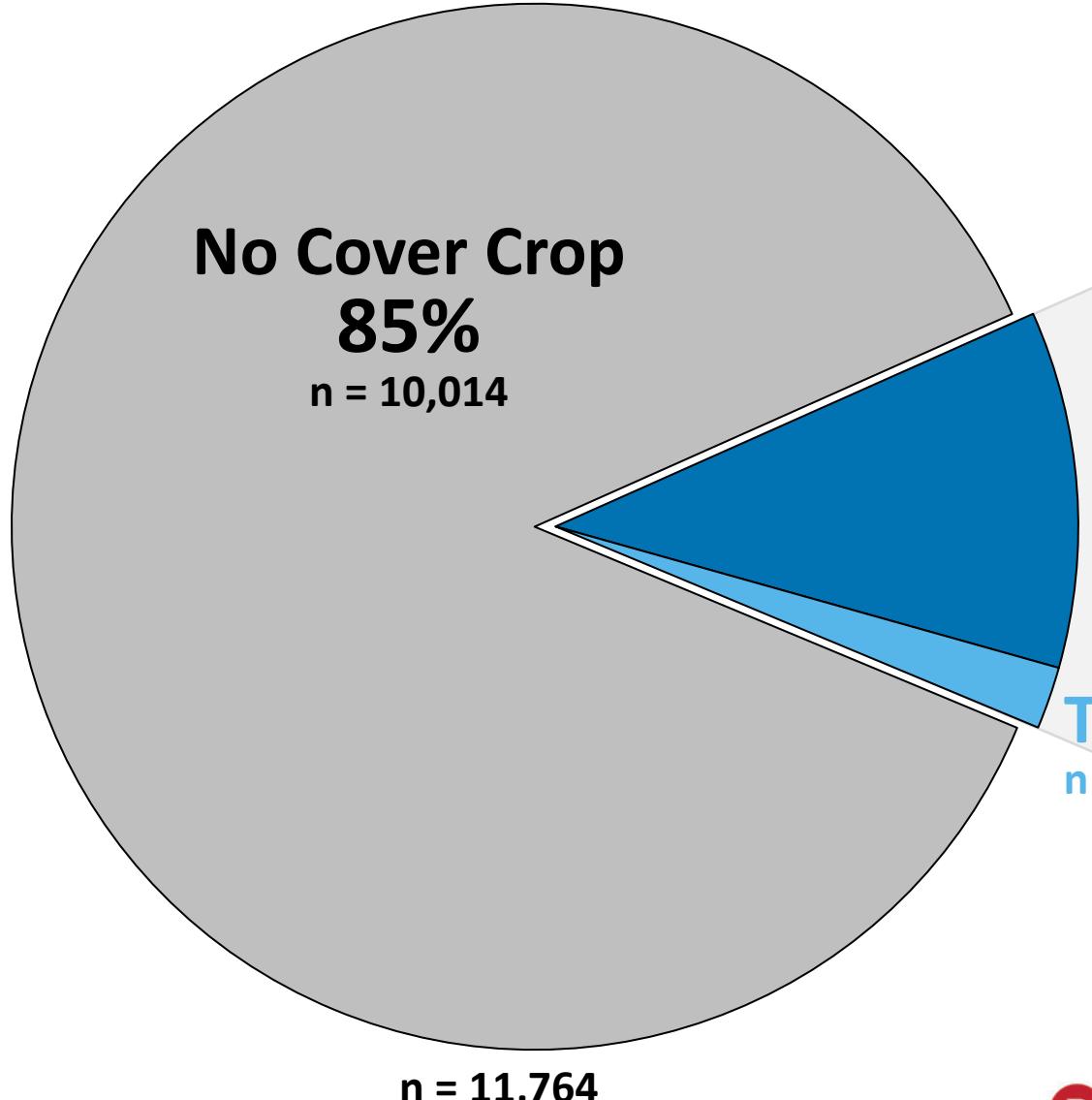
- Yes (over \$20 per acre)
- Yes (less than \$20 per acre)
- No

TIAA

Center for
Farmland Research



Cover Crops Overview



P | C | M



Soybeans
62%
n = 1,084

Corn
38%
n = 666

n = 1,750

farmdoc

Cover Crops Overview

- For the cover crop fields:
 - 91% are reduced till
no-till, strip-till, or 1-pass light tillage benchmarks
 - 79% of the cover crop corn fields receive an in-season nitrogen application
- For all corn fields with a cover crop, 70% of the fields have a cover crop the next year the field is planted with corn
- For all soybean fields with a cover crop, 75% have a cover crop the next year the field is planted with soybeans

Corn into Cover Crop



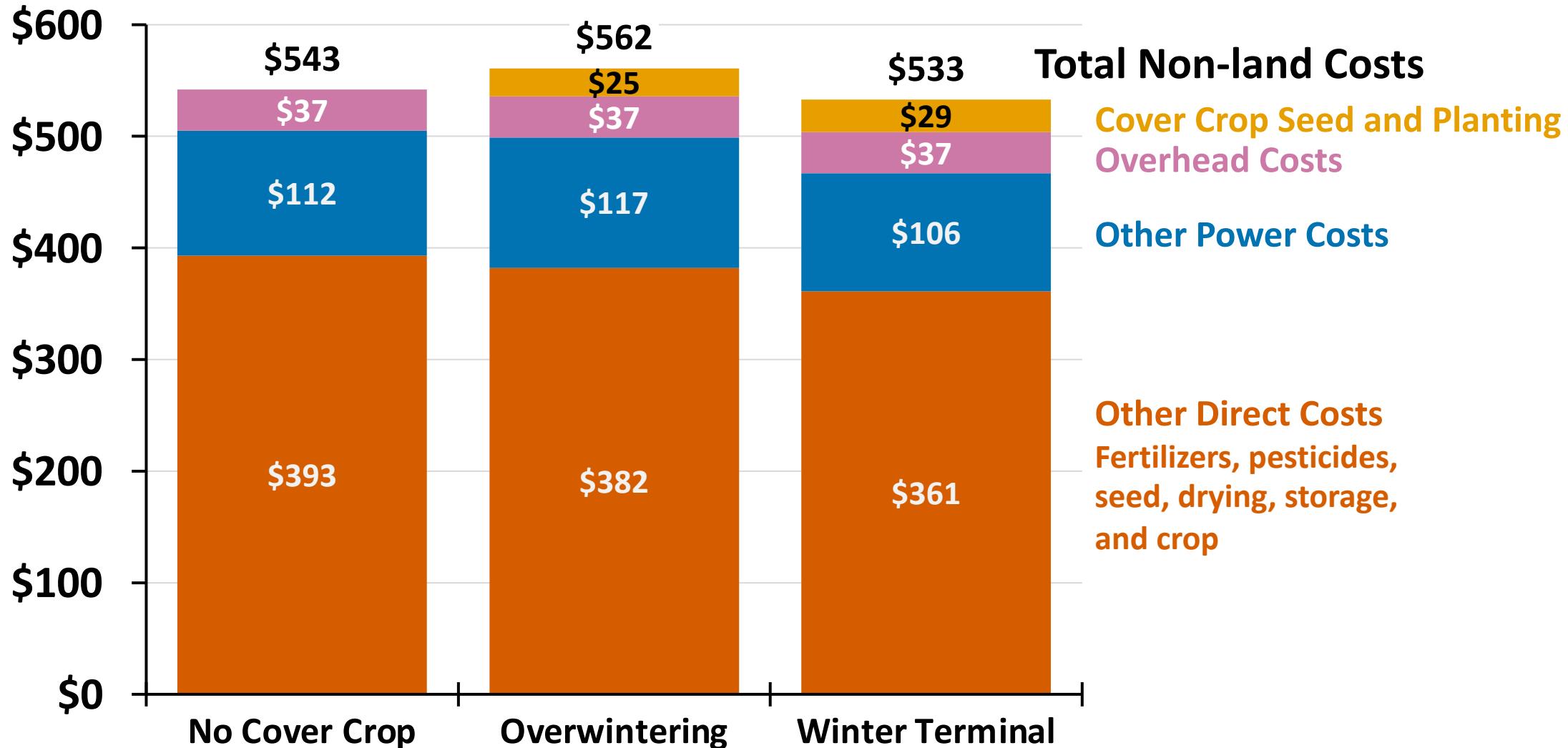
Cover Crops

Corn, High SPR, Average from 2015 to 2021

	Overwintering	Winter Terminal	No Cover Crop
Number of Fields	243	109	3523
Yield per Acre	214	215	221
Soil Productivity Rating	139	139	140
Gross Revenue	\$833	\$834	\$856
Total Non-land Cost	\$562	\$533	\$543
Operator & Land Return	\$271	\$301	\$313

Cover Crops Costs

Corn, High SPR, Average from 2015 to 2021

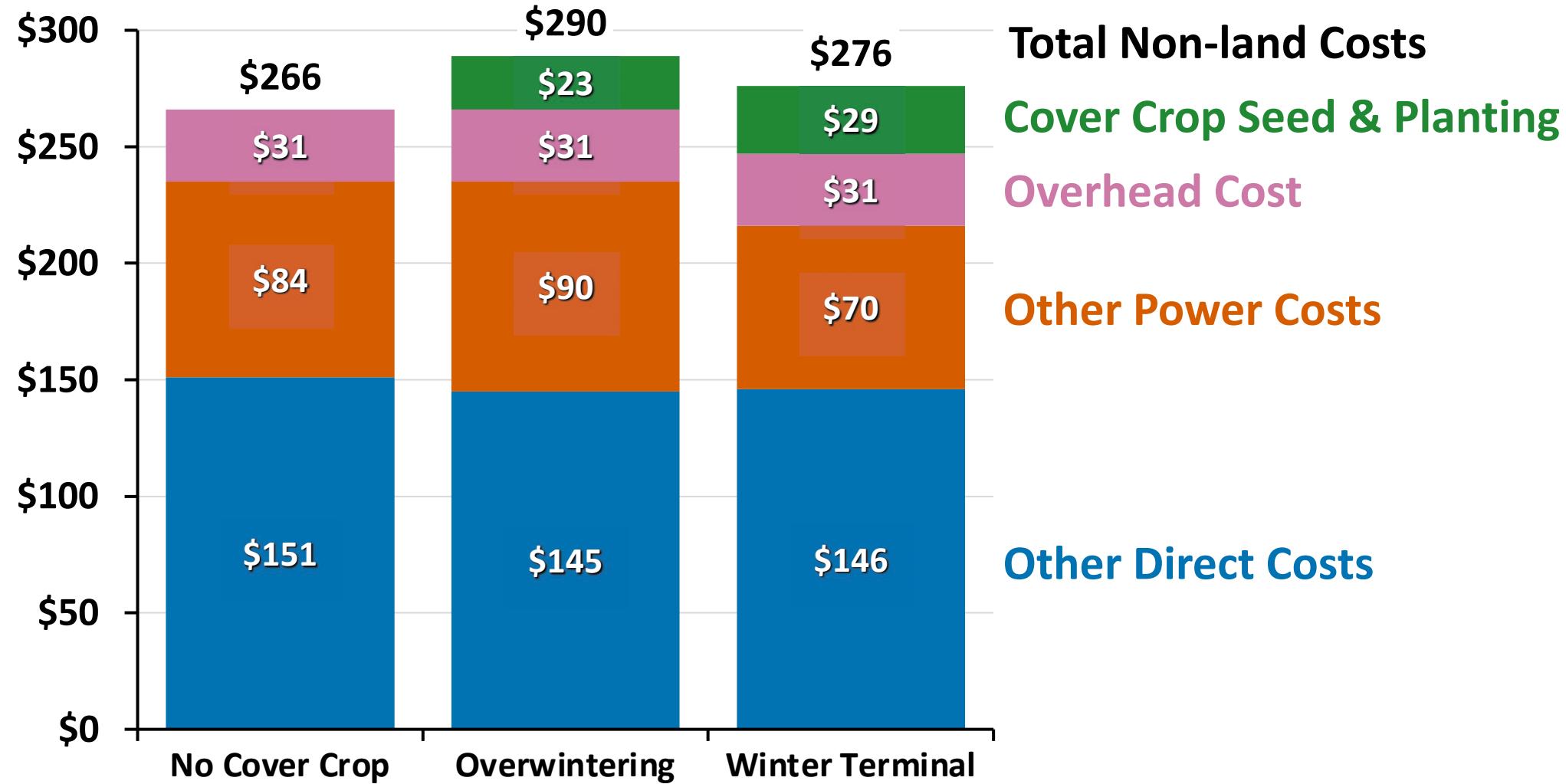


Soybeans into Cover Crop



Cover Crops

Soybean, High SPR, Average from 2015 to 2021



Cover Crops

Soybean, High SPR, Average from 2015 to 2021

	Overwintering	Winter Terminal	No Cover Crop
Number of fields	588	28	3,066
Yield per acre	68	68	70
Soil Productivity Rating	139	139	140
Gross Revenue	\$666	\$675	\$686
Total Non-land Costs	\$290	\$276	\$266
Operator & Land Return	\$376	\$399	\$420

Nitrogen Rates



What are your expectations for anhydrous ammonia prices for application in late fall 2022?

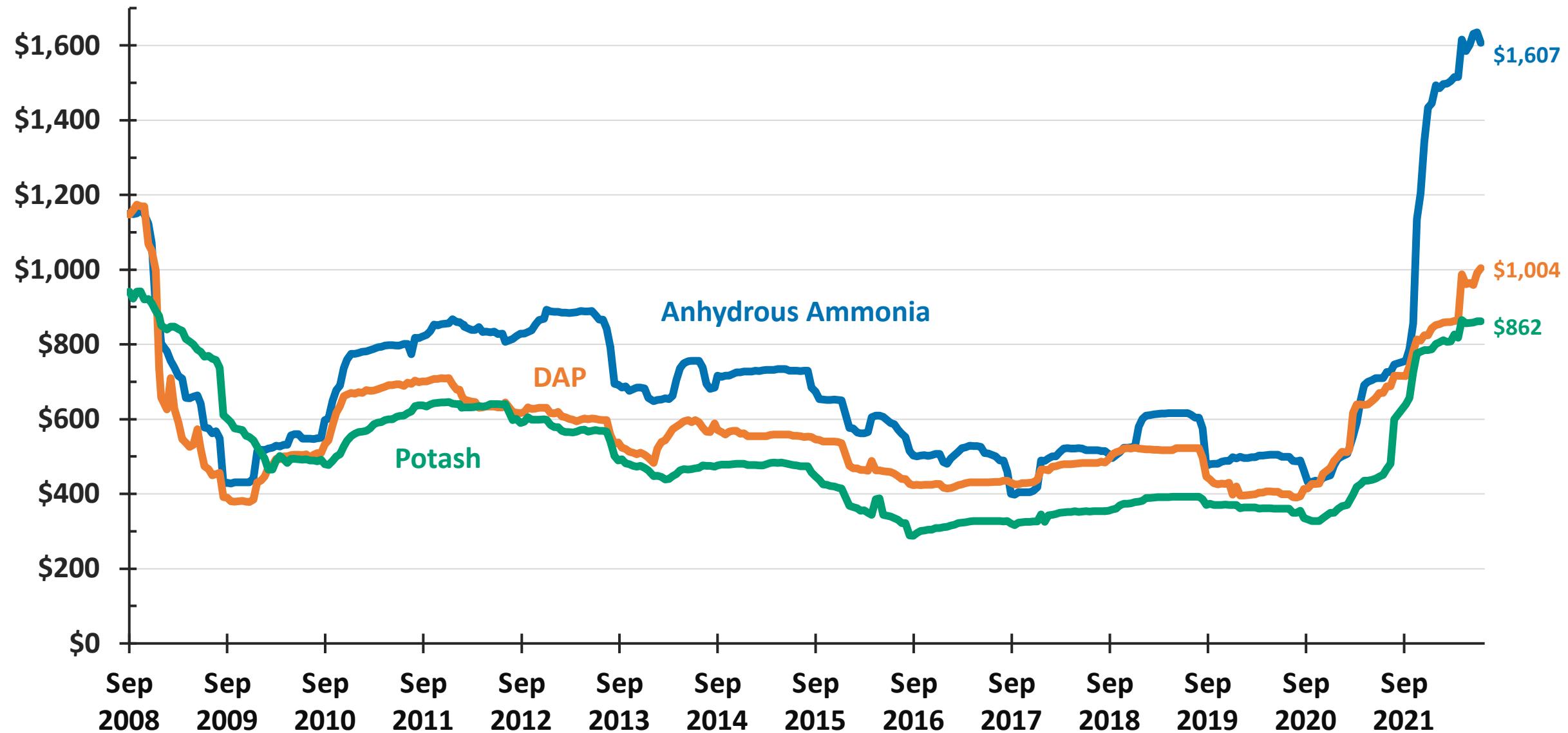
- Over \$2,000 per ton
- \$1,500 to \$2,000 per ton
- \$1,000 to \$1,500 per ton
- Less than \$1,000 per ton



GROWMARK



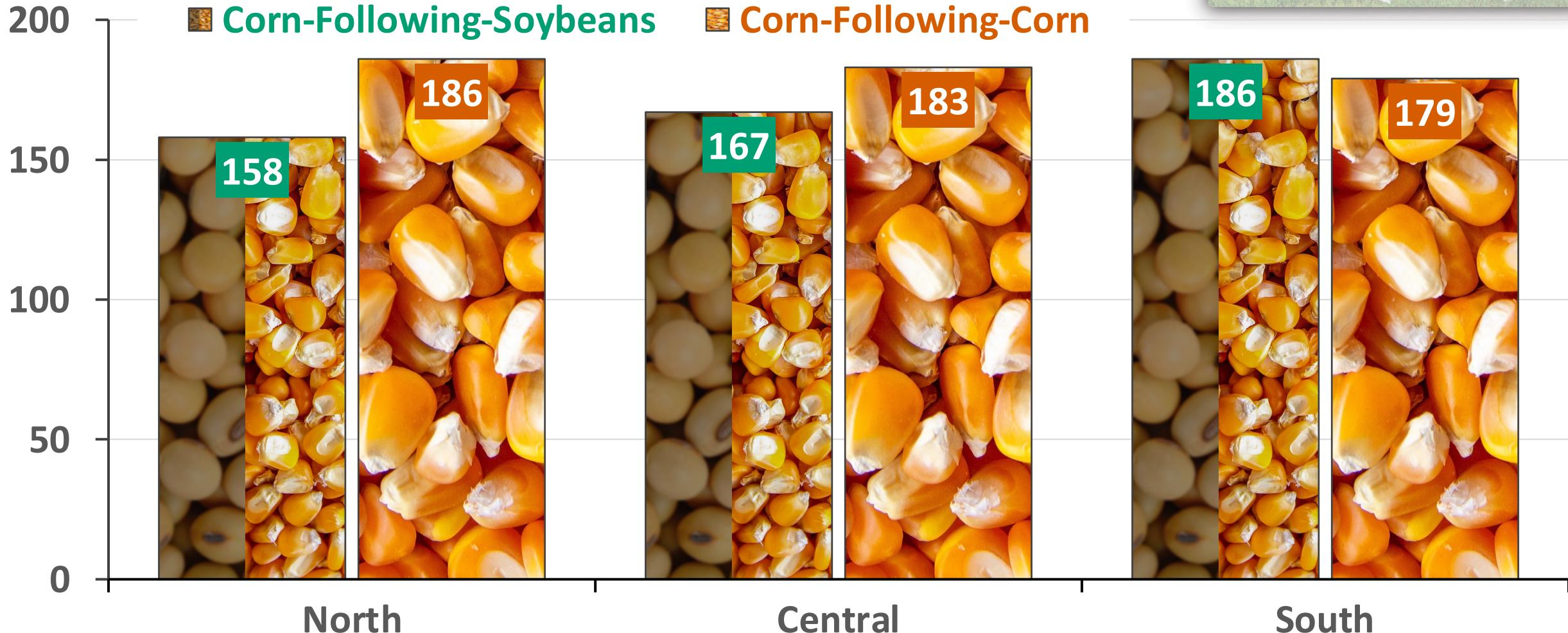
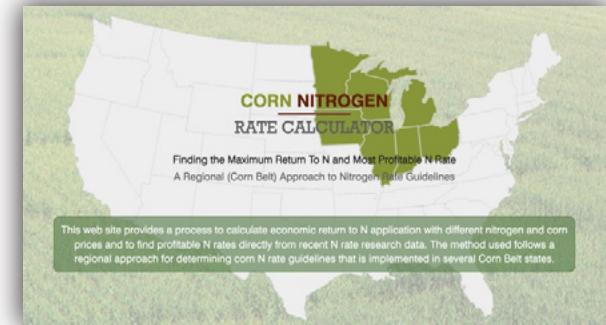
Fertilizer Prices per Ton in Illinois From 2008 to 2022



Source: US Department of Agriculture, Agricultural Marketing Service

Illinois 2022 MRTN Recommendation

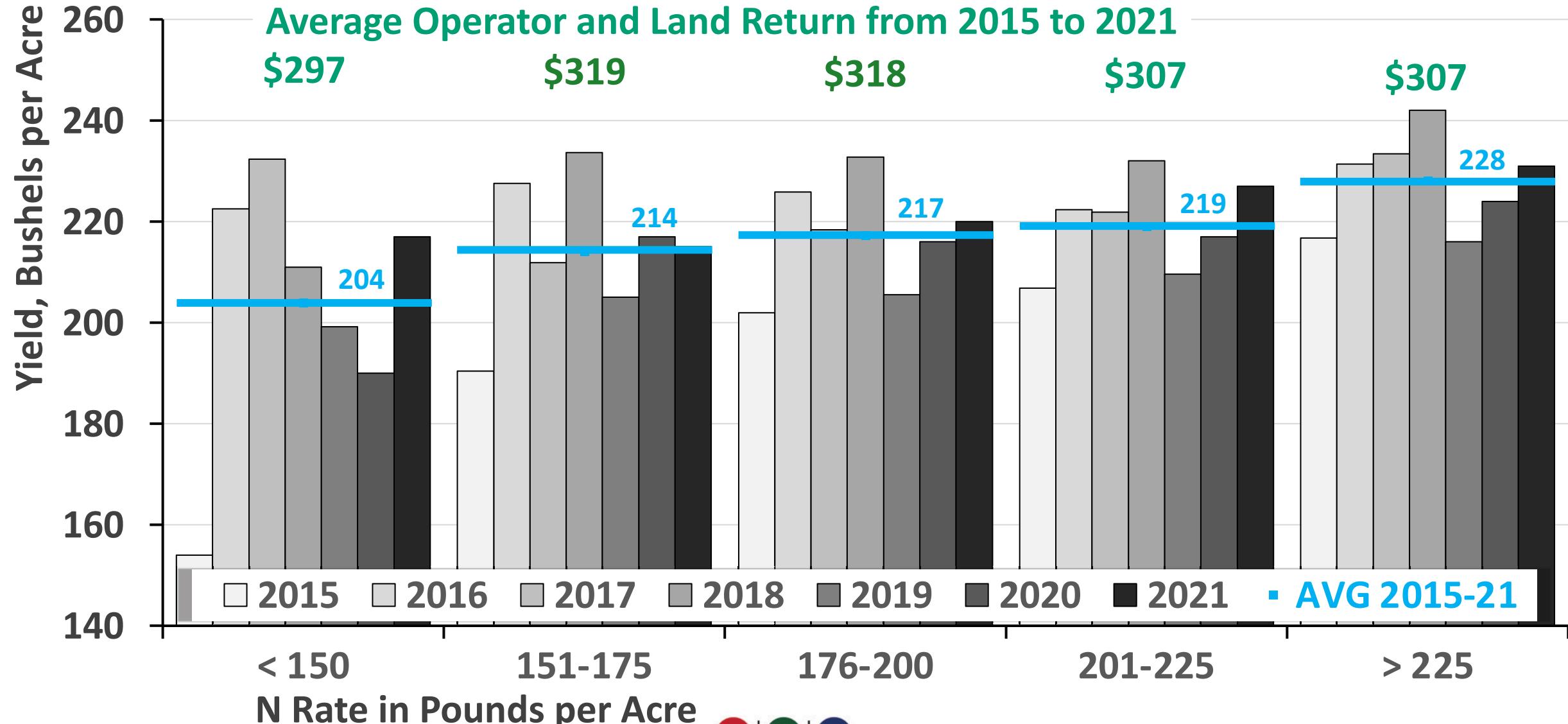
in pounds of N applied^{1,2}



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, High SPR, N Rate, Pounds per Acre



Nitrogen Application Timing



Nitrogen Application Timing

Corn, High SPR, Average from 2015 to 2021

	>40% Fall	Mostly Preplant	Mostly Sidedress	50% Pre 50% Sidedress	3-Way Split
# fields	1,428	841	933	310	363
NUE (lb N/bu grain)	0.98	0.92	0.91	0.95	0.93
Yield per acre	220	218	221	218	222

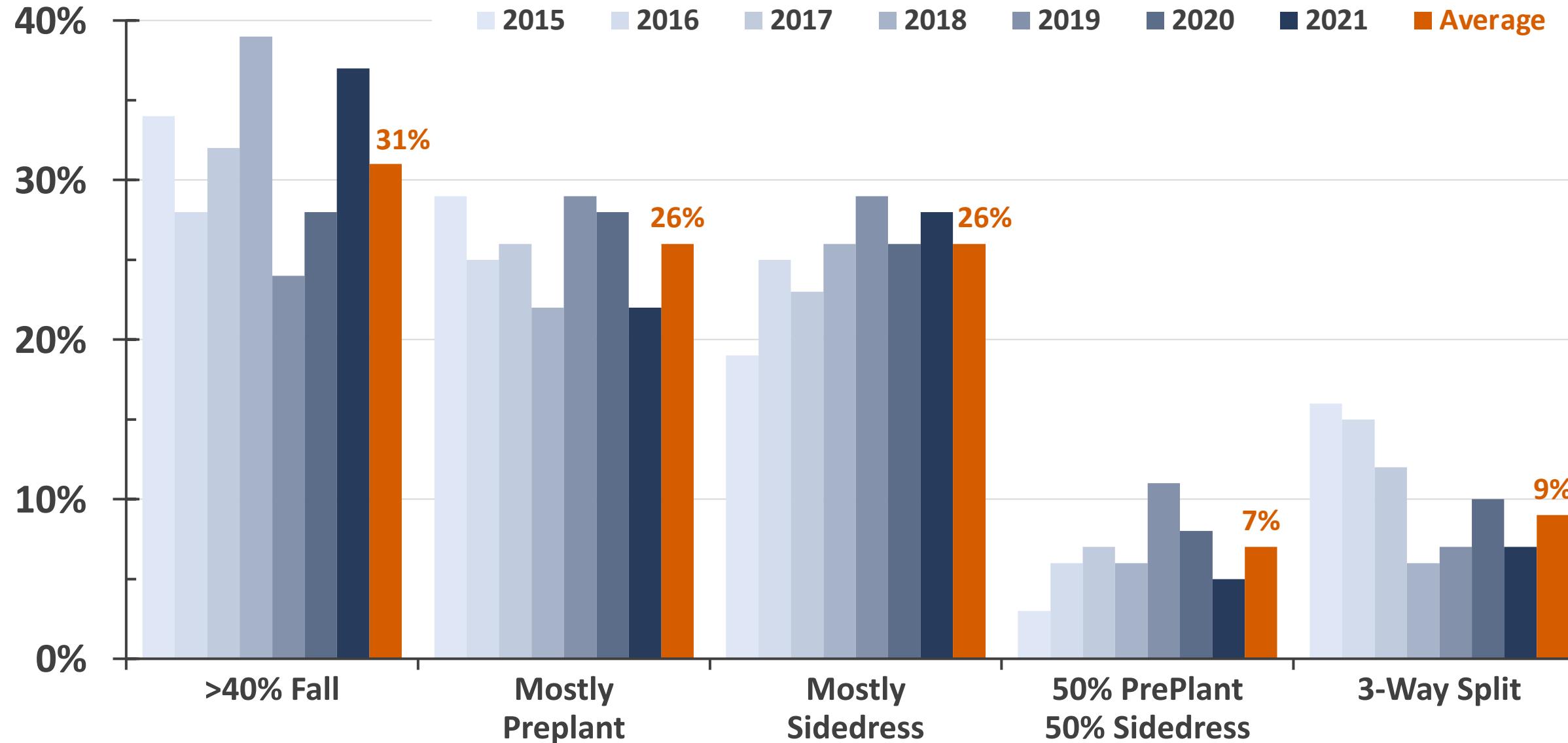


Nitrogen Timing

Corn, High SPR, Average from 2015 to 2021

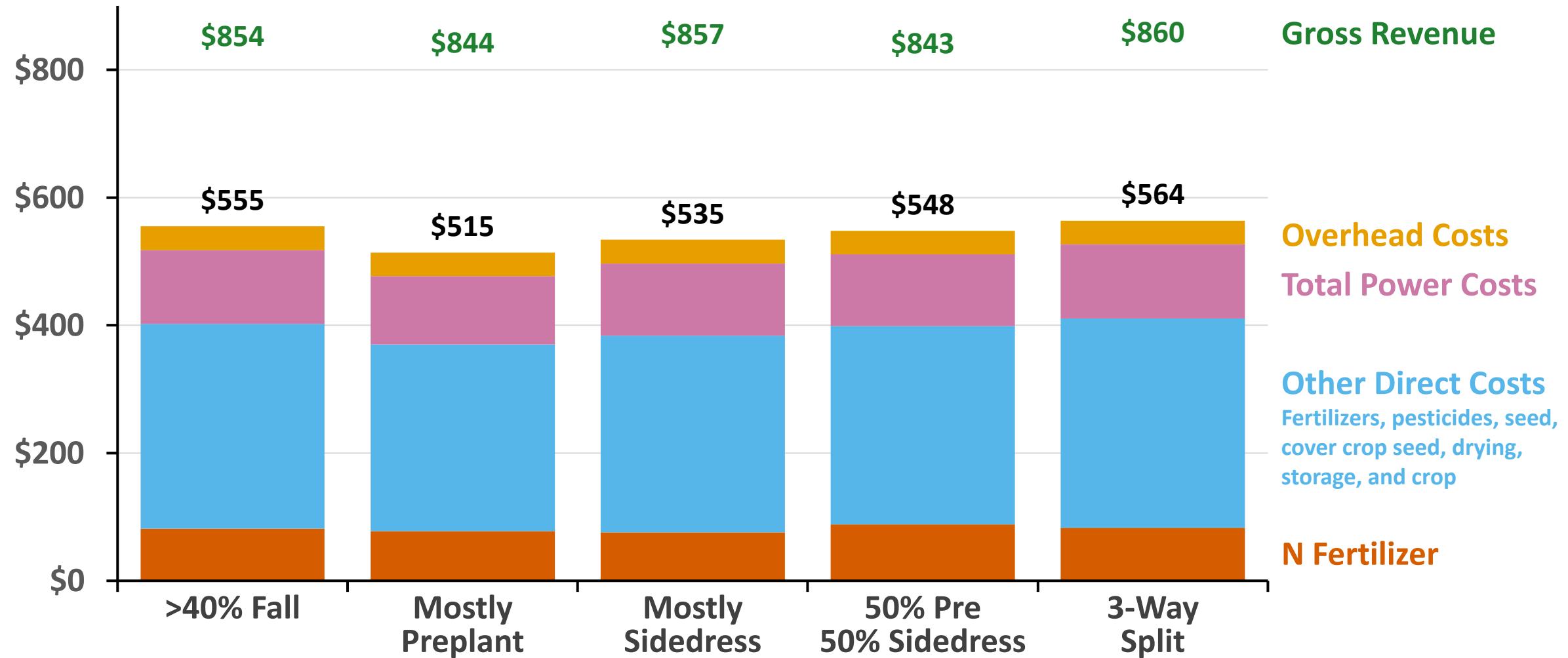
	>40% Fall	Mostly Preplant	Mostly Sidedress	50% Pre 50% Sidedress	3-Way Split
# fields	1,428	841	933	310	363
NUE (lb N/bu grain)	0.98	0.92	0.91	0.95	0.93
Yield per acre	220	218	221	218	222
Gross Revenue	\$854	\$844	\$857	\$843	\$860
Total Non-land Cost	\$555	\$515	\$535	\$548	\$564
Operator & Land Return	\$299	\$329	\$322	\$295	\$296

Percent of Fields by N Benchmark



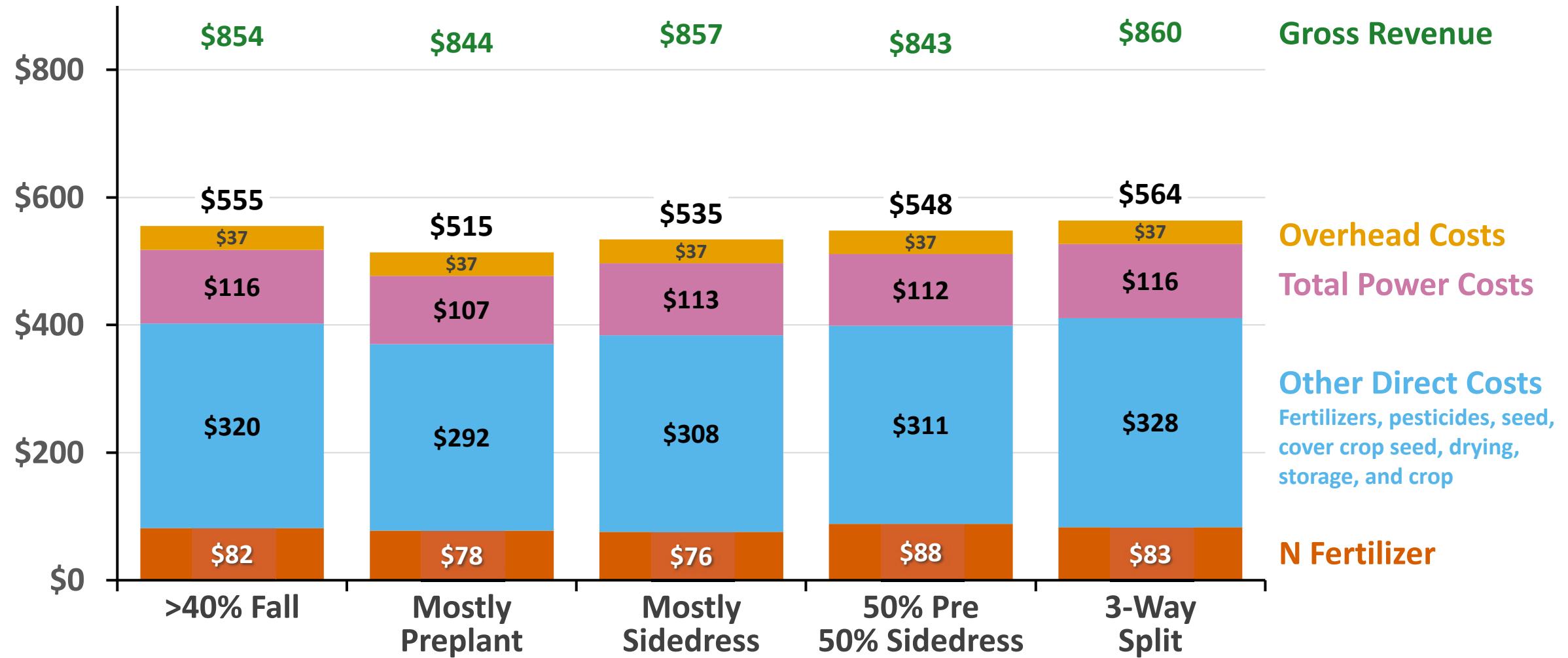
Nitrogen Timing

Corn, High SPR, Average from 2015 to 2021



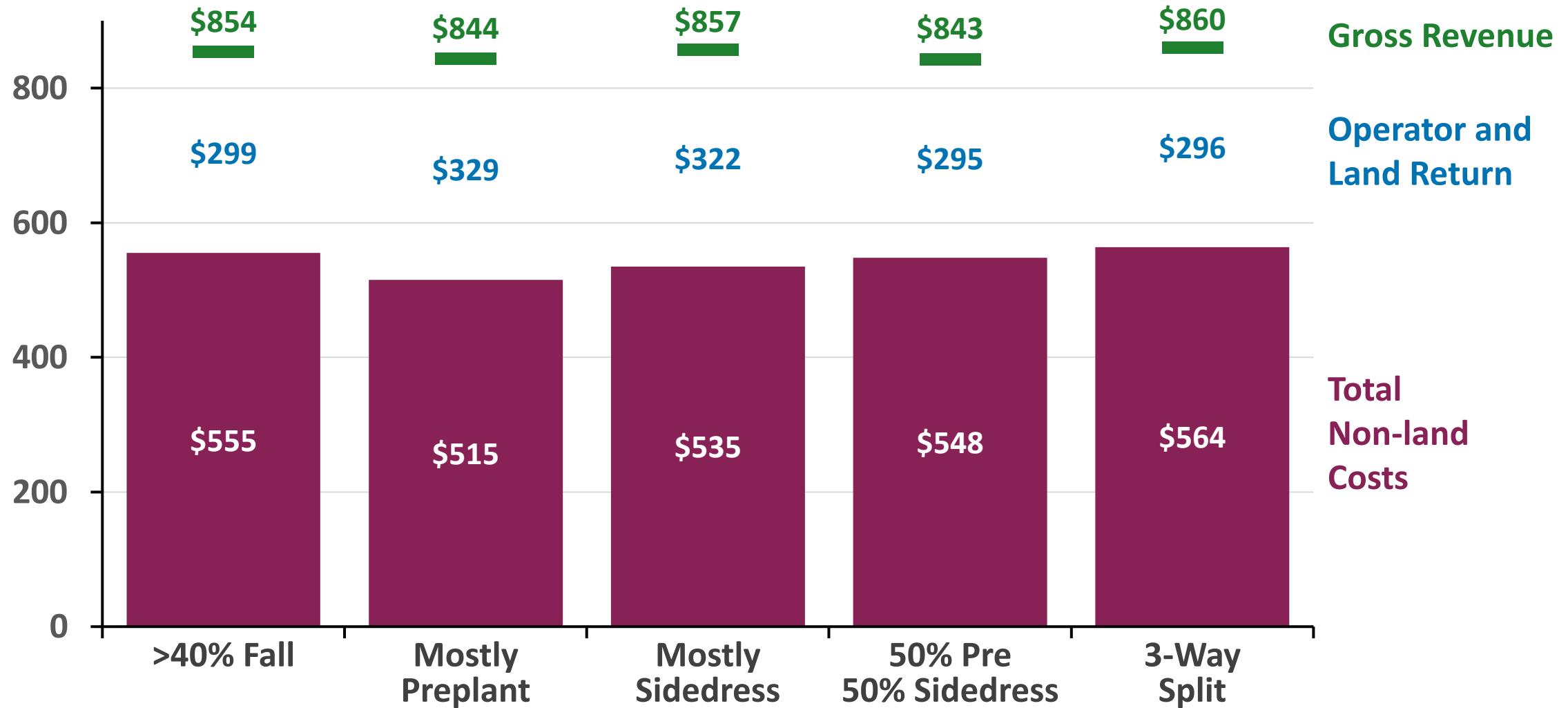
Nitrogen Timing

Corn, High SPR, Average from 2015 to 2021



Nitrogen Timing

Corn, High SPR, Average from 2015 to 2021

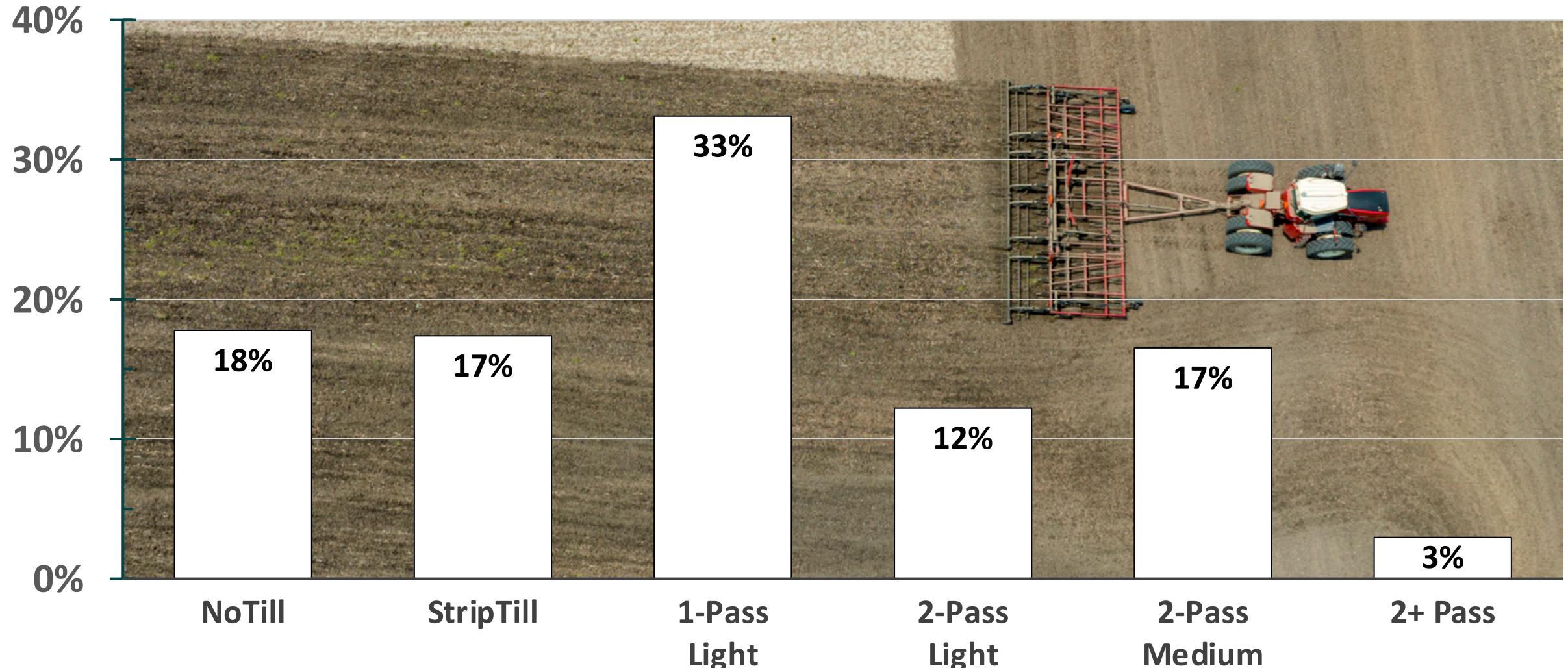


Tillage Practices



Percent of Fields by Tillage Benchmark

2015-2021, Corn



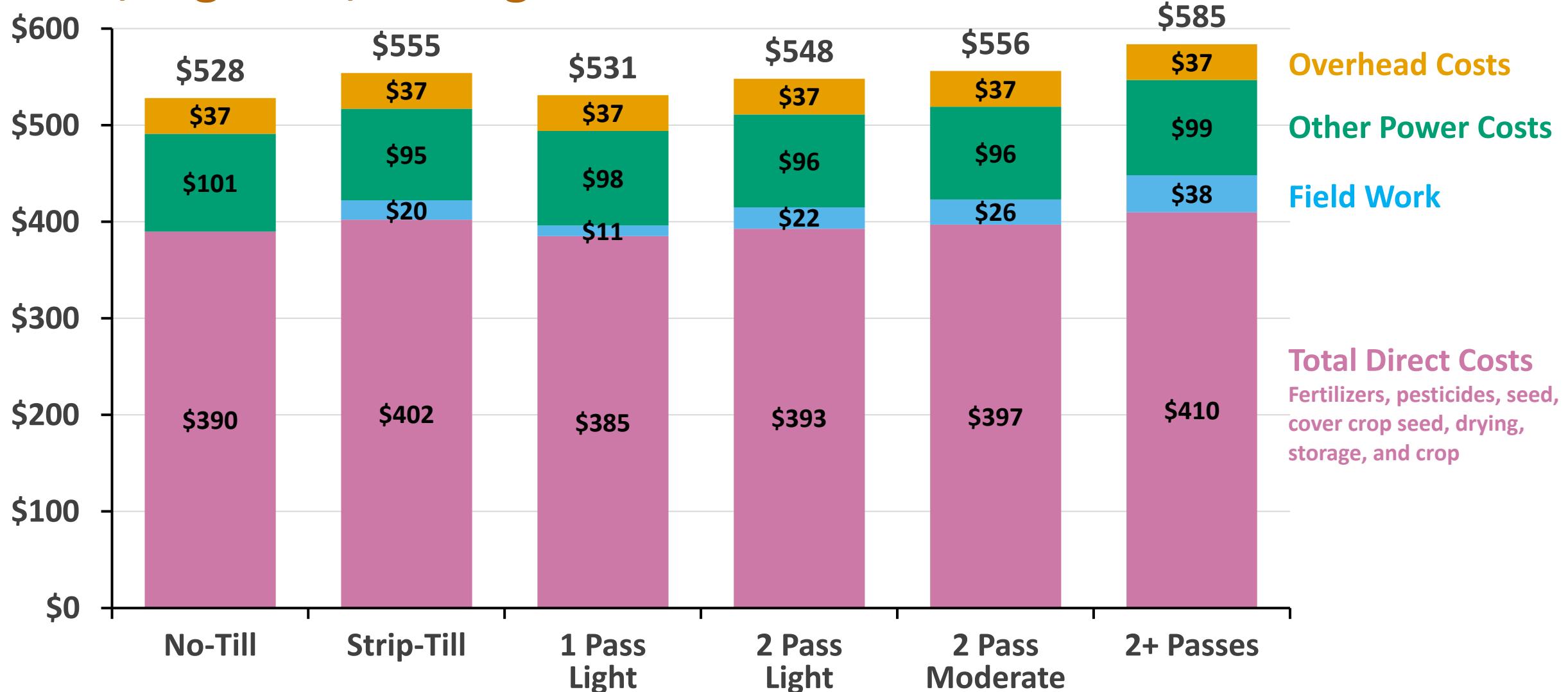
Tillage

Corn, High SPR, Average from 2015 to 2021

	No-Till	Strip-Till	1 Pass Light	2 Pass Light	2 Pass Moderate	2+ Passes
# fields	590	731	1,312	442	638	88
Yield per acre	213	218	219	225	225	218
Gross Revenue	\$826	\$845	\$851	\$876	\$873	\$845
Total Non-land Cost	\$528	\$555	\$531	\$548	\$556	\$585
Operator & Land Return	\$298	\$290	\$320	\$328	\$317	\$260

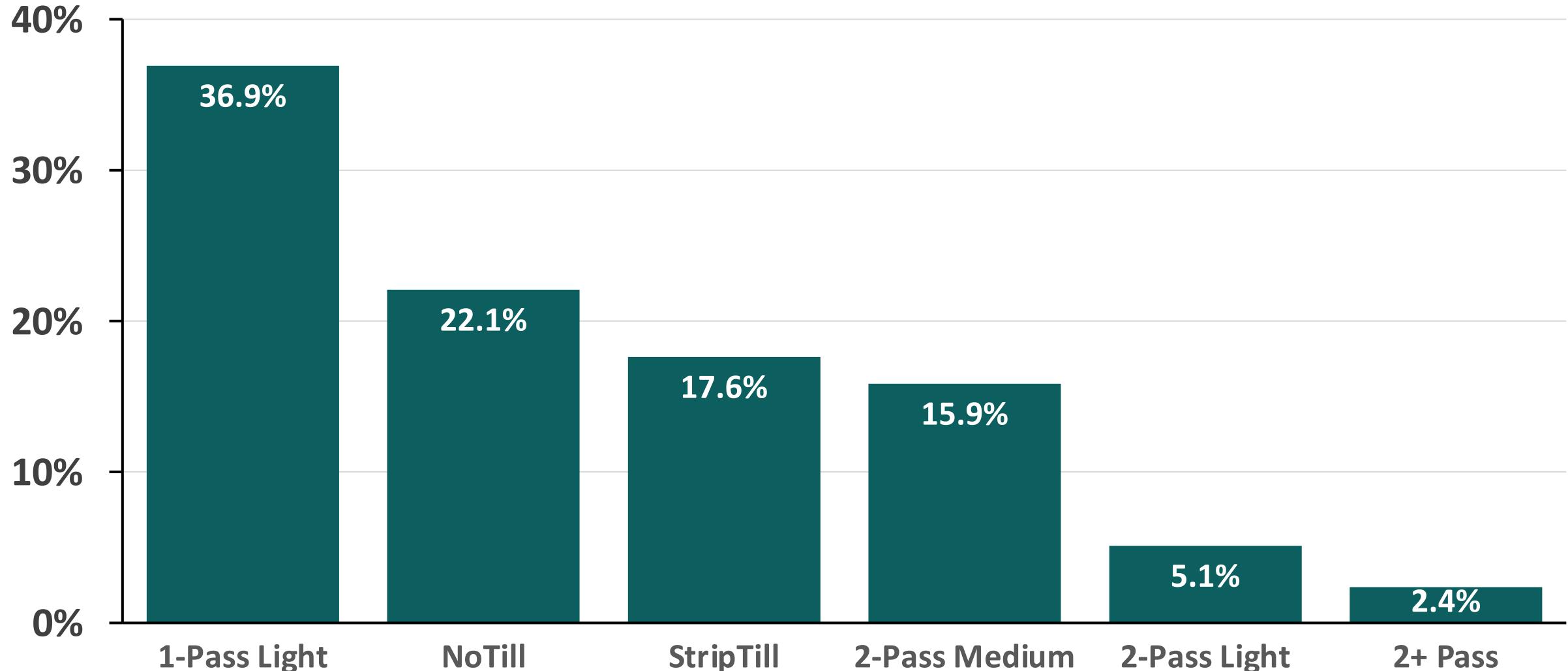
Tillage

Corn, High SPR, Average from 2015 to 2021



Most Profitable Fields by Tillage Class

Corn, High SPR, Average from 2015 to 2021



Most Profitable Fields by Tillage Class

Corn, High Soil Productivity Rating (SPR)

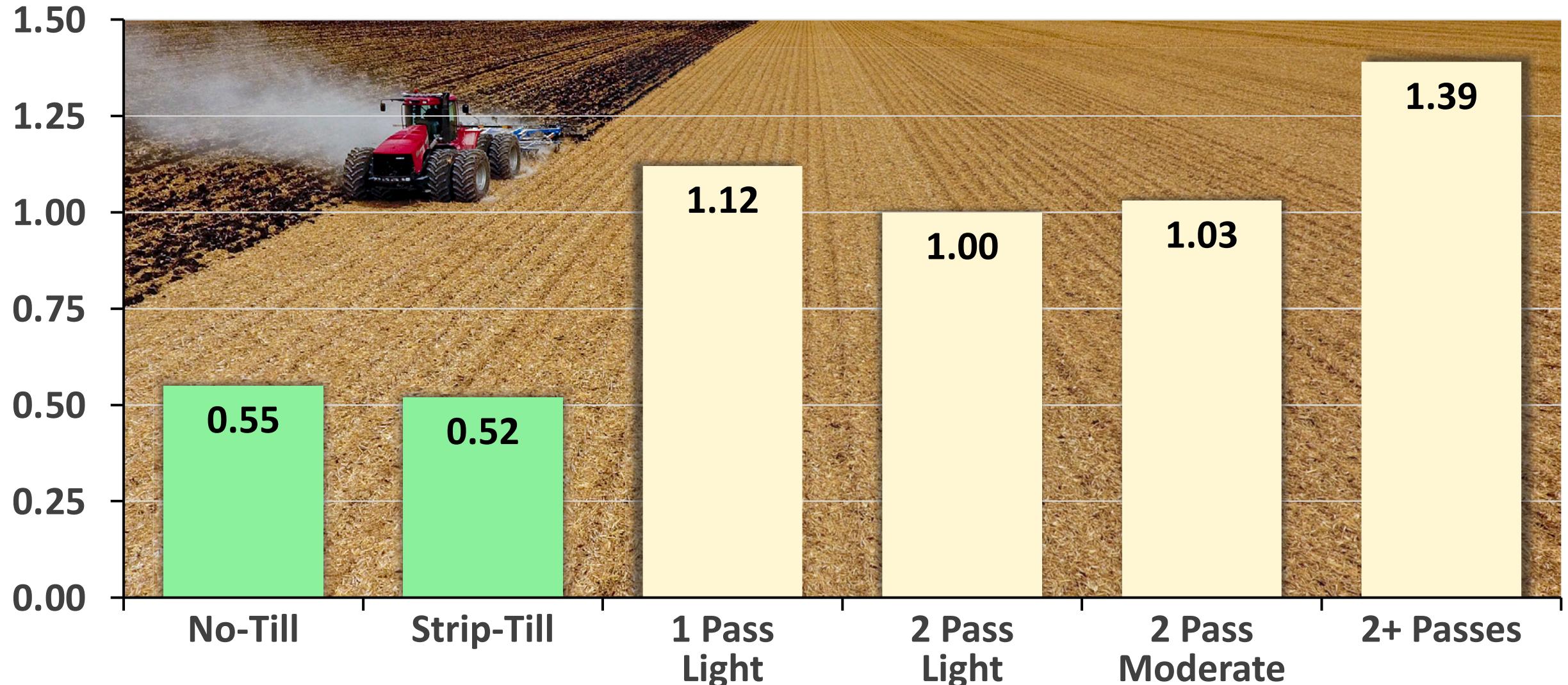
	2015	2016	2017	2018	2019	2020	2021	Average
NoTill	0%	25%	83%	11%	5%	17%	14%	22%
StripTill	33%	13%	0%	14%	16%	17%	30%	18%
1-Pass Light	33%	38%	17%	38%	59%	42%	32%	37%
2-Pass Light	0%	0%	0%	11%	9%	7%	8%	5%
2-Pass Medium	33%	13%	0%	25%	11%	15%	14%	16%
2+ Pass	0%	13%	0%	0%	0%	3%	2%	2%

Environmental Factors



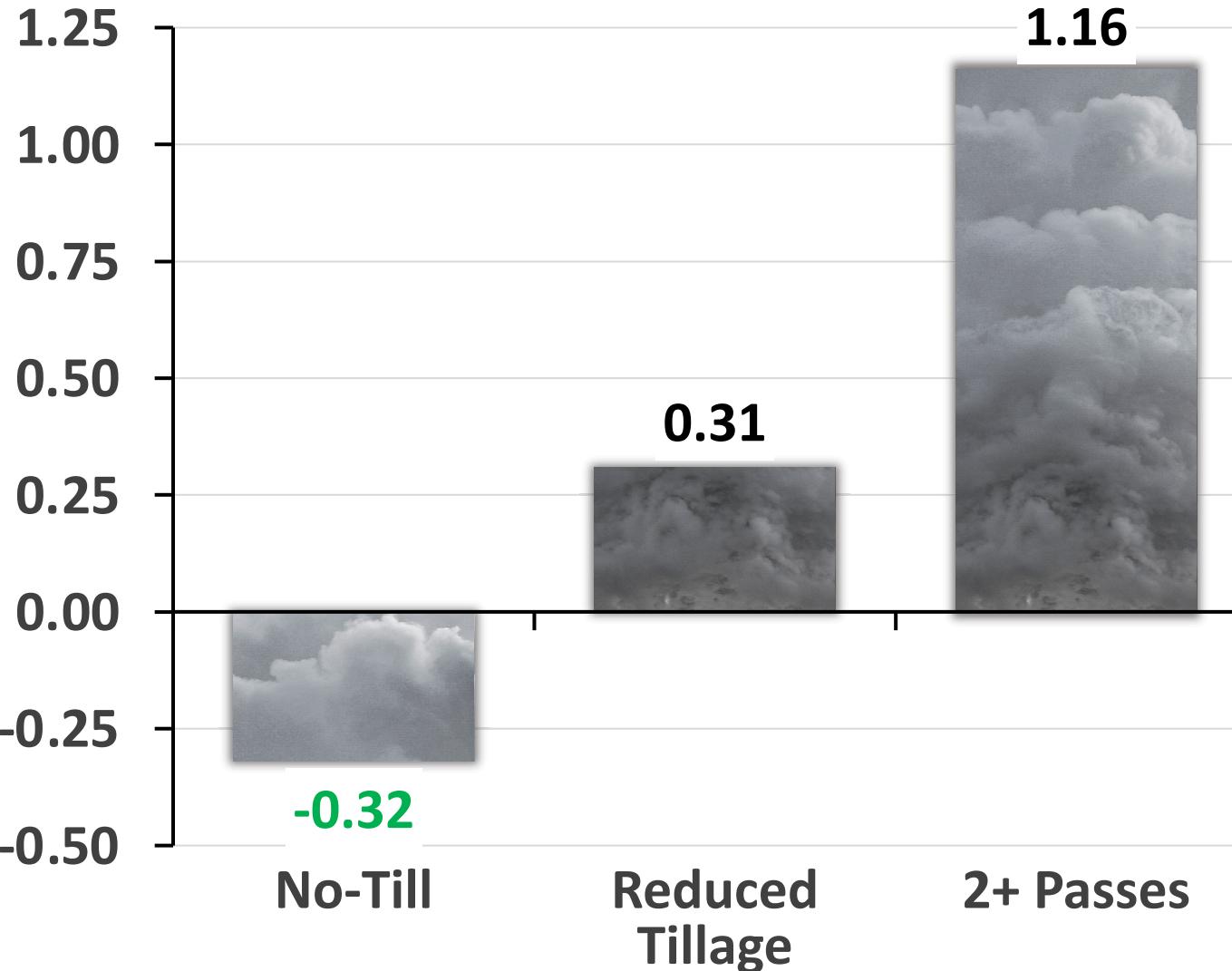
Soil Loss (Tons/acre), by Tillage Class

Averages from 2015 to 2021, Corn, High SPR



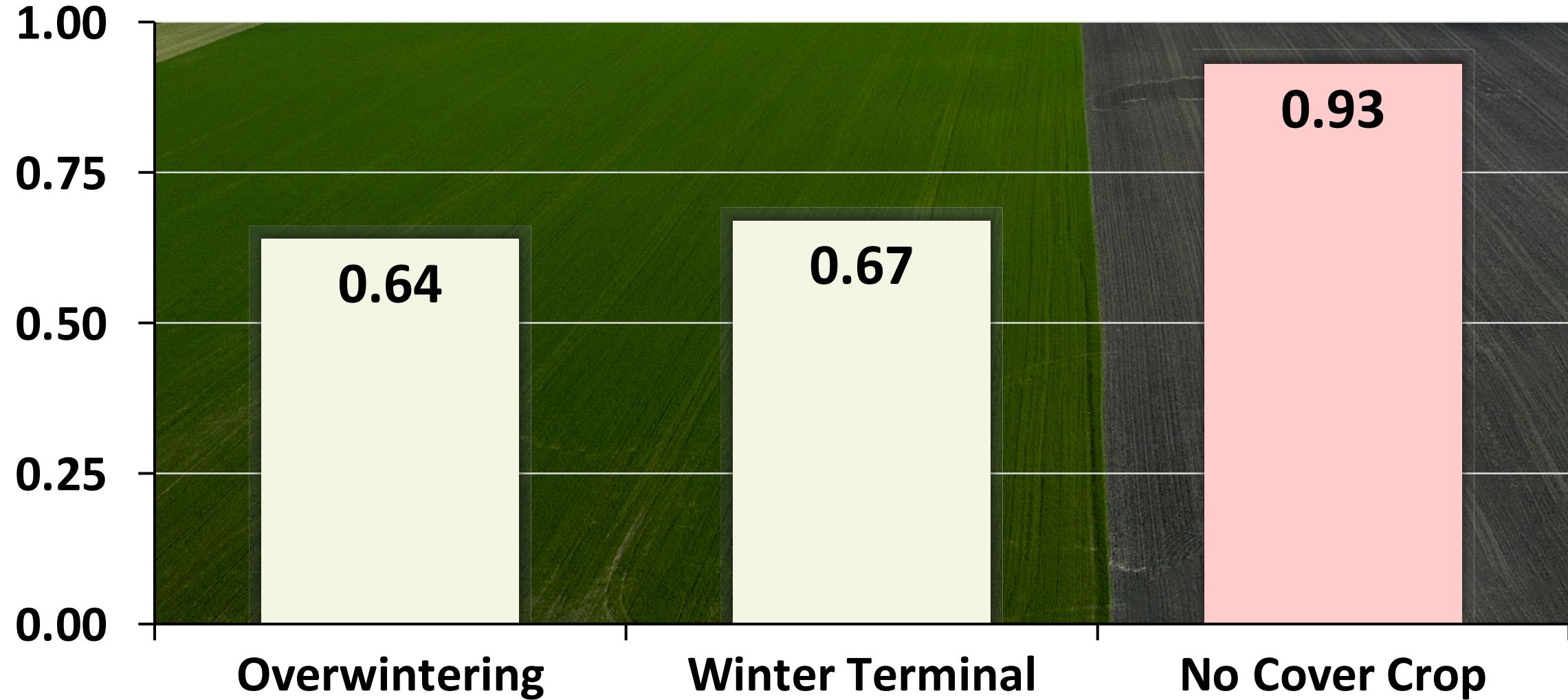
GHG emissions (metric tons CO²e/acre), by Tillage Class

Averages from 2015 to 2021, Corn, High SPR



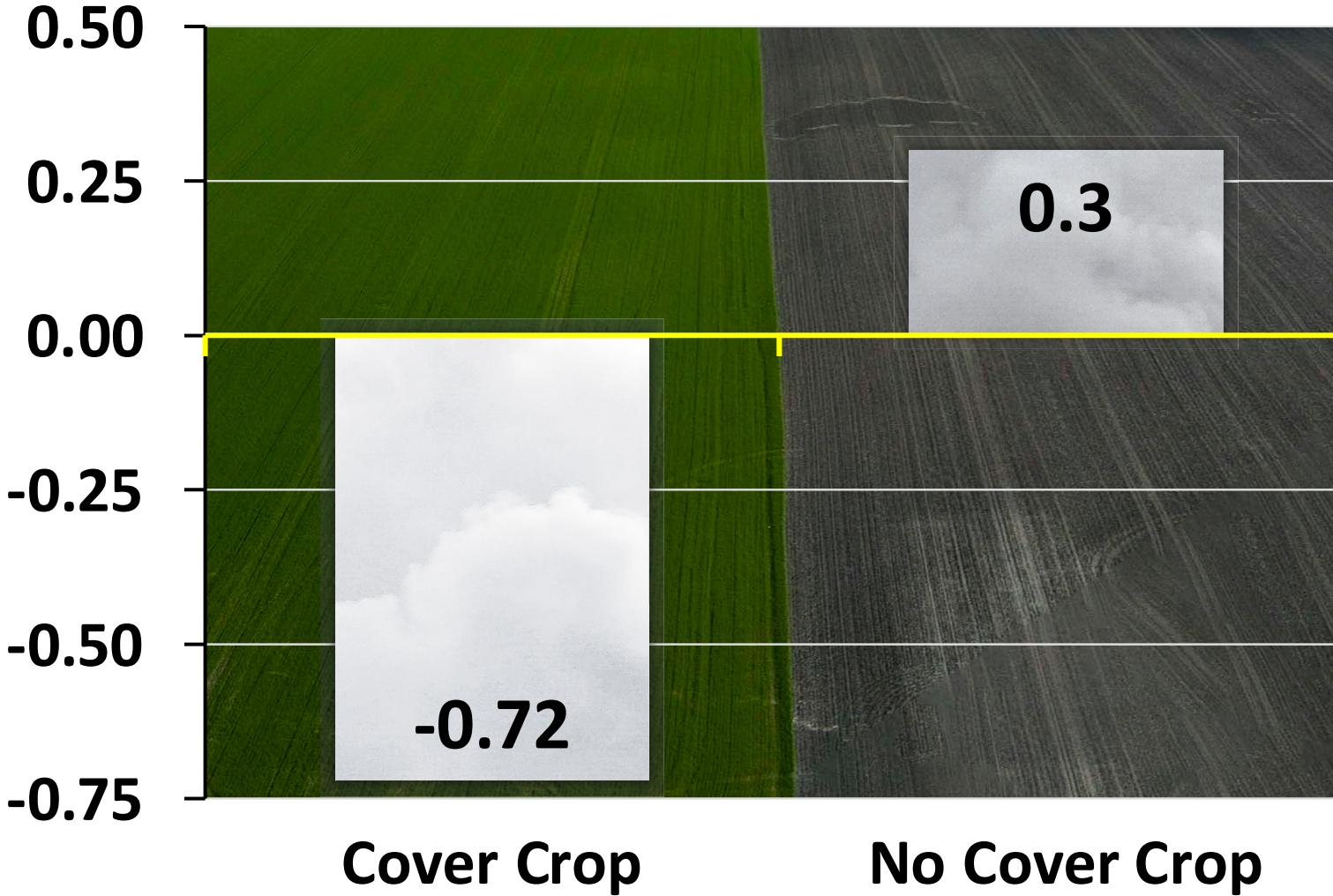
Soil Loss (Tons/acre), by Cover Crop Class

Averages from 2015 to 2021, Corn, High SPR

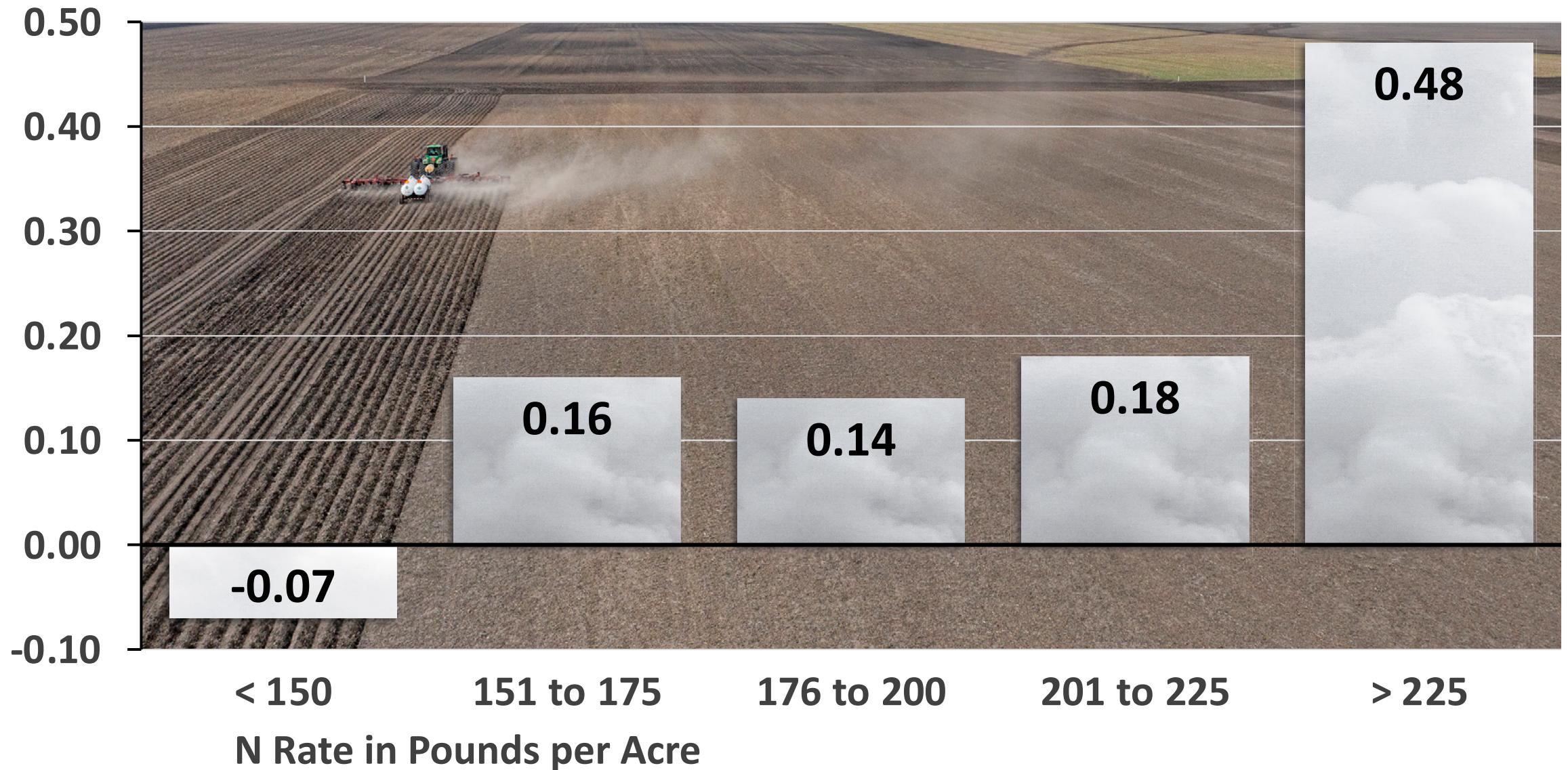


GHG emissions (metric tons CO²e/a), by Cover Crop Class

Averages from 2015 to 2021, Corn, High SPR



GHG Emissions (metric tons CO₂e/a), by N rate



PCM Impact, 2021

Conservation Acres

118,418
reduced tillage

125,081
of in-season
N fertilizer
application,
corn

36,080
cover crop

PCM Impact, 2021

Environmental Outcomes

578,550 lb

NO₃-N loss
reductions

84,040 lb

P loss
reductions

124,875 tons

Sediment loss
reductions



TIAA

Center for
Farmland Research



THANK YOU!

Learn more at
www.precisionconservation.org



Greg Goodwin
Director, PCM
ggoodwin@ilcorn.org



The screenshot shows the homepage of the Precision Conservation Management website. At the top, there is a dark blue header bar with the organization's name and contact information. Below this is a white navigation bar with links for "ABOUT US", "NEWS & PUBLICATIONS", "PARTNERS", "S.T.A.R. PROGRAM", "LOG-IN", and "BOLD BI". The main content area features a large image of a cornfield under a blue sky. Overlaid on the image is the text "Economically Viable Sustainable Farming" and "PCM - An Innovative Farm Service Program". There are two call-to-action buttons: a green one that says "Join Now" and a white one with a green border that says "Questions? Contact Us". To the right of the image, there is a portrait of a woman with curly red hair, smiling. The bottom section of the page contains three columns of text and icons. The first column is titled "Field Level Farm Data" and includes sections for "Farm Data", "Services", and "Data Security". The second column is titled "Data Analysis for Business Decision Support" and includes sections for "Projections & Reports" and "Results". The third column has a partially visible title and includes sections for "Conservation Government & Supply Side" and "Farm Project". A large "Read More..." button is located at the bottom of the page.

Laura F. Gentry, Ph.D.
Director, WQ Research
lgentry@ilcorn.org