



Precision Conservation Management

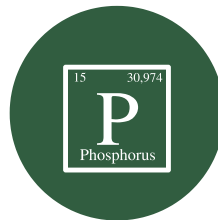
2023 IMPACTS

Precision Conservation Management worked with 499 farmers in 2023 to adopt in-field conservation practices that benefit water quality and address climate change concerns.



1,154,702

lbs NO₃-N loss
reductions



174,983

lbs P loss
reductions



258,963

tons sediment
retained

Impactful Tools

In-field practices that have the greatest impact on water quality and soil health include:

- Reduced Tillage
- Cover Crops
- Fertilizer Management

Farmer Support

Farmers can only implement practices that work for their bottom line. PCM helps farmers by providing:

- Agronomic & financial data
- Access to experts
- Cost-share programs

These numbers represent 2023 Illinois data only.

Learn more at
www.precisionconservation.org





Precision Conservation Management

Quick Stats

519+ Farmers
513,893+ Acres
8,573+ Fields
30+ Partners

Influencing Change

Due to PCM data, farmers say:

- 64% who don't already use reduced tillage say they are likely to reduce or eliminate tillage
- 63.5% who don't already use cover crops on their whole farm say they are likely to try or expand cover crops
- 60% who don't already use MRTN rates are likely to apply nitrogen at MRTN rates
- 72% who don't already apply nitrogen in-season are likely to start

Reaching Out

- Annual Data Book sent to 31,000 farmers in Illinois via Prairie Farmer
- Cover Crop Guide sent to 31,000 farmers in Illinois via Prairie Farmer
- World Economic Forum participation
- Low SPR Data to be published Summer 2024
- 300-400 website visitors each month
- Farmer events held in each region annually
- Farmdoc webinars as data is published
- PCM social media reached over 27,000 in 2023

Learn more at
www.precisionconservation.org





Precision Conservation Management

Frequently Asked Questions



What is PCM?

Precision Conservation Management (PCM) is a farmer service program led by IL Corn in partnership with other state commodity organizations, and over 30 partners including corporations, NGOs, government agencies, and foundations. PCM combines precision technology and data management with farm financial analysis to help farmers make data-driven decisions about in-field farming practices with the long-term objective of avoiding new agricultural regulations. PCM data focuses specifically on tillage, nitrogen management, and cover crops.

What benefits can farmers receive by enrolling in PCM?

1. Financial assistance – PCM farmers have exclusive access to cost-share programs for implementing conservation practices, and PCM Specialists can advise on opportunities for stacking payments in some cases.
2. Technical assistance – PCM farmers receive dedicated 1-on-1 support from their PCM Specialist and are provided a yearly customized Resource Analysis and Assessment Plan (RAAP) report summarizing the financial and environmental strengths and weaknesses of their farming operation. PCM Specialists also connect farmers with other industry experts to as-needed. Finally, farmers are given unique networking opportunities to learn from other local farmers trying new conservation practices.

Where is PCM available?

PCM is organized by regions targeting major watersheds. Each region has a dedicated PCM Specialist to who works 1-on-1 with enrolled farmers. PCM is currently serving regions in Illinois, Kentucky, and Nebraska.

Learn more at
www.precisionconservation.org





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What kind of information does PCM provide to cooperating farmers?

1. Personal and aggregated financial analysis of in-field practices. Aggregated data covers more than 500,000 acres of Illinois farmland and is displayed at the state, region, and county level.
2. Environmental assessments of conservation practices are provided with tools from trusted partners like Field to Market, COOL Farm Tool, and University of IL Extension.

Do enrolled farmers have to make practice changes?

No. There is no commitment to make a practice change when you join the program. We hope our objective financial analysis and exclusive funding opportunities help farmers identify conservation practices that will have positive impacts on their farm net returns AND local water quality and soil health.

How is farmer data used?

PCM is a data-driven farmer service program created BY farmers FOR farmers. We have a rock-solid commitment to using your data to serve YOU, first and foremost. As soon as your data is entered into our secure farmer portal, it is anonymized and only shared as part of an aggregated set of data. We do not share your personal data unless you direct us to do so.

How does PCM benefit farmers outside of the program?

We publish aggregated, anonymized PCM data to help other farmers make good decisions on their farms regarding in-field practices. We also use aggregated, anonymized PCM data to inform policy makers about how conservation practices are likely to affect farm financial stability with the purpose of garnering more funding or protecting farmers from time consuming, ineffective, and costly government regulations.

Learn more at
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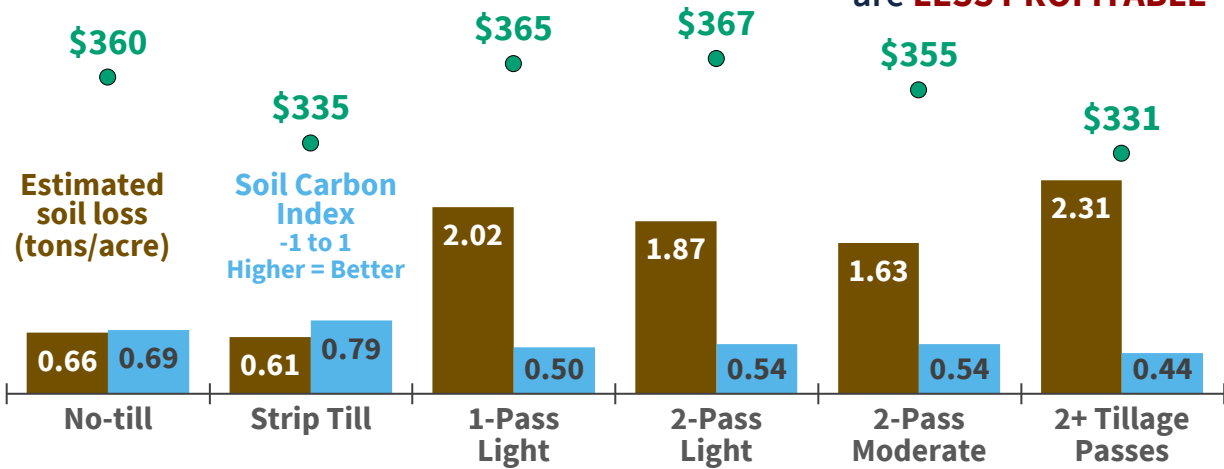


PCM Success – Tillage

High SPR | 2015-23 Average values

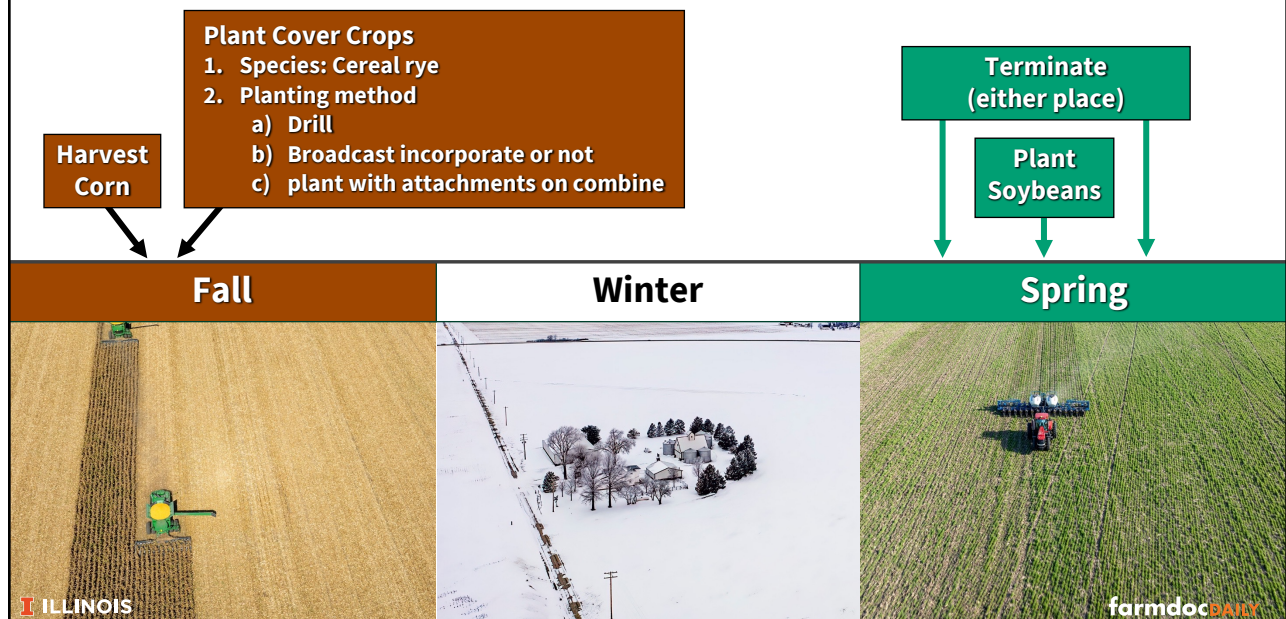
Operator & Land Return

Find that intense systems are **LESS PROFITABLE**



1

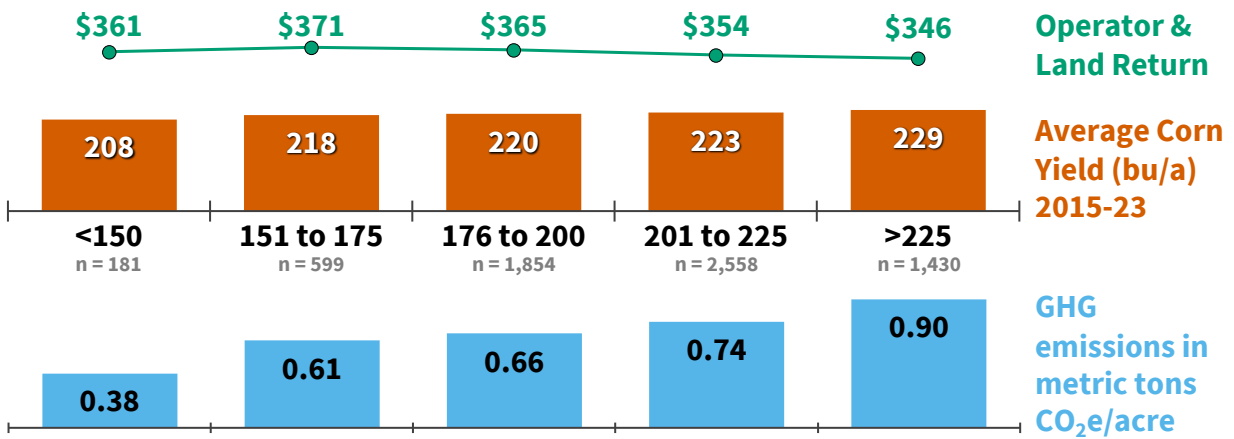
Reduced Risk Cover Crop System for Soybeans



2

PCM Success – Nitrogen Management

Evaluating nitrogen rate in corn find lower nitrogen rates ranges are more profitable



3

Managing Risks with Cover Crops
 A case-study of the most profitable Illinois farms using cover crops
 P | C | M
 Precision Conservation Management
 A program of the R. C. Coors Growers Association and the Illinois Soybean Association

Financial Analysis: Keeping Costs Low is Key to Remaining Profitable with Cover Crops.

Research suggests that farmers without experience with cover crops start with cover crops in year 1. A low cost, low risk plan is to:

- For broadcast cereal rye without termination after corn harvest.
- Terminate before planting and/or when cereal rye is relatively small.

Costs in yield between fields with cover crops and those without cover crops generally come from reduced herbicide costs. Herbicide costs do not entirely offset the cost of cover crop. If revenue from another source should be used to cover the cost of EQIP and CSP, 2) pay-for-practice programs like FCM, and

These programs aren't below:

Control Method	Average Value
Herbicide	\$25
Seed	\$33
Planting	\$308
Operator & Land Return	\$475
Herbicide	\$33
Seed	\$0
Planting	\$297
Operator & Land Return	\$486
Herbicide	\$174
Seed	\$87
Planting	\$33
Operator & Land Return	\$294
Herbicide	\$786
Seed	\$174
Planting	\$87
Operator & Land Return	\$492

Patience is needed on your first attempts with cover crops, but long-term soil conservation and carbon sequestration is worth the effort.

JASON LAY
 MCLEAN COUNTY
 County of Soil Health Partnership

www.precisionconservation.org/managing-risks-with-cover-crops/

4

P C M Nitrogen Data

Dr. Gary Schnitkey, who oversees PCM's financial analysis, is always telling us, "Keeping costs low without sacrificing too much yield is the key to remaining profitable." Nitrogen fertilizer is one of the top input costs farmers pay. How efficient are you with your nitrogen fertilizer? We have found that **the University of Illinois Maximum Return to Nitrogen (MRTN) recommendation system has predicted the most profitable nitrogen application rate every single year since 2015**, when we started doing these analyses. The 2023 growing season was no different.

In addition to their rate of nitrogen fertilizer, **farmers can increase profitability (especially in years with average to below-average profitability projections) by applying the majority of their nitrogen in-season**, either preplant or at sidedress. Farmers applying nitrogen mostly in the fall on high productivity soils apply a higher average nitrogen rate plus stabilizer and, while they make slightly higher corn yields than farmers who apply in-season, on average, those few extra bushels are not enough to pay for the extra pounds of nitrogen and stabilizer costs.

Corn HIGH SPR, N TIMING 2015-23 AVG VALUES	>40% FALL	MOSTLY PREPLANT	MOSTLY SIDEDRESS	50% PRE/ 50% SIDEDRESS	3-WAY SPLIT
NUE (lb N/bu grain)	0.97	0.91	0.90	0.93	0.92
# fields	2,690	1,364	1,514	474	580
Yield per acre	224	220	223	221	225
GROSS REVENUE	\$964	\$943	\$956	\$951	\$970
N fertilizer	\$102	\$96	\$95	\$109	\$104
Other direct costs	\$349	\$323	\$338	\$344	\$369
TOTAL DIRECT COSTS*	\$451	\$419	\$433	\$453	\$473
Field Work	\$16	\$16	\$17	\$16	\$20
Other power costs	\$106	\$98	\$104	\$104	\$104
TOTAL POWER COSTS**	\$122	\$114	\$121	\$120	\$124
OVERHEAD COSTS	\$39	\$39	\$39	\$39	\$39
TOTAL NON-LAND COSTS	\$613	\$573	\$594	\$612	\$636
OPERATOR & LAND RETURN	\$351	\$370	\$362	\$339	\$334

*Direct Costs = fertilizers, pesticides, seed, cover crop seed, drying, storage, and crop insurance

**Power Costs = tillage, fall fertilizer application, spraying, planting, cover crop planting, spring/in-season fertilizer application, harvesting, and grain hauling

NUE = nitrogen use efficiency

SPR = soil productivity rating

PCM FARMER SURVEY RESULT
(Based on PCM data)

60%

of PCM farmers who don't already use MRTN rates say that they are likely to apply nitrogen at MRTN rates

72%

of PCM farmers who don't already apply nitrogen in-season say that they are likely to apply nitrogen in-season

Note: When reviewing these tables, please keep in mind that the nitrogen values represent the TOTAL nitrogen fertilizer application rate, including any nitrogen applied in MAP or DAP or with herbicides or other sources.



Find the MRTN Rate in your region at cornratecalc.org

Corn N RATE, HIGH SPR, LBS PER ACRE 2015-23 AVG VALUES	<150	151-175	176-200	201-225	>225
# fields	181	599	1,854	2,558	1,430
AVG Corn Yield (bu/a) 2015-23	208	218	220	223	229
OPERATOR & LAND RETURN	\$361	\$371	\$365	\$354	\$346
GHG emissions (metric tons CO ₂ e/a)	0.38	0.61	0.66	0.74	0.9



I appreciate the insights PCM provides to give me confidence to lower fertilizer rates while maintaining strong returns. It is a win-win for farmer profitability and improving water quality. PCM provides powerful data to empower us all to confidently learn to be better stewards of our own land while helping our downstream neighbors too.

Noah Forlines, Stark County, Illinois

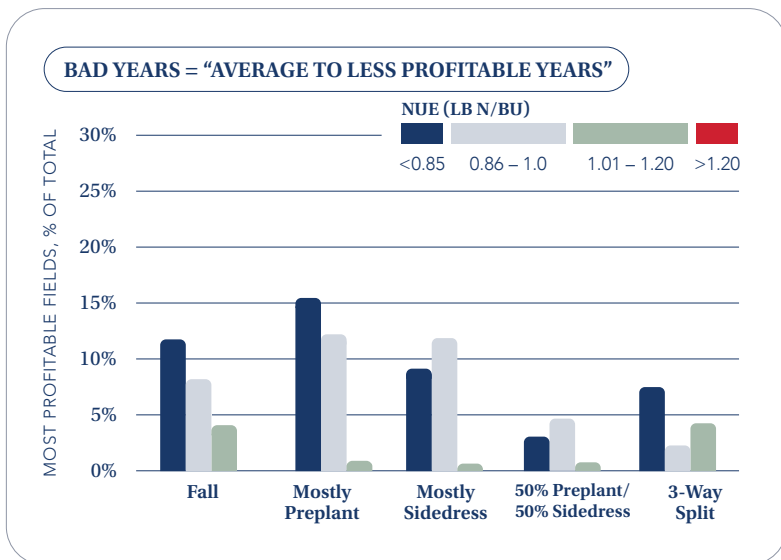
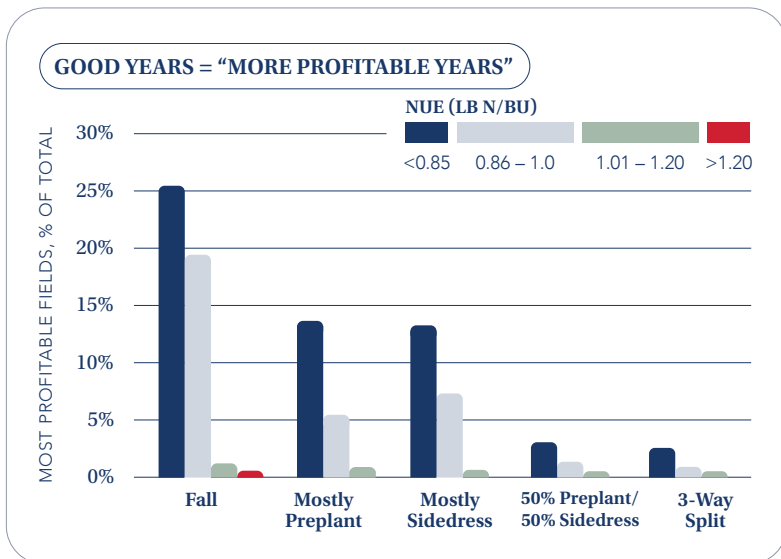


Curious about how nitrogen fertilizer rate affects corn yield and profitability on low SPR soils? PCM is now publishing low SPR results on our website. Learn more at precisionconservation.org

Most Profitable Corn Acres, Parsed by Nitrogen Management

This year, we looked at the most profitable corn field data a little differently. What we discovered is that there are different and distinct patterns for nitrogen management depending on whether the growing season was a “more profitable year*” versus an “average to less profitable year**.” We found that in more profitable years (i.e., 2018, 2020, 2021, 2022, and 2023) timing of nitrogen fertilizer applications was less important than maximizing efficiency by producing high yields with lower rates of nitrogen fertilizer (<0.85 lb N/a).

The chart on the top demonstrates that the most profitable fields during high-profit years reflect the same distribution of N timing classes as our full dataset: Most fields fall into the Fall N category, followed by Mostly Preplant and Mostly Sidedress. However, when grain prices, input prices, and corn yields converge to produce average profitability or lower-profitability years (i.e., 2015, 2016, 2017, and 2019), we see a new trend — one that bucks the natural distribution of our full dataset. In average to less profitable years, we see more of the Mostly Preplant fields in the <0.85 and 0.86-1.0 lb N/acre classes dominate our Most Profitable Fields. Mostly Fall (<0.85 lb N/a) and Mostly Sidedress (0.86-1.0 lb N/a) do well in average to lower profitability years, as well.



*More Profitable Year was set as years when the average Non-land Operator and Land Return is greater than \$400/acre.

**Average to Less Profitable Year was set as years when average Non-land Operator and Land Return is less than \$400/acre.

Here’s the lesson: In years when yields are high and the ratio of corn prices to input costs is reasonable, nitrogen fertilizer timing is not as important as economizing your nitrogen fertilizer rate. But in years when nitrogen prices are high relative to corn prices, nitrogen fertilizer timing AND rate are important and applying the majority of nitrogen fertilizer in-season (preplant or sidedress or a combination) is a good idea. Applying fertilizer in-season is also a great practice for reducing fertilizer losses and addressing the water quality goals of the Illinois Nutrient Loss Reduction Strategy.