



Banking on Soil Health: Farmer Interest in Transition Loan Products

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The Midwest Row Crop Collaborative is a partnership aligned to drive positive environmental change in the Upper Mississippi River Basin. Members include industry-leading supply chain companies and environmental nonprofits spanning the full food and agriculture value chain. MRCC members EDF, TNC, Environmental Initiative, Unilever and PepsiCo participated in the design of this market research.

Practical Farmers of Iowa

Practical Farmers of Iowa's mission is to equip farmers to build resilient farms and communities. PFI specializes in farmer-led programming and on-farm research. Recently, PFI has begun to facilitate supply chain stakeholder investment in on-farm conservation practices such as cover crops, extended rotation and synthetic fertilizer rate reduction. To learn more, visit www.practicalfarmers.org.

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Executive summary

Everyone in the agricultural sector has a stake in understanding the financial impacts of soil health practices. Federal and state agencies want to cost-effectively grow soil health practice adoption rates. Supply chain companies want to strategically invest in practices that will help them reach their sustainability targets. Farmers want to protect their soils while remaining profitable. Agricultural lenders have a stake, too, as farmers' closest financial partners — both to support the success of their clients and to reduce the risk in their own portfolios.

While lenders cannot require specific practices of their borrowers, they can support farmer adoption of soil health practices in at least four key ways:

- Collaborate with farmers to measure and understand the farm-level financial impacts of soil health practices.
- Support farmer education and outreach around the value of soil health practices.
- Design lending programs and products that support farmers in transitioning to soil health practices.
- Incorporate long-term financial projections of soil health practices in credit models when evaluating loan opportunities to ensure the value of these practices are accurately reflected.

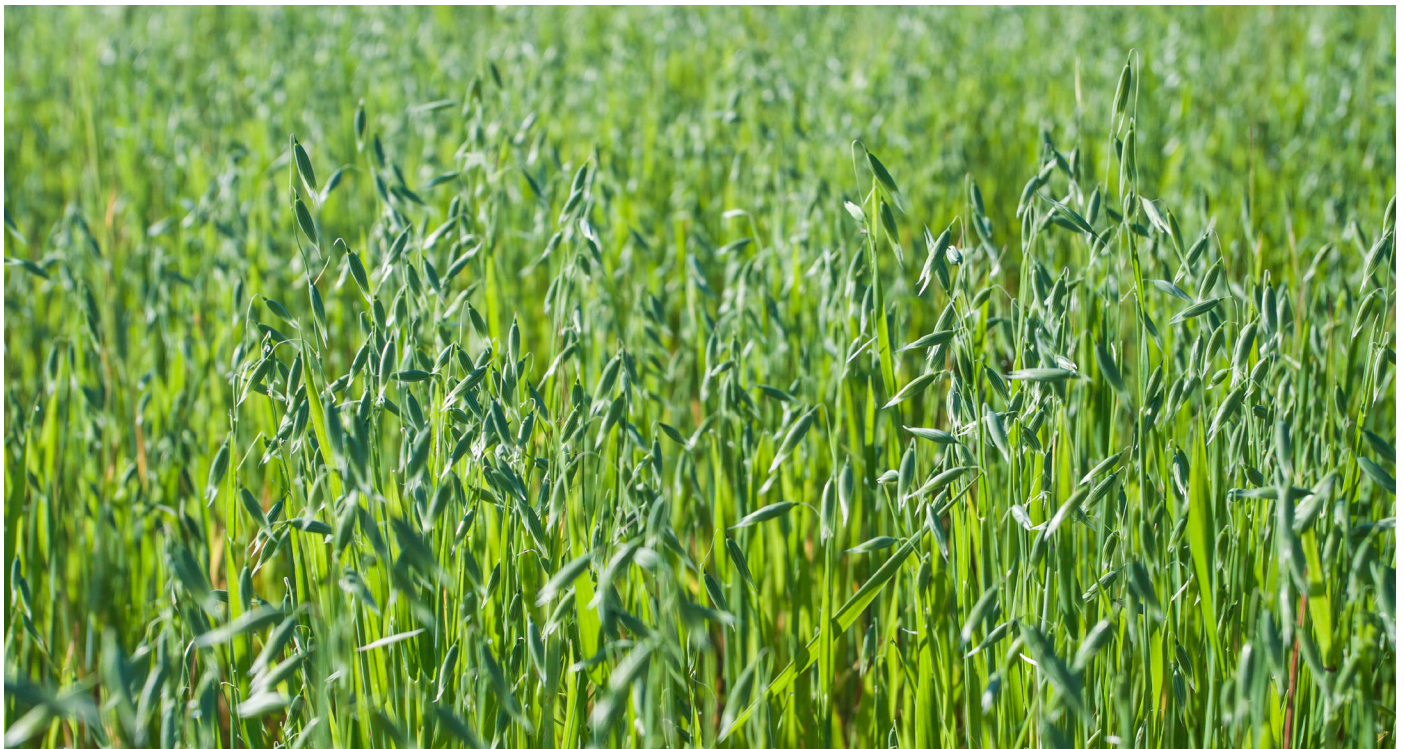
One opportunity for lenders is to develop a transition loan product for farmers adopting soil health and other agronomic practices. A few agricultural lenders now offer organic transition loans, which have altered terms to help farmers through the three-year transition period to organic certification. This model could be adapted to support farmers through the transition to soil health practices such as cover crops. Members of the Midwest Row Crop Collaborative have worked with agricultural lenders to explore the potential for a soil health transition loan product in Iowa.

After engaging agricultural lenders on the potential to develop such a product for the soil health transition, a key question arose: How would farmers respond?

To answer this question, Environmental Defense Fund and The Nature Conservancy commissioned agriculture market research firm Beck Ag to interview 100 Iowa farmers and gain insights on their interest in a soil health transition loan product. This report shares those farmer insights, which are essential to inform agricultural lenders in the development of soil health transition loan products.

This market research is the first of its kind in testing farmer reactions to a model soil health transition loan product. The farmers surveyed perceived a significant financial transition in adopting soil health practices: while just 40% believe that soil health practices improve profitability in the first year or two of adoption, nearly 90% stated that they improve long-term profitability. The results identified a substantial market segment of farmers interested in taking advantage of a soil health transition loan product. Notably, half of the farmers surveyed were interested in participating when either a 1% reduction in their current operating loan interest rate or \$10 per acre cost-share incentive was included in the package. These incentives may be commercially justified by the lower risk associated with farmers using soil health practices.

Lender engagement in soil health initiatives offers opportunities to enhance the long-term profitability and farmland value of their clients, while reducing risk in their own portfolio. With research to show both the economic viability of these practices and farmer demand for new products, there is a clear path for lenders to support a more productive, profitable and resilient agricultural system.





Trends driving farmer interest in soil health

Iowa's landscape and economy are dominated by corn and soybean farming. The state is also home to multiple collaborative and innovative efforts to increase the adoption of soil health and agronomic practices that are necessary to maintain the long-term productivity of agriculture and mitigate its environmental impacts in the face of increasingly variable and severe weather and water quality challenges.

This study focuses on the use of the following soil health management and agronomic practices in Iowa: conservation tillage, cover crops, nitrogen optimization, herbicide optimization and extended crop rotations. Each of these practices has different associated costs, benefits and barriers that affect adoption rates in Iowa and across the U.S.

Soil health and agronomic practice adoption in Iowa, by the numbers

The Iowa Nutrient Reduction Strategy Annual Progress Report details the progress that has been made in the complex work of reducing the loads of nitrogen and phosphorus that Iowa exports into the Mississippi River. The 2018-2019 report includes the most recent information of practice adoption in Iowa:^{1,2}



Cover crops were implemented on 973,000 acres in fall 2016 — **4% of total Iowa harvested cropland.**



No-till was implemented on 8.2 million acres and conservation tillage was implemented on 10.1 million acres in 2017 — **34% and 41% of harvested cropland**, respectively.



Extended crop rotations were planted on 940,000 acres in the 2014-2018 time period — **4% of harvested cropland.**



Nitrogen optimization and herbicide optimization can occur through multiple different farm management actions, though adoption rates are challenging to quantify.

There are multiple forces driving farmer interest in and adoption of soil health practices, including benefits for water quality, crop yield resilience, consumer demand and supply chain initiatives, and other emerging market opportunities. Together, these trends provide a compelling case for farmers to reduce risk and build resilience.

Risks of inaction on soil health include continued degradation of soils which will ultimately undermine agricultural production, increased regulatory risk associated with continued water quality impairment, increased physical risks associated with climate change including lost crops and revenue, and reduced consumer demand as preferences steer major buyers away from crops produced with conventional practices.

Meanwhile, farmers who decide to transition to practices that improve soil health and reduce environmental impacts can preserve the long-term value of the land, improve the resilience of their farming operation to increasingly variable weather, and take advantage of supply chain sustainability programs and new environmental market opportunities. Further, research on farm finances shows that these practices, when managed effectively, can increase farm profitability.

Soil health benefits and opportunities



Water quality benefits

Soil health practices improve water quality by reducing nitrogen and sediment runoff from agricultural fields into local streams and rivers.³ It is estimated that achieving the Iowa Nutrient Reduction Strategy — the state's established goals for reducing agricultural nitrogen losses by 41% and phosphorous losses by 29% — will require 10.5 million acres of no-till and strip-till and 12.5 million acres of cover crops, as well as additional edge-of-field practices.⁴



Climate resilience benefits

Farming practices including conservation tillage, cover crops, extended crop rotations and perennial crops can improve crop yield resilience to variable rainfall and contribute to stabilizing farm income.^{5,6,7} The resilience benefits of soil health practices will become increasingly critical in the coming years as the climate changes. A recent analysis of projected crop yield changes in Iowa suggests that most Iowa counties could experience decreases in gross farm revenues between 2020 and 2029 without climate adaptation, with just under 50% of counties expected to have revenue losses of more than \$50 million. This impact to gross farm revenues from yield impacts is likely to be offset to some degree by higher prices.⁸



Consumer demand and supply chain sustainability initiatives

Consumers are increasingly interested in where their food comes from, how it is made and its impacts. This trend is contributing to initiatives by major companies including Walmart, Unilever, PepsiCo and others to set sustainability targets and launch programs to engage farmers in their supply chains to adopt conservation practices.⁹ For example, Midwest Row Crop Collaborative members Unilever and PepsiCo have partnered with Practical Farmers of Iowa to remove barriers to cover crop adoption by providing financial aid and technical support, in addition to supporting shared learning among farmers to catalyze adoption at scale.¹⁰



New market opportunities

Soil health practices have the potential to generate multiple environmental benefits that have real economic value, including improved water quality and reduced greenhouse gas emissions.^{11,12,13,14,15} There are multiple efforts underway to quantify these environmental benefits and sell credits to interested buyers. For example, in Iowa, the Soil and Water Outcomes Fund enrolled 9,500 acres in its first year, providing financial incentives of \$25 to \$40 per acre to farmers and selling nutrient and carbon credits to major agricultural companies and downstream municipalities.¹⁶



Quantifying the soil health transition

Farmers and lenders consistently point to the cost of implementing soil health practices as a barrier to adoption at scale. Specifically, there are concerns about a poor or negative return on investment, or short-term financial obstacles to change.¹⁷ However, financial analysis of soil health practices in Iowa demonstrates that farm profitability can increase with soil health practices when farmers successfully navigate a three to six-year transition period.

Practical Farmers of Iowa surveyed 251 farmers in 2019 and 497 farmers in 2020 to measure cover crop seed, application and herbicide costs and how the farmers minimized other operating costs since adopting cover crops. The data from these surveys have been used to identify a replicable transition from conventional corn and soybean production to a system including no-till and an overwinter cereal rye cover crop. The transition pencils out over a six-year period with cost savings and additional revenue offsetting added cover crop expenses.

Table 1 below describes the data from PFI's farmer surveys and the costs, savings and potential new revenue associated with transitioning to a no-till and cover crop system. PFI found that cost savings from reducing tillage and Iowa cost-share programs can offset cover crop expenses, while reductions in herbicide expenses and potential yield increases further improve the net return to the system over time. Good technical assistance can help achieve cost efficiencies and avoid additional herbicide, tillage, insecticide and fertilizer costs.

TABLE 1

Revenue and cost impacts of no-till cereal rye cover crop on an average corn and soybean rotation in Iowa^{1a}

Budget item	First corn-soy rotation (yrs 1, 2)	Second corn-soy rotation (yrs 3, 4)
Revenue		
Corn yield	None	None
Soybean yield	None	\$45 ^{2a}
Cost-share	\$35 ^{3a}	\$15
Total	\$35	\$60
Costs		
Tillage costs	-\$18	-\$18
Cover crop seed	\$13	\$13
Cover crop application	\$14	\$14
Herbicide	-\$10	-\$16
Total	-\$1	-\$7
Net return	\$36	\$67

^{1a} The estimated changes in revenue and costs in this table represent the average outcomes of farmers using cover crops in PFI's 2019 and 2020 surveys representing 251 and 497 farmers respectively.

^{2a} Roughly 32% of fields in a multi-year cereal rye cover crop study conducted by PFI showed increased soybean yields after cover crops. Cereal rye is an overwinter cover crop that is terminated prior to planting the cash crop in the spring. The average yield increase is three bushels per acre, representing \$45 per acre in additional revenue at a soybean price of \$15.04 per bushel.

^{3a} [Cost-share programs](#) from the Iowa Department of Agriculture and Land Stewardship provide \$25 per acre for farmers using cover crops for the first time, \$15 per acre for experienced cover croppers and \$10 per acre for farmers using no-till or strip-till for the first time.

Based on the transition pathway identified by PFI farmers, the team developed a six-year enterprise transition budget for a corn-soybean operation that adopts cover crops and no-till. The transition involves corn in year one followed by planting a cereal rye cover crop. In year two, the transition involves no-tilling before planting soybeans. As opposed to an organic transition budget, in which increased costs are offset by the organic premium price, the return on investment in a soil health transition budget comes from a combination of reduced costs from no-till and decreased herbicide that offset the added costs of cover crops, in addition to longer-term yield resilience as soil health builds over time.

EDF has created an interactive Microsoft Excel® spreadsheet outlining the six-year enterprise transition budget for a corn-soybean operation for use by farmers, lenders and other farm financial partners. The spreadsheet uses Iowa State University's 2021 annual production cost budgets¹⁸ and adjusts based on PFI's no-till and cover crop cost, cost savings and new revenue survey results.

[Click here to download a sample six-year transition budget spreadsheet](#) ➔

Other studies support the finding that soil health practices can improve net income over time:

- A 2020 analysis of 10 Iowa farms using soil health practices conducted by the Soil Health Institute and Cargill also found that soil health practices were associated with increased net income.¹⁹ Seven out of the 10 participating farms reported a yield increase associated with no-till, reduced tillage and cover crops. On average, the 10 farms associated soil

health practices with cost reductions of \$22.98 per acre for corn and \$11.36 per acre for soybeans. Soil health practices were ultimately associated with increased net income of \$63.85 per acre for corn and \$36.79 per acre for soybeans on average. The results of this study came from some of the most profitable early adopters of soil health practices and does not represent the experience of the average Iowa farm.

- An analysis by Soil Health Partnership, EDF and KCoe Isom found that recent cover crop adopters had higher costs and lower revenue than fields using conventional practices. However, farmers with greater than five years of experience with cover crops had significantly lower costs and higher net returns than both recent cover crop adopters and fields with conventional practices. Farmers who had implemented cover crops for five or more years saved \$58 per acre compared to recent adopters.²⁰

These analyses provide compelling evidence for lenders to support farmers' adoption of soil health practices, as these practices can be associated with higher incomes and reduced risks over the long term.

The bottom line: Successfully transitioning to a soil health system improves net returns.

The economic case for the soil health practices included in this research is centered around cost savings and crop yield resilience, which reduces risk and can improve profitability and the long-term value of the land. While no-till and precision agriculture can pay off immediately, cover crops and extended crop rotations typically take a three-to-six-year transition period. During that time, farmers may need additional support in the form of technical assistance, sharing learning and experience with their peers, and financial accommodations in the form of risk or cost-sharing. Farmers' lenders are ideally situated to play a more active role in supporting their clients through this transition to achieve long-term financial success.



Agricultural lending in Iowa

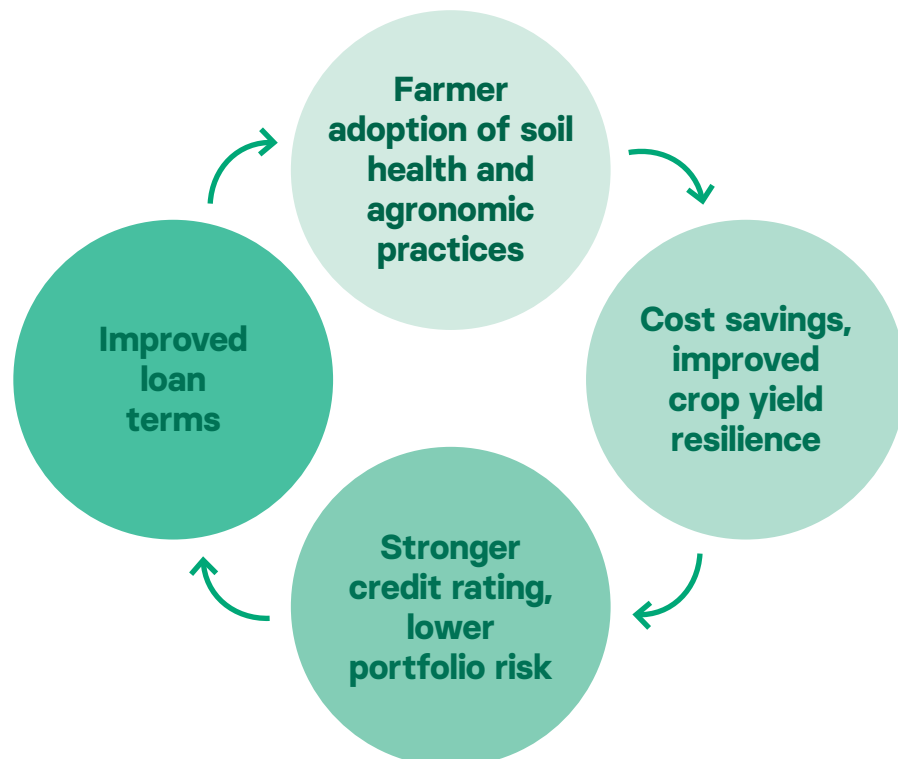
Agricultural lending in Iowa is conducted by two main market segments: commercial banks and Farm Credit. There are approximately 220 commercial banks in Iowa that offer agricultural loans, including banks that are chartered in the state, as well as larger national or multinational banks with Iowa offices.²¹ Farm Credit Services of America's territory includes all of Iowa, as well as several other midwestern states.²² Through its Farm Services Agency, the U.S. Department of Agriculture also issues direct loans to farmers who cannot qualify for other sources of credit and guarantees the repayment of loans made by other lenders.²³

The business case for agricultural lenders to support soil health

Farmers go to agricultural lenders for a variety of lending products, including real estate loans, equipment loans and operating loans. Farmer and lender relationships often span many years and are rooted in a shared community. Aside from the farmer him- or herself, the agricultural lender has the most holistic view of a farm's financial health. Lenders seek to understand the factors that impact loan repayment capacity, including cost of production, a variety of risk factors, financial metrics such as solvency and liquidity, and off-farm income sources.²⁴ They also are often considered trusted advisers and encourage good financial practices, such as risk management and the use of recordkeeping and accounting systems that enable farmers to better understand their farms' profitability.²⁵ Given these strengths, agricultural lenders have a critical role to play in supporting farmer transitions to soil health practices.

Agricultural lenders also stand to benefit from supporting farmer clients through the soil health transition, as more farmer clients adopt practices that reduce weather and regulatory risks while simultaneously improving their long-term profitability and the value of the land. At the individual borrower level, this will bolster borrowers' loan repayment capacity and protect their land assets. With a sufficient number of farmers implementing these practices, lenders can anticipate lowered risk at the portfolio level. This is a valuable risk mitigation strategy for lenders as portfolio risks from climate change are receiving increased scrutiny by financial regulators.

FIGURE 1
Financial cycle of soil health benefits



Agricultural lenders do have some constraints around their engagement, for example they cannot make farming decisions for borrowers or exercise control over farm operations that would trigger lender liability concerns.²⁷ However, there are still multiple ways that lenders can pursue strategic objectives that benefit the agriculture sector and farmer clients, and there are several existing examples of lender programs or products that support farmers in navigating similar financial barriers or transitions.

The objective of developing new lending products to finance soil health transitions is not to create new agricultural subsidies through lenders, but rather to realign lending structures to better match the needs of farmers who adopt soil health practices, reduce risk to the lender, and to reflect reduced risks in lending terms to facilitate a mutually reinforcing cycle between the lender and the farmer. While there are many potential models to achieve these goals, this study examines organic transition loans as a model for a potential soil health transition loan product.

The organic transition loan model

In the past several years, new loan products have been launched to address the three-year transition period for farmers to achieve USDA's organic certification and the premium prices that accompany that certification.

- Rabobank's organic transition product includes a financial framework that gives farmers the flexibility to receive the capital needed for upfront costs associated with changing production practices. Farmers then schedule repayments when they receive the additional revenue from selling certified organic goods. Rabobank developed the product in collaboration with Pipeline Foods, a supply chain solutions company focused exclusively on organic, non-GMO and regenerative food and feed.²⁸ Pipeline offers offtake agreements for farmers' organic grain along with other support through the transition period, which gives the farmer more confidence in navigating the organic transition.²⁹
- Compeer Financial, a Farm Credit cooperative based in the Upper Midwest, developed another organic bridge loan. With Compeer's organic bridge loan, clients pay only interest on their loan for the first two to three years, with a declining balance operating loan while they are working toward organic certification. The loan converts to a standard five-year intermediate term loan with fully amortized principal and interest payments after the farmer achieves organic certification.³⁰

Applying a transition loan model to soil health practices

Based on these innovative loan products, the study team developed a model soil health transition loan product in consultation with agricultural lenders. The loan product was tailored to the soil health transition budget and would be utilized by the farmer instead of his or her typical farm operating loan. The model transition loan includes a five-year financial plan, streamlined annual loan renewals and reduced underwriting requirements in the first three years. The goal of these modifications is to ensure that the farmer has a realistic financial plan for the transition, to incorporate accommodations to the operating loan through the initial years of the transition when costs have increased but cost savings have not fully accrued, and to recognize the multi-year timeframe for the full benefits of the transition to materialize. The study team also identified potential additional features, including lower interest rates, cost-share, technical assistance and peer networking.

After developing this model product, a key question remained: **How would farmers respond to this new loan product, and would any added incentives or services increase their interest in the product?**



Market research methods

EDF and TNC contracted Beck Ag to conduct a survey of Iowa farmers to assess farmer perspectives on the role that new lending products could have in influencing their adoption of soil health practices. Beck Ag is an advisory firm with extensive experience conducting market assessments in the farm sector, and EDF and TNC worked closely with Beck Ag to design the survey approach and specific questions.

The survey included three main areas of inquiry:

- Farmer perceptions and current use of soil health practices.
- Financial products used by farmers currently and their lender relationships.
- Farmer views on potential new financial product offerings that are tied to the adoption of soil health practices.

To conduct the survey, Beck Ag interviewed 100 Iowa farmers from a cross-section of different Iowa regions, farm sizes, ownership and leasing arrangements, and other factors. Each respondent met the following screening criteria:

- Was a primary decisionmaker concerning farm financing and operating loan needs.
- Utilized a farm operating loan in 2020.
- Planned to use a farm operating loan for the next two years and planned on actively managing their operation through 2023.
- Grows over 500 acres of corn and/or soybeans.

Participants were offered an \$150 stipend. The survey was conducted from mid-July to early August 2020.

FIGURE 2
Survey participant characteristics



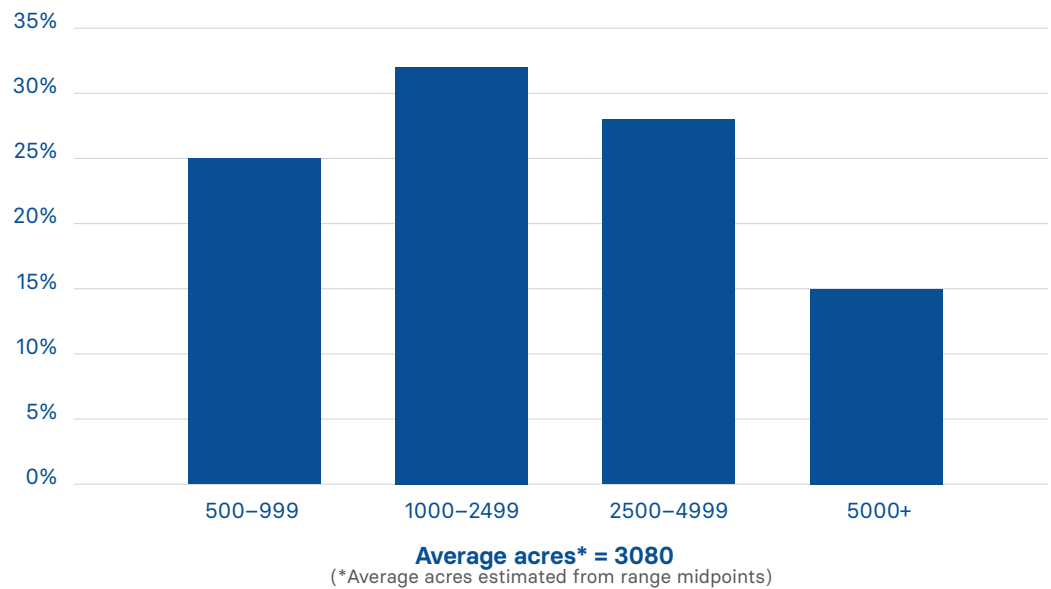
Total estimated acres
in study: **308,000**

Average farm size
in study: **3,080**

Average % of land owned/
rented: **40% / 60%**

Average age of grower
in study: **57.4 years**

FIGURE 3
Total acres farmed on annual basis (2020)



Soil health management and agronomic practices included in the study



No-till, reduced till and strip till:
Reduction in the frequency or intensity of soil disturbance through tillage.



Cover crops: A crop planted between periods of regular crop production to maintain vegetative cover and reduce soil erosion.



Nitrogen optimization: The 4Rs — the right fertilizer source at the right rate, at the right time and in the right place.



Herbicide optimization: Tactics to use herbicides more efficiently or replace them with non-chemical weed control methods.



Extended crop rotations:
Three or more crops over five years.

Results

Farmers see environmental and economic value in soil health practices — but also barriers. Most farmers interviewed utilize nitrogen optimization and conservation tillage, while less than half utilize cover crops and extended crop rotations.

TABLE 2
Current adoption rates of soil health and agronomic practices reported by respondents

Practice	% farmers currently utilizing the practice	% of acres ^{1b}	Number of years implemented ^{2b}
Nitrogen optimization	93%	74%	14
No-till, reduced till, strip till	84%	67%	18
Herbicide optimization	53%	82%	14
Cover crops	42%	28%	6
Extended crop rotations	32%	69%	17

^{1b} This is the % of acres, on average, of those farmers who are currently utilizing this practice.

^{2b} This is the number of years, on average, of those farmers who are currently utilizing this practice

Benefits and challenges associated with soil health

When asked to describe the reasons for adopting the soil health and agronomic practices they currently employ, farmers cited environmental stewardship, increased profitability, reduced costs and other economic factors. While many farmers cited economics as a positive reason for practice adoption, it was also cited as a barrier. The challenges to adoption cited by some respondents included costs/economics, timing, weather, weed control, learning curve and equipment changes.

FIGURE 4
Main drivers of soil health practice adoption

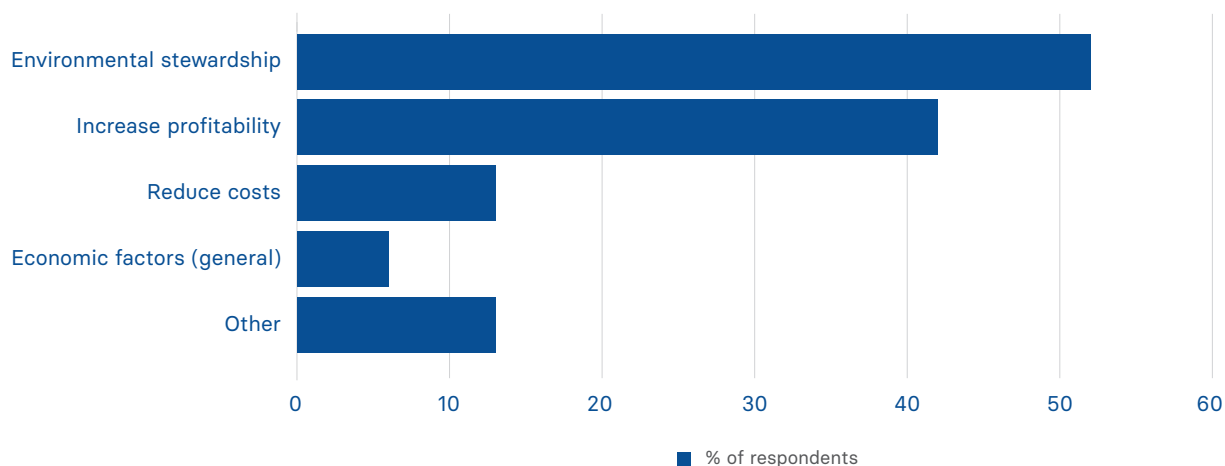


FIGURE 5
Main challenges to soil health practice adoption

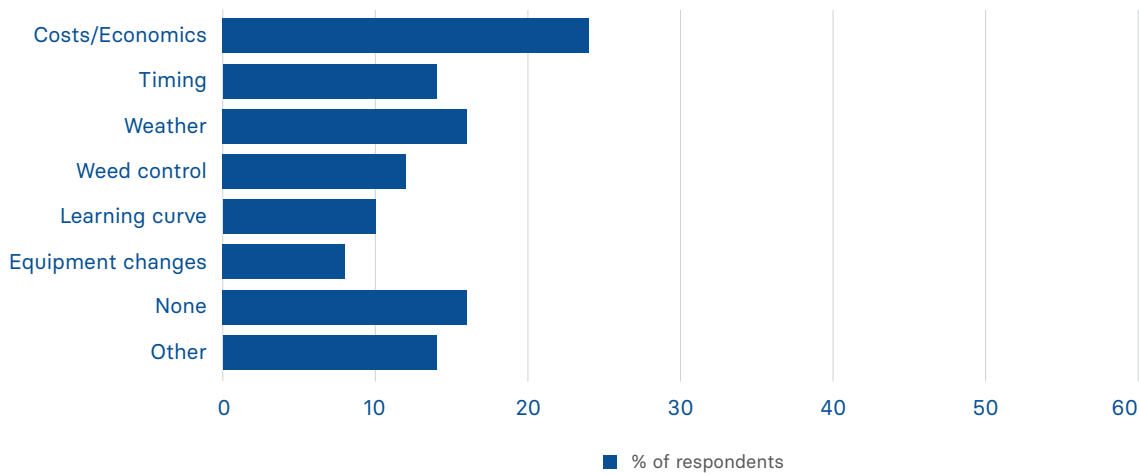
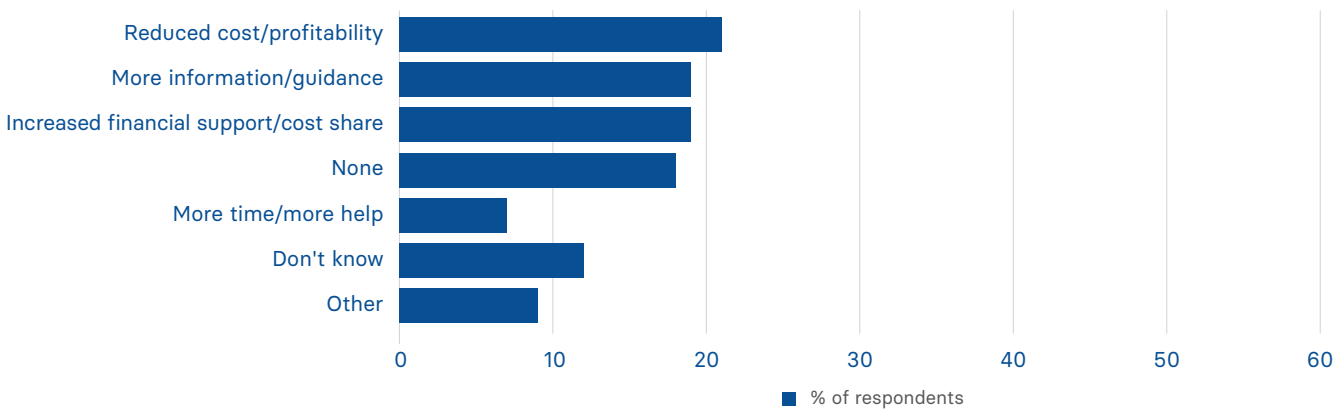


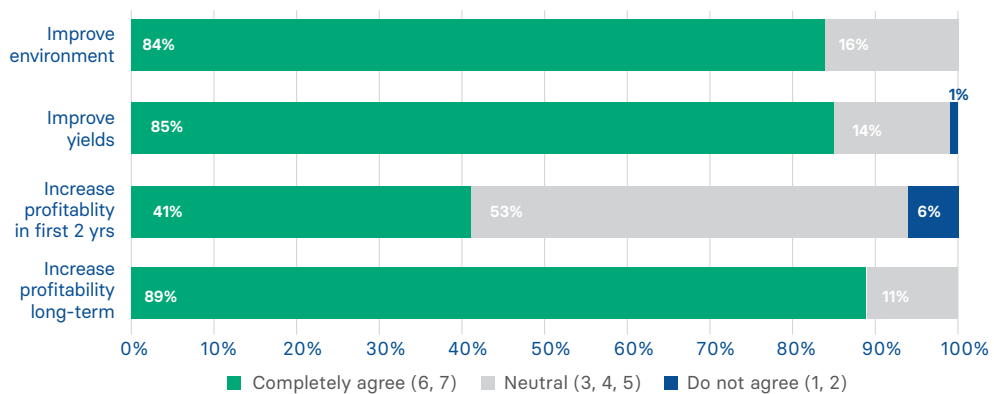
FIGURE 6
Farmer needs to adopt additional soil health practices



Farmers see clear long-term value in soil health practices.

The survey results indicate that farmers see clear value in using soil health practices to generate benefits to the environment, crop yields and profitability. Although only 41% agreed these practices are more profitable in the short term (within two years), 89% believed they create long-term economic value.

FIGURE 7
Farmers' level of agreement with soil health practice benefits



FARMER FEEDBACK



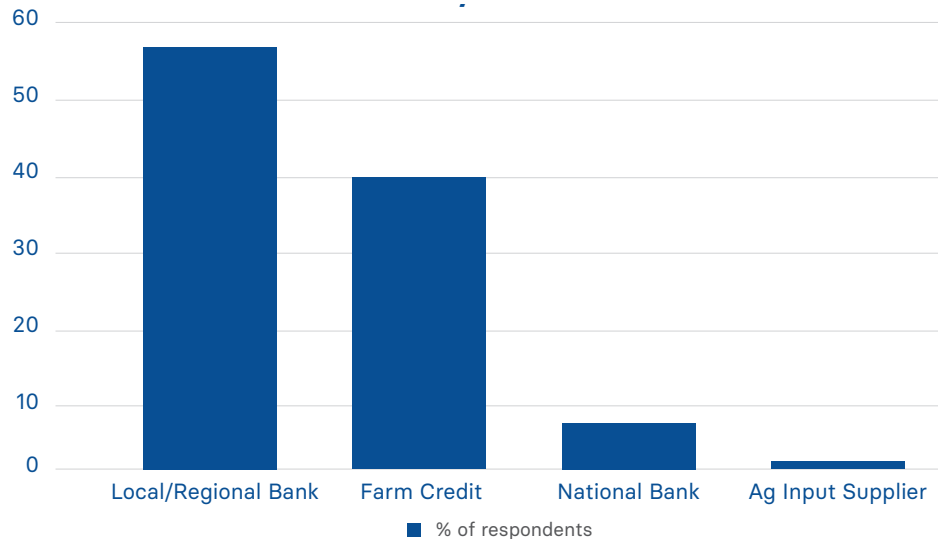
The biggest [barriers] are the learning curves before you see a payback and prioritizing where to spend money...when you use the cover crop, there's a learning curve of a couple of years before you see a payback. In these times to be economically sustainable, you have to prioritize where you spend your money. And so I'm far enough into this where I can spend it on cover crops and doing soil health checks. But if you were just starting out that may be a little bit overwhelming and a bit over the budget. That would be a barrier."

Farmer respondents do see environmental and long-term economic value in implementing soil health and agronomic practices, but they are unsure of the short-term economics of adoption and they want more information and advice to overcome operational factors like timing and weather.

Farmers put great trust and loyalty in their bank relationships, but most do not discuss soil health practices with their bankers.

The respondents were also asked about their relationships with their agricultural lenders. Local banks supplied most of the farmers with their operating loans, followed by Farm Credit, national banks and agriculture input suppliers.

FIGURE 8
Farmers' primary lender

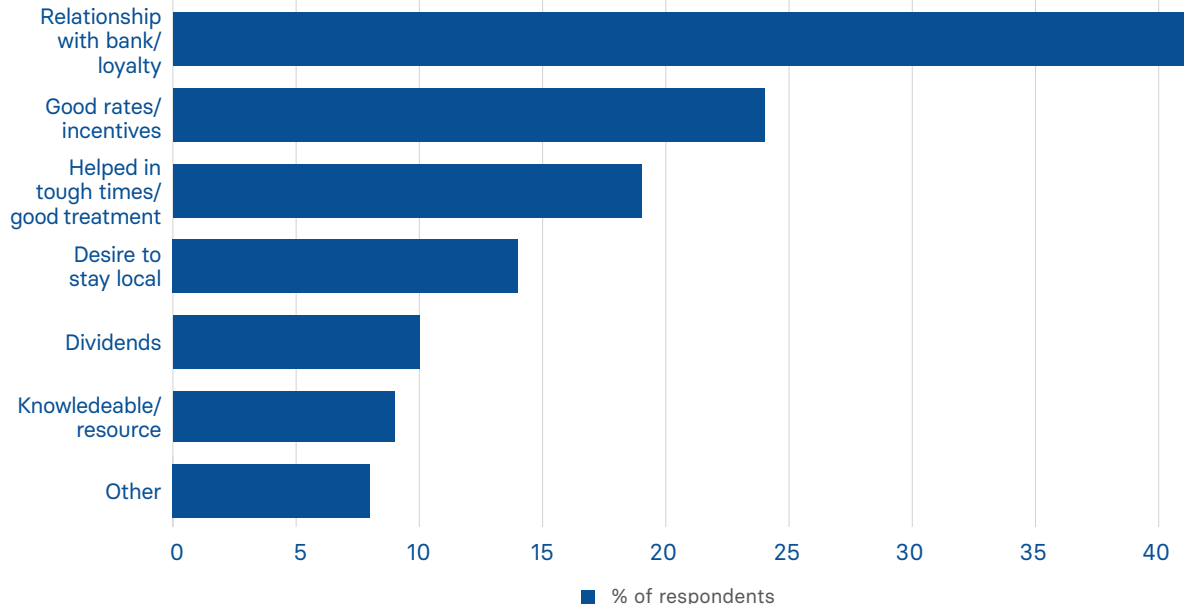


☑ Local banks and Farm Credit account for over 90% of the banking relationships for operating needs.

Farmers reported strong, long-term relationships with their banks and a high degree of loyalty. Most of the farmers also reported that they generally do not have a hard time getting operating loans from banks, and most use annual operating loans versus multi-year loan structures.

FIGURE 9
Most important factors in choice of lender

☑ Not surprisingly, relationships are the driving factor in a grower's choice of primary lenders followed by good rates.



FARMER FEEDBACK

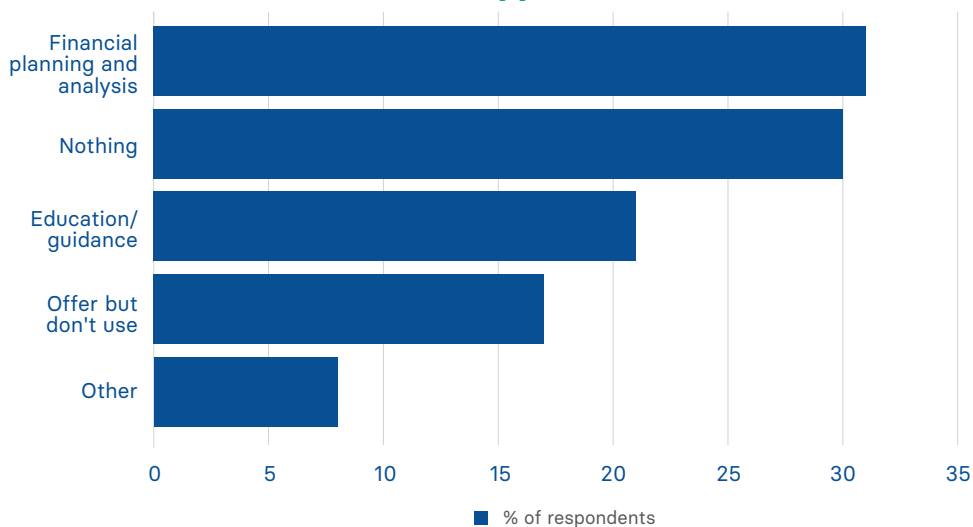


I started small and just built it from there and started with a local bank. It's a third-generation farm, so had a good name. I went in and started banking where my dad banked and where my grandpa banks."

When respondents were asked about support provided by the lender in addition to the actual loan, responses included financial planning and analysis support and education. Others said their lender offers support but they do not use it, or their lender offers nothing additional.

FIGURE 10
Additional forms of support from lenders

☑ Approximately 3 in 10 banks offer financial planning and analysis support to growers and an equal amount of banks provide nothing additional to growers.



Only **35%** of farmers have discussed soil health practices with their lenders, and those conversations were mostly the farmer informing the lender of farm management choices. Despite relatively low rates of conversations about soil health practices, **75%** of respondents still thought that their lender is supportive of soil health and agronomic practices.

Testing new lending products to support the soil health transition

The survey tested a core concept that modified several aspects of standard operating loan terms, as well as additional incentives that could be bundled with the core loan concept.

The initial concept offered to farmers was a five-year lending relationship in which banks could work with farmers to develop a financial plan for the transition to soil health practices, allow for streamlined annual loan approvals, and offer more flexible underwriting requirements for loan qualifications in the first three years.

CORE CONCEPT FOR THE SOIL HEALTH TRANSITION LOAN PRODUCT PRESENTED TO FARMERS

Our client is looking to introduce a new lending product to support farmers in the transition to new or expanded adoption of soil health management and related agronomic farming practices. This is an operating loan and would replace your current annual operating loan. The bank's approach is to work with farmers over a five-year period to support them in the adoption of these practices, including the development of a five-year farm plan and the provision of annual loans to finance that plan. The operating loan would need to be renewed each year over the five years, but through a streamlined loan process. In addition, the underwriting requirements for the loan (i.e. debt service coverage ratio and working capital to expense ratio) will be reduced for the first three years compared to a traditional annual operating loan, making it easier to qualify for loans, allowing farmers to borrow more to cover expenses associated with soil health practices, and reducing the risk of annual loan renewal.

FARMER FEEDBACK ON CORE CONCEPT



INTERESTS

"I've always wanted to think of my lender as a partner in my operation....I can see this being one step further in the process. We've become a partner in this whole thing a little bit. We both have skin in the game. I think as a first impression I am favorable."

"I like the fact that they want to keep my business for five years and want me to become a better manager of my resources and their capital."

"It gives you the opportunity, frees up some dollars to do things you that you otherwise couldn't afford to do, like cover crops."



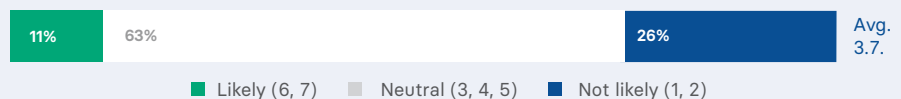
CONCERNS

"The only thing I really care about is what's the interest rate?... repayment terms?...I like the idea of soil health but if it doesn't pay the bills, I'm going to be broke."

"My concern is what's their motive? I'd be reluctant until I understood their objective."

"I don't think a banker is qualified to measure soil health improvement and that's what the loan is going to be based on."

Likelihood to participate

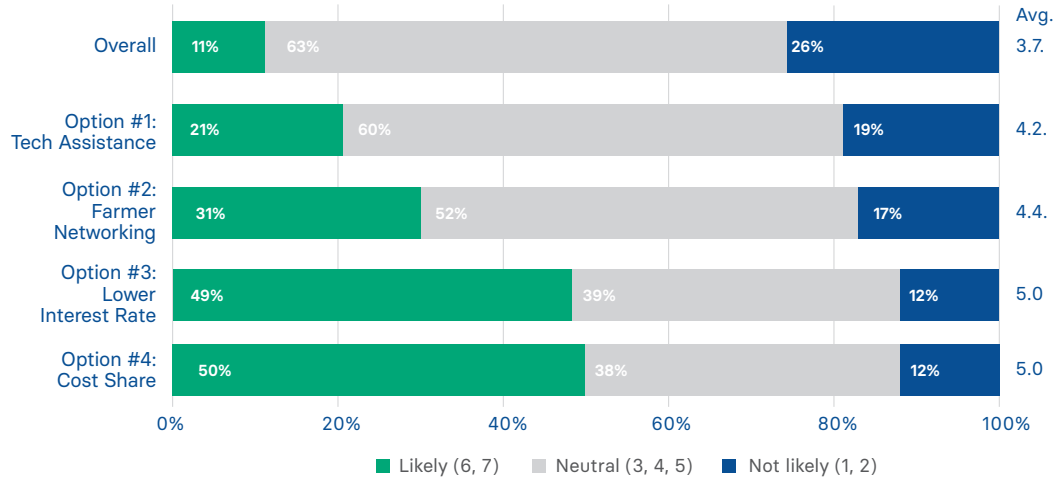


Testing additional incentives to support the soil health transition

Along with the core loan concept, the survey tested the farmer response to several additional incentives including technical assistance, farmer networking, a below-market interest rate and cost-share. For each additional incentive, the respondent was asked to describe their likes and dislikes of the incentive and then rate their likelihood of participation in the loan product if the incentive was added to the package.

FIGURE 11
Concept likelihood to participate

☑ While the overall concept drove limited adoption; the addition of extra services and features improves adoption to near 50% likely.



Technical assistance

Technical assistance was described as agronomic advice to support the farmer in the adoption of soil health and agronomic practices. For example, helping determine what herbicide program will properly terminate a cover crop without harming corn or soybean yields.

The addition of technical assistance improved the likelihood to participate from 11% to 21% of growers. Some farmers were concerned about the quality of the advice and others were concerned about advice being tied to financing.

✓

INTEREST

"I like that they are providing the service. If I were using a cover crop, that would be something very useful to me."

!

CONCERN

"I would be a little bit concerned that maybe they're trying to control a little bit too much. If I let them give me too much advice. I know that sounds weird, but I don't want to lose control of my operation."

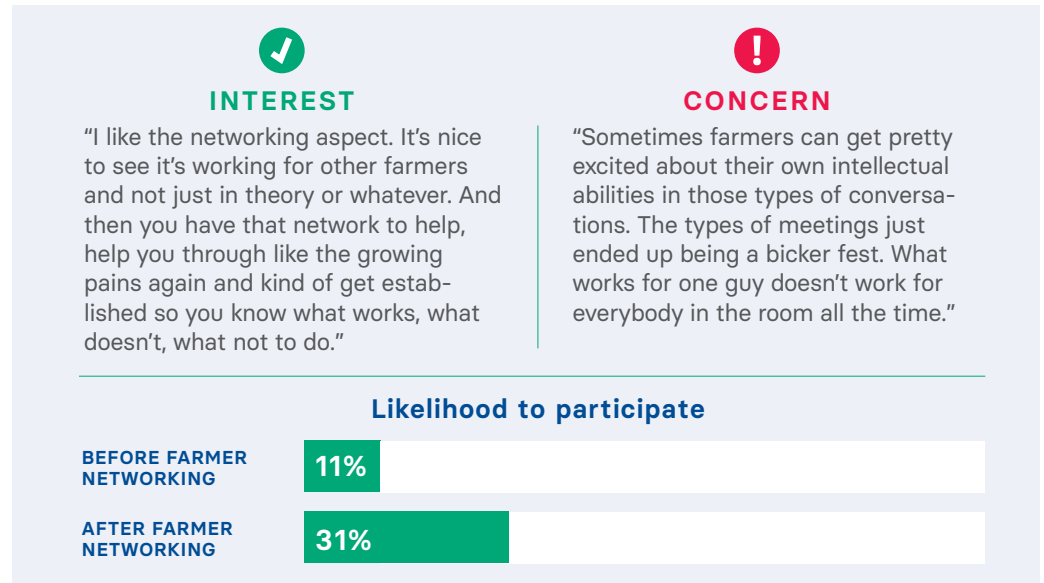
Likelihood to participate

BEFORE TECHNICAL ASSISTANCE	11%	
AFTER TECHNICAL ASSISTANCE	21%	

Farmer networking

Farmer networking was described as opportunities provided along with the loan offer to connect and share experiences with other farmers who are using soil health and agronomic practices.

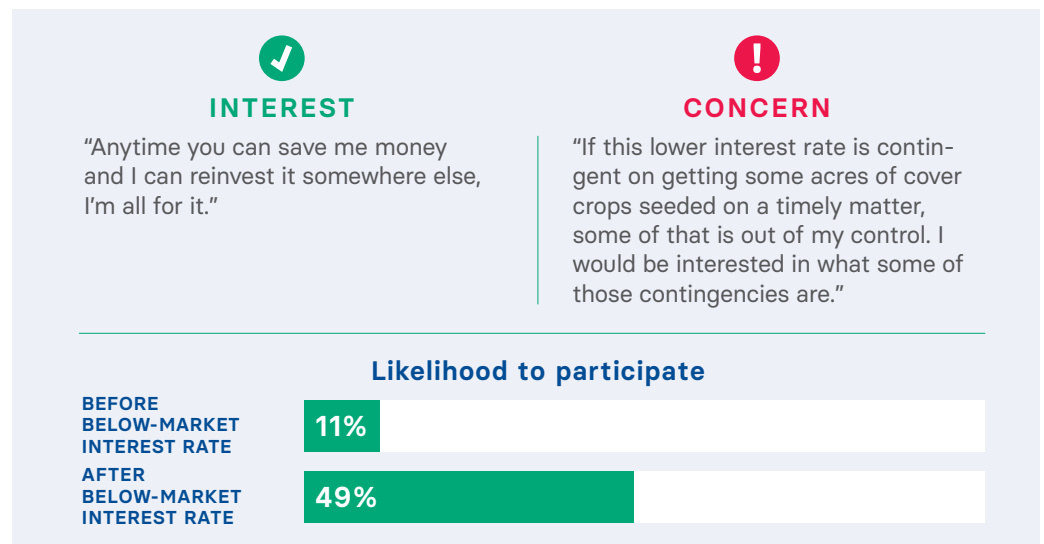
The addition of farmer networking improved the likelihood to participate from 11% to 31% of growers. Those that disliked the concept cited lack of interest, already doing something similar, concern with sharing information and questions regarding quality of information.



Below-market interest rate

The below-market interest rate incentive was described as a below-market interest rate vs. traditional operating loans. Respondents were asked to consider a 1.0% lower rate than their current loan. While this level of interest rate reduction would be challenging for lenders in the current low interest rate environment, the study team chose it to provide an easily-understood incentive for the respondents.

Lower interest rates improved the likelihood to participate from 11% to 49% of growers. Farmers were enthusiastic about this option. The only concerns cited were about strings attached and the loss of the current lender relationship. While the Beck Ag team did not say that the farmer would have to switch lenders, many farmers assumed that was the case.



Cost-share

Cost-share was described as additional funds to cover a portion of any additional costs of soil health practices, such as \$10 per acre towards the cost of cover crops. This was included as an alternate form of financial support that is more traditionally associated with conservation practice adoption.

Cost-share improves the likelihood to participate from 11% to 50% of growers. Again, farmers responded positively to this addition. Concerns expressed included the strings attached or hoops to jump through to qualify, as well as the cost-share being less than the costs of cover crops. For the 50 growers not motivated by a \$10 per acre cost-share, many would be interested with \$20 to \$25 per acre.

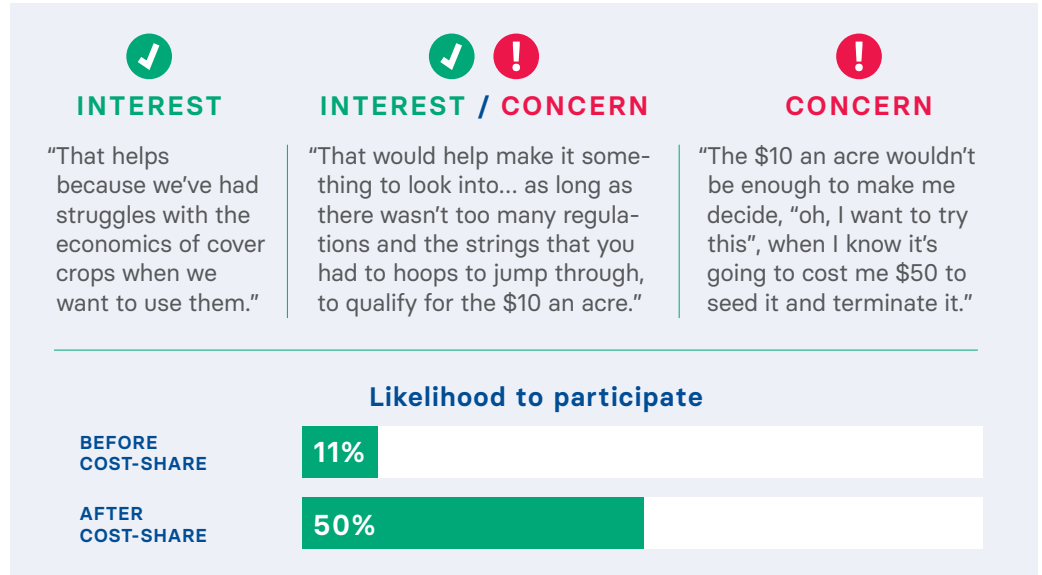
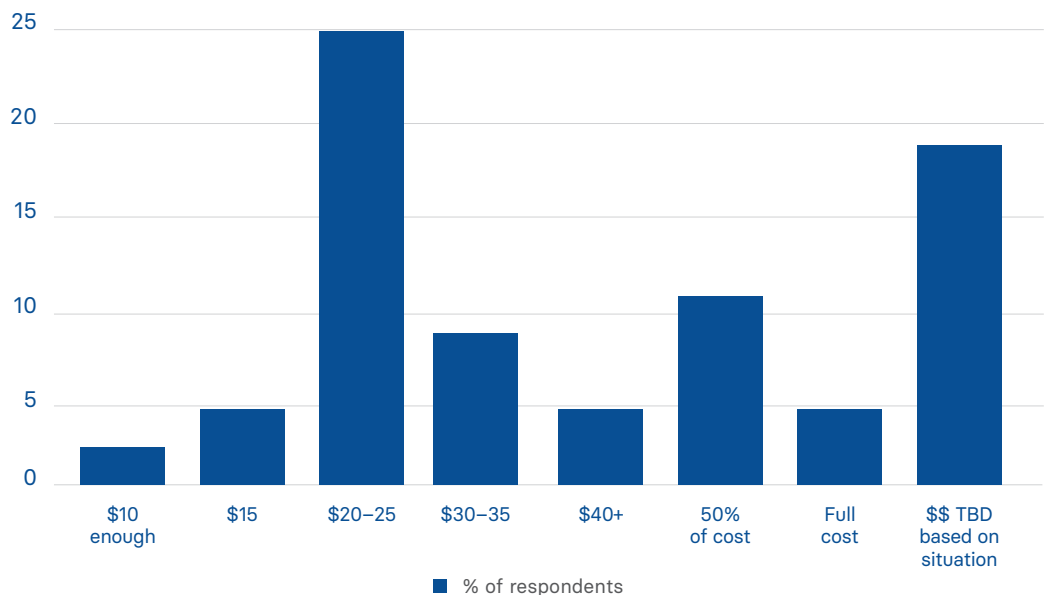


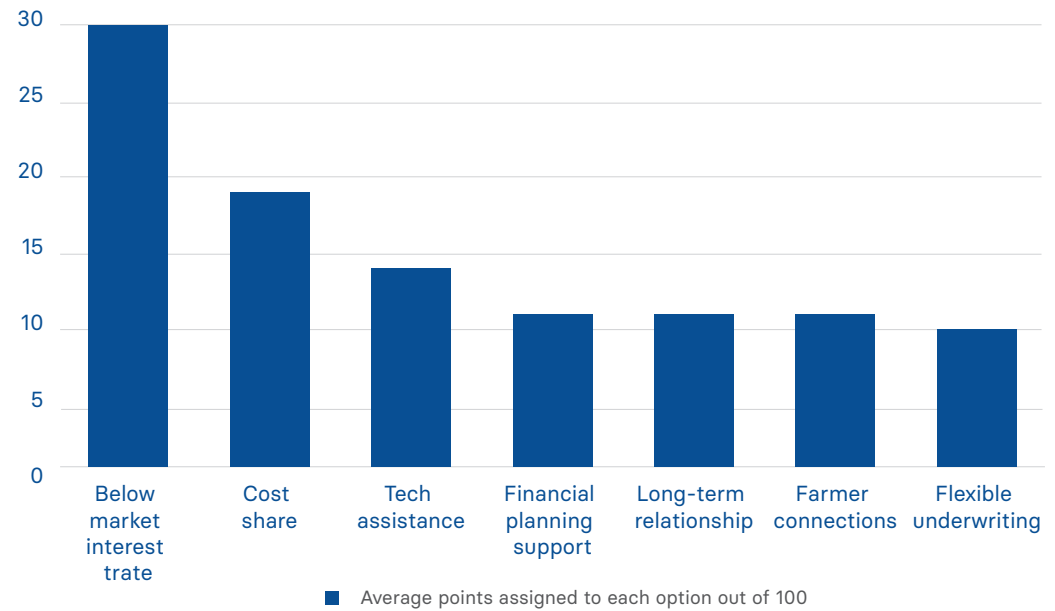
FIGURE 12
Cost-share per acre required to capture attention



Comparing the incentives

Farmers were asked to compare the different incentives and allocate 100 points across seven features described in the core concept and additional survey questions. Specifically, farmers were to allocate points according to the value each feature would provide and the influence each has on willingness to consider this offer. When considering the options collectively and forced to make allocations the below-market interest rate rose to the top with an average of 29 points, followed closely by cost-share at 18 points. This uncovered potentially more differentiation in the level of influence of these two offers than when tested independently. Technical assistance, financial planning support, the longer-term structure of the loan, farmer networking and more flexible underwriting requirements all received lower levels of interest.

FIGURE 13
Value assigned to concept options



☑ Overall, growers most value lower interest rate and cost-share. All other services and features brought similar value across the market.

While not discussed in the context of the interviews, it is useful to consider the relative value of the below-market interest rate incentive compared to the cost-share incentive. For a 1,000-acre farm, a typical operating loan size would be \$500 per acre or \$1,500,000 total. Respondents with farms that size reported an average operating loan interest rate of 4.39%, which would result in an annual interest cost of \$65,850. However, farmers typically only utilize 50 to 75% of their operating loan annually. Assuming 50% utilization of the operating loan, the total interest cost would be \$32,925. If the farmer had a 1% lower rate of 3.39%, interest costs would be lowered to \$25,425 for a total savings of \$7,500. In comparison, if the same farm implemented cover crops on half of its acres (1,500 acres), the \$10 per acre cost-share payment would provide \$15,000 to the farmer.

In either case, the study team's intent was to offer incentives that were tangible and easily understood by the farmers, rather than numbers that must be firmly adhered to for loan offers. As noted previously, a full percentage point interest rate reduction would be challenging in the current low interest rate environment. However, the interest rate and cost-share incentives tested both clearly motivated a greater segment of farmers to express interest in the loan product.

The strong response to interest rate reductions are an encouraging sign that improved loan terms can make a difference in farmer adoption of soil health practices. While few respondents indicated substantial interest in the longer-term bank relationships and more flexible underwriting requirements, this may be due in part to the difficulties in explaining these features clearly and tangibly to the survey participants. More research is needed to further analyze these opportunities and what they would mean to farmers.

FARMER FEEDBACK



I'd be interested in getting more details on a pilot program or beta program. I'd be curious."



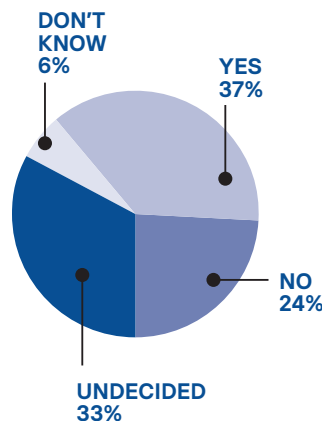
They all sound like good ideas. It's just...I don't know enough about it yet to absorb it."

Lower loan interest rates for transitioning and post-transition farmers could be a commercially viable possibility given strong farmer interest and the significant reduction of risk in a loan portfolio of soil health farmers versus conventional farmers. An important area of work going forward will be for banks to more carefully assess these risk opportunities and incorporate them into their credit and pricing decisions.

A soil health transition loan could also help lenders in attracting new clients. As noted above, many of the respondents were likely assuming that they would need to switch lenders to access the product. Later in the survey, farmers were asked directly whether they would switch from their current primary operating loan provider to a new primary operating loan provider to take advantage of the loan offer. In response to that question, 37% replied yes, 33% were undecided, 24% said no and 6% were unsure.

FIGURE 14

Farmer willingness to switch lenders to access a soil health transition loan





Recommendations for agricultural lenders

This market research is the first of its kind in testing farmer reactions to a model soil health transition loan product. The results are particularly significant given their robustness, gathering input through structured interviews by a well-known agricultural market research firm from a representative sample of 100 Iowa corn and soybean farmers. Further, the sample was not weighted towards farmers predisposed favorably to the adoption of soil health practices and can therefore be considered representative of an agricultural lender's typical client base.

The survey identified a substantial market segment of farmers who are interested in taking advantage of a soil health transition loan product, especially if either an interest rate or cost-share incentive is included in the package. **With the inclusion of either of these incentives, half of the farmers indicated that they would be likely to participate.**

The farmer respondents also asked important questions about how the product might impact their relationship with their lender, how it would be implemented and the potential for strings attached. These questions are all necessary for a lender to work through if they are to pursue a soil health transition product.

These survey results have several important implications for agricultural lenders seeking to support their clients in adopting appropriate soil health practices.

- **Increase your understanding of the risks and opportunities in your portfolio and the role soil health practices can play to create value for your lending institution.** Lenders should consider collaborating with organizations working to quantify the financial impacts of conservation adoption and share the lender perspective on what data is needed to support modified lending programs, policies or products. Lenders could also use banking system database capabilities to build comparative assessments of producer financial performance based on the adoption of soil health practices and management systems, and collaborate with farmer clients who have adopted resilient practices or management systems to examine the relationship between

those changes and their long-term profitability and risk. They should also identify and remedy data blind spots, including those specific to small farmers or other historically disadvantaged farmer groups.

- **Talk to your clients about soil health practices and their economic and environmental value.** Lenders are unable to prescribe agronomic practices with their clients, however, they can encourage their clients to explore management practices that build soil health and increase yields and resilience, and connect them to supporting information, advice, and examples. This survey indicates few lenders have these conversations with farmers currently. Importantly, lenders should also be open to client proposals to introduce soil health practices into their management plans.
- **Develop and test soil health transition loans.** Lenders should discuss with their clients how they can design loans to support farmer adoption of soil health practices. This survey indicated that lower interest rates are one clear opportunity to support farmers, and lower rates may be justified by the lower risk associated with farmers using soil health practices. Flexibility with other loan terms may also be helpful, for example, working with farmers on a multi-year financial and loan plan, relaxing certain underwriting requirements in the early years of adoption, and potentially including favorable terms for necessary equipment as part of a soil health transition loan package. As the appropriate loan features are defined, lenders should create and test products with their clients, adapting them over time.
- **Incorporate long-term financial projections of soil health practices when evaluating loan opportunities.** As lenders build a portfolio of soil health transition loans, they should assess the performance of these loans with respect to risk, financial return, and environmental impact. This analysis can test the hypothesis that soil health loans are lower risk compared to loans for conventional practices. These long-term financial benefits should be included in the financial projections that go into credit models.

Engagement in soil health products and programs presents a variety of new business opportunities for lenders and their farmer clients to reduce risk and improve the long-term profitability and value of the land. With research to show both the economic viability of soil health practices and significant farmer demand for new soil health lending products, there is a clear path for lenders to support a more productive, profitable and resilient agricultural system.

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