



# **Conversations with non-choir farmers: Implications for conservation adoption**

Report for the Walton Family Foundation

**Prepared March 2020 by:**

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## Acronyms

APH	Actual Production History
FG	Focus Group
IA	Iowa
IL	Illinois
IN	Indiana
NOLs	Non-operating Landowners
NRCS	Natural Resources Conservation Service
SWCD	Soil and Water Conservation District
USDA	United States Department of Agriculture
WFF	Walton Family Foundation

# 1 Introduction

The following report documents the results and implications for the study, “Conversations with non-choir farmers: Implications for conservation adoption”. We conducted 10 in-person focus groups with farmers (IN=5; IA=3; IL=2) and three online focus groups with non-operating landowners (NOLs) who own land in Indiana, Illinois, and Iowa. This research sought to answer the following research questions:

- 1) What are viable strategies beyond what WFF is currently investing in to promote agricultural practices that reduce nutrient runoff?
- 2) How and under what conditions can policies help to change farmer and landowner behavior? What are potential barriers, particularly resistance from the agricultural sector?
- 3) What do Corn Belt farmers think about the limits to voluntary conservation? Do they see a need to think beyond voluntary conservation?
- 4) What suggestions do Corn Belt farmers have for how to motivate wide-spread adoption of conservation practices to improve water quality?
- 5) How could new policies and incentives be tied to existing funding streams (e.g., Farm Bill) or other financial incentives?

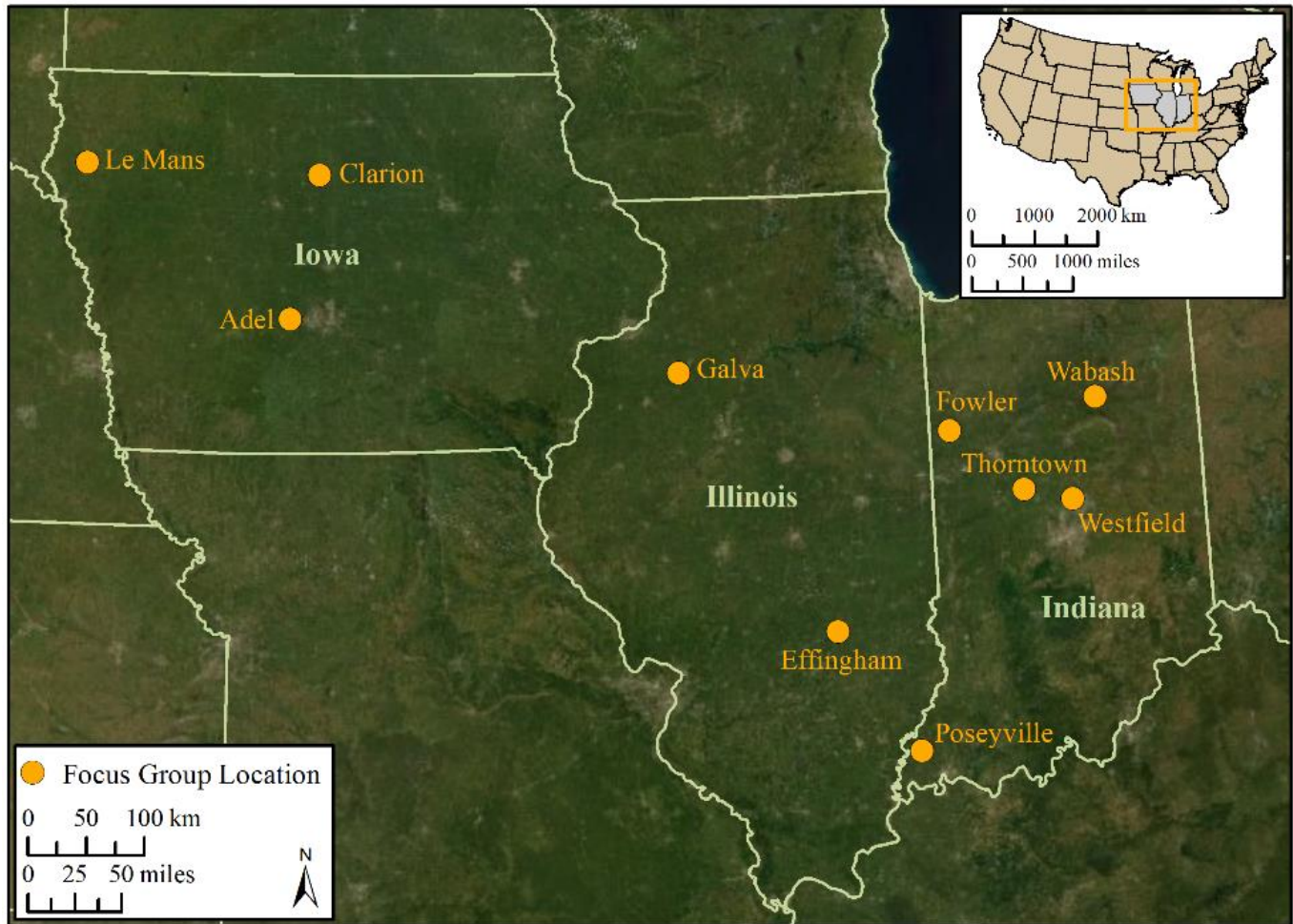
The focus group questions were designed to foster participants’ discussions of their perceptions on seven topics related to the research questions: 1) regulation; 2) conservation barriers; 3) market-based policies; 4) conservation targeting; 5) motivations for widespread conservation adoption; 6) communication networks; and 7) certification programs and private sector funding for conservation. The following pages include data from the 13 focus groups – 10 with farmers and 3 with NOLs. We conclude with implications of our findings.

## 2 Methods

We utilize focus group discussions for data collection due to the exploratory nature of the research questions. Focus group discussions allow conversation to flow between participants to explore existing perceptions and new ideas.

To understand nuances across the Corn Belt, we conducted farmer focus groups in each of the “I” states – Indiana, Illinois, Iowa – to encompass different cultures and geographies for row crop agriculture in the Midwest (see Figure 1). We sought to reach “non-choir” farmers, or farmers who had not yet adopted conservation practices or had implemented minimal levels of conservation practices. We placed particular emphasis on selecting farmers who had not tried cover crops, because cover crops are one of the most effective and most promoted practices for reducing nutrient loss and increasing soil health in the region, yet farmer adoption remains low. Participants were recruited using the research team’s contacts in watersheds across the study states. In Indiana, Soil and Water Conservation District, Purdue University Extension, Indiana State Department of Agriculture, Indiana Soybean Association, and The Nature Conservancy staff invited non-conservation farmers in five separate watersheds. In Iowa, participants were recruited in three distinct areas of the state – northwest, north-central, and south-central. Local extension agronomists were asked to identify and recruit farmers in their networks who may have been considering cover crops, no-till, and other practices, but had not adopted them yet. In Illinois, participants were recruited by University of Illinois Extension Watershed Outreach Associates located in two priority action watersheds through the IL Nutrient Loss Reduction Strategy. Extension associates worked with local farm organizations and did direct marketing to recruit participants. Each focus group lasted between 1 and 2.2 hours. Participants were provided lunch and given token financial compensation for their participation. Farmer focus groups were conducted in two rounds. Three focus-groups were conducted in the first round (IN=2; IA=1). Seven focus groups were conducted in the second round (IN=3; IA=2; IL=2). Insights from the first round of focus groups helped inform the questions we asked during the second round of focus groups.

**Figure 1. Focus group locations**



Scheduling these focus groups was incredibly challenging. Almost by definition, “non-choir” farmers are people who do not regularly attend meetings. Despite all our best efforts to work with local partners to identify and recruit these farmers, to hold focus groups in neutral locations, and to recruit farmers with a cash incentive and a meal, we had several focus groups fall through at the last minute due to cancelations or inability to recruit. We also had to cancel several focus groups because of the weather – unexpected snow, wet spring leading to an extremely late harvest, etc. However, we are confident that we ultimately were able to reach the right type of farmer and that focus groups were the best way to collect the information contained in this report. All of the researchers involved in this project have extensive qualitative research experience with conservation-oriented farmers. The conversations we had in the focus groups, and the overall tone of the focus groups, were unlike conversations we have had in interviews and focus groups with conservation-minded farmers. Many of the farmers attending the focus groups had given little thought to topics we discussed and needed the group setting to get them thinking about the issues. The group setting helped the farmers corroborate each other’s experiences and let them use other people’s ideas as a jumping-off point for their own ideas.

We also conducted online focus groups with NOLs who owned land in Indiana, Illinois, and Iowa. Because NOLs could be located anywhere in the country, we conducted these focus groups online using Zoom (a web-based conferencing system). NOLs were recruited from an existing list already collected by Dr. Prokopy’s research group. The NOLs in this dataset are part of a randomized control trial who have expressed an interest in learning more about soil health. In a survey administered by Dr. Prokopy’s research group, these NOLs indicated an interest in a follow-up conversation to learn more about their perceptions of soil health and conservation by providing their email address. Subsequently, these NOLs (n = 220) were sent an online survey inviting them to participate in one of the three online focus groups. The first online focus group had 3 participants, the second had one participant, and

the third had 3 participants. The first and the third focus group lasted approximately 1 hour. The second focus group lasted approximately 30 minutes. Participants were financially compensated for their participation.

All focus groups were recorded and transcribed. One researcher analyzed the collected data in NVivo (a qualitative analysis software) to identify predominant themes related to the relevant research questions. These themes and outputs were reviewed and agreed upon by the rest of the research team. Quotations included in the following report are representative of themes that emerged in the focus groups. Quotes are attributed to the state and the farmer focus group; for example, IN1 means one of the Indiana focus groups. At times, we include a conversation between focus group participants. In those cases, we label each quote with P1, P2 and so forth, to distinguish speakers. For focus group with NOLs, quotes are attributed to the first, second, and third focus groups as FG1, FG2 and FG3, respectively. Presented here are conservation barriers and strategies to overcome them. We have made an effort to note when more than one focus group agreed upon, or if *only* one focus group mentioned, the topics presented next.

## 3 Results from farmer focus groups

### 3.1 Demographic and background data

The following data are combined results from paper surveys distributed at 10 farmer focus groups<sup>1</sup> (IN=5; IA=3; IL=2). See Supplementary Material (SM) for detailed figures and graphs.

- Of forty-three farmers<sup>2</sup> that responded to the survey, the majority had 4 or more years of college (n=22, 51.2%), 20.9% had some amount of college education (n=9), and 16.3% had a high school diploma or GED (n=7) (Table 1 SM).
- The average age of respondents was 57 years.
- Respondents operated an average of 1,781 acres and owned an average of 1,046 acres (Table 2 SM).
- Most respondents were not affiliated with an environmental or conservation organization (n=32; 74%). In contrast, most respondents were affiliated with a farm organization (n=30; 70%) (Table 3 SM).
- A majority of respondents reported that they have a farm succession plan (n=36; 83.7%) (Table 4 SM).
- A majority of respondents reported that they had received a conservation payment when answering the question, “*Have you ever received conservation payment (e.g., EQIP, CSP, other cost-share)?*” (n=36; 85.7%<sup>3</sup>) (Table 5 SM).
- Almost every respondent reported that they are aware of water quality problems in the Mississippi River Basin (n=41; 95.3%) (Table 6 SM).

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<sup>1</sup> In two focus groups in Indiana, two participants in each focus group belonged to the same family. For the analysis presented here, these four participants have been treated as individual farmers.

<sup>2</sup> Overall, 46 farmers participated in the focus groups. In an Illinois focus group, demographic and background data were not collected from one farmer. Two farmers from a focus group in Indiana were also seed dealers; because their background and demographic data did not seem useful, they were excluded from this analysis.

<sup>3</sup> In retrospect, we believe we should have been more precise in our definition of “conservation payment” and provided a timeframe. Most farmers in the region have received some form of conservation payment over their farming careers. For example, a 2011 survey showed 62% of Iowa farmers had participated in at least one state or federal program, and the 2017 Census of Agriculture indicates that 41% of farmers were enrolled in the Conservation Reserve Program alone (USDA NASS 2019). In addition, Illinois, Indiana, and Iowa historically have provided state cost-share payments on common erosion-control practices such as terraces, grassed waterways, and ponds, especially in the 1980s and early 1990s as Conservation Compliance for highly erodible land was established and implemented. Given this context and the lack of specificity of the question, it is not surprising that such a high percentage of the focus group participants reported receipt of a “conservation payment.”



- Many respondents used nitrogen management practices on all or some acres such as soil testing, spring and variable rate nitrogen application, nitrogen stabilizers, the Corn N rate calculator, and a nutrient management plan (see Figure 2 SM).
- Most respondents were not using structural practices such as bioreactors, saturated buffers, sedimentation basins, and two stage ditches; however, some had terraces on some acres (Figure 2 SM).
- Some respondents were using conservation tillage practices on some acres (intermittent no-till, conservation tillage, and continuous no-till), but few were using these practices on all acres (Figure 2 SM).
- Cover crops were not a popular practice – a majority of respondents reported either not using them or using them in the past but not currently. Eleven of 43 respondents reported currently using them on some acres (Figure 2 SM).

### 3.2 Topic 1: Regulation

We asked several questions about regulation, including whether participants thought there is a credible threat of regulation, what the future of farm regulation might look like, and whether they thought there may be a fair level of regulation. Our focus group data suggest that farmers feel that there is a credible threat of regulation; for example:

*“I think it’s possible...all of us realize how much the government likes to stick their fingers into everything and tell people what to do. I do think there would be some backlash there, but to say that we’re not going to see more regulation...is a little foolhardy because we see it coming in everything else.” – IN2*

Farmers in a focus group in Iowa also felt that the threat of regulation is credible but expressed that they were more concerned about the source of regulation, as is illustrated in this conversation amongst focus group participants:

P1: *“It’s very credible.”*  
P2: *“I’m more concerned about who’s going to regulate it. Is it going to be industry, is it going to be government, is it going to be--?”*  
P3: *“Environmentalists?”*  
P2: *“--environmental? Exactly.”*  
P3: *“Animal rights people have just...”*  
P2: *“Yes. That’s who I’m more concerned...”*  
P1: *“It’s going to happen. It’s just who is it coming from?”*  
– IA2

Although the threat of regulation was perceived as credible, farmers also expressed strong opinions against it; for example:

*“I wouldn’t want it [conservation] to be mandatory...a blanket is not going to cover everything. We’re trying now to farm by acre by square foot, not by the farm...For someone to come tell me, ‘You’ve got to do this on that farm,’ well, it won’t work on this farm over here...So [don’t] make it mandatory...” – IN3*

*“I don’t think we want to get to a point where some outside entity tells us how to farm. I think there has to be benefits to the landowner why they want to do it, the farmer, why he wants to do it. But for an outside group...tree-hugging group, whatever you would call them to say, ‘Hey, you’ve got to do this because you’re in this watershed, right? All farmers have to do it because we think it’s best.’ It’s a bad idea.” – IN4*

*“I don’t know if we need any [regulation]. Because if the market’s dictating, you know what, I’m going to get a little bit more if I have cage-free eggs. And I can financially make that work, I’m going to do that voluntarily... You see, it’s self-regulating” – IA2*



The word “regulation” triggered references to the Mississippi River Basin, Chesapeake Bay, Lake Erie, and Toledo, Ohio. For example:

*“My fear is that it's [conservation] going to become non-voluntary and how that's all going to be implemented. There are obviously some major concerns in the south...you get down to Mississippi...there are some major problems down there. And how that's going to affect us up here, I'm not sure how much voluntary it's [conservation] going to be” – IN5*

*“I'm really glad I'm not a farmer in the Chesapeake Bay area, but they've legislated how to farm up there, and all the tests and studies so far since are showing that things are getting worse. They're running farmers in the ground, they're producing worse crop, and there's still more nutrients in the lake...” – IA1*

The following discussion ensued in a focus group in Iowa when asked if participants thought there is a fair level of regulation:

*P1: “...every dollar I spend on land or fertilizer, I want that to stay put...I don't want to spend \$80 an acre on fertilizer.”*

*P2: “And have \$60 of it go down the river.”*

*P1: “Right. So, I should be able to be aware enough as a producer to try to enact practices that will keep that fertilizer...But if it's going to be a big public crisis that we have, algae blooms in the Gulf of Mexico because of this [nutrient runoff], I don't know what the answer is to that either...I still think it belongs on your own personal farm...I guess some people [farmers] have to be regulated. I hate to see it go that way, but.”*

*P2: “There's always one or two bad apples. That's what you see. And with the social media platforms we have, unfortunately, they give everybody a bad eye.”*

*– IA3*

Participants felt that future regulation could take the form of limits to nutrient application, including timing and amount. For example, a farmer from Indiana mentioned, “They'll probably limit how much P and K and phosphorus we can put on.” Farmers also mentioned the possibility of regulating setbacks to waterways and roads. Overall, farmers do not want to be regulated – they see themselves as independent problem solvers who want to do the best they can to steward their land.

*“Everybody thinks we're the problem...but if they're saying we're the problem... figure out a way for us [to solve the problem]...the truth is if I'm dumping nitrogen into that stream, I'm losing money...if I know that I'm losing money, I'll make management decisions to change...but I think that...we do all we can, and it's not even us that's causing the problem...I think getting those three- or four-inch rains...We're getting more surge rains, and those surge rains are not causing the denitrification. They're causing all the municipalities not to be able to handle the water... Well, if they get too much, [they] just opens the gate rather than flooding the city...”*

*– IN4*

When discussing regulation and the future of regulation, farmers noted several approaches that should be considered, making the following suggestions:

- 1) Overall, focus groups participants expressed that if they were to be regulated, regulation should be presented as an incentive, not a burden, i.e., it should take the form of a carrot, not a stick.

*“I think you're better off incentivizing them [farmers] by offering cost shares and offering opportunities of X amount of dollars an acre.” – IN4*

- 2) Regulation should be based upon science (e.g., soil tests, etc.) rather than based upon what participants expressed as “arbitrary numbers” set by government entities. Participants felt that they should be able to meet their financial thresholds even with regulation present. In one Indiana focus group, participants felt that university extension could be a trusted platform to share science/education. Participants in another Indiana focus

group were somewhat skeptical about extension's role in communicating science. Illustrating this point, a focus group participant mentioned:

*"I would hope that it's [regulation] based on science and I would hope that whatever regulation comes about if we are limited on how much fertilizer we can put on. I would hope they would be based off science and soil tests instead of just some arbitrary, low number, which will restrict what you can do...regulation can be okay if it truly prevents the problem and prevents especially excess fertilizer above and beyond an economic threshold...It's based off of science...what you have and what you need instead of what's perceived to be needed."* – IN1

Expressing the need for studies examining the net benefit of farmers' efforts to reduce nutrient runoff in the Gulf, a farmer from Illinois mentioned:

*"...the amount of sediment and the amount of nutrients that were going down the Mississippi back in in the 50s, and 60s, and 70s. There's probably less today. And I know that the first 10% are a lot easier to clean up than in the last 10%. At what point are our efforts returning no benefit? Has someone done anything of that type of study?"* – IL1

The need for more scientific evidence was also mentioned in light of current commodity prices making it imperative that farmers are mindful of how much, and when they apply nutrients, in order to minimize runoff; for example:

*"Especially with what [commodity] prices are...I would figure out a way to do a three-pass nitrogen program if you said, 'Well, you're losing 20% your nitrogen down this drain tile.' And I could understand that with pattern tiling, we're going to have more nitrogen making it out because we've got more tiles in the field. But at the same time, more so now than ever, we are split-applying our nitrogen."* – IN4

- 3) Regulation should not be directed only at farmers. Instead, the whole supply chain should be considered, with input prices also regulated to ensure farmers' financial stability. In addition, farmers felt that although they are willing to be good stewards, current low commodity prices are challenging their ability to make ends meet; additional regulations could be an additional financial burden. Illustrating this point, a focus group participant mentioned:

*"So, if the government steps in and says, 'Well, you can use nitrogen but only up to this amount.' Or, 'you've got to use this with your nitrogen to help prevent runoff or help sand ground.' Or, 'you've got to make three applications instead of two or only one.' All of those things cost us money...We're willing to be good stewards of the land, sure. But I guess if you're going to put in regulations, you've got to not just look at the farmer, and you've got to look at the whole supply chain. You've got to look at the seed, the chemical, everything, and regulate those prices as well because right now, we're at a point where it's damn hard to break even. If we have a bad year, we're losing money. And a lot of farmers can't manage over maybe two years of that, and they're done."* – IN2

In other focus groups in Indiana, farmers mentioned:

*"If they're going to regulate me, then I would like to be able to regulate how much food every person in California consumes because their feces is a problem with our waterways as well...that's the challenge we get into. Right now, they only want to regulate one segment of the problem...when you over-regulate us, you make us weaker. So, for me, no, I don't believe there should be regulation."* – IN4

*"I think there's a slim chance. It [agricultural production] could be regulated...[however, it should] not only [be] farmers...because some of the runoff, and probably a lot of it, is not agriculture based or farmer row crop based. It's highways, concrete, buildings, people's lawns and people fertilizing their yard...and they're not getting blamed."* – IN3

Expressing similar sentiments, a focus group participant in Illinois mentioned:

*"Everybody wants these pretty yards in all these cities. And I think that puts more crap out there than what we put out there."* – IL2

- 4) Regulation should account for spatial distribution and likelihood of a farm’s contribution to conservation/water quality issues. Spatial distribution of regulation was mentioned with reference to mainstream waterways, roads, and areas of watersheds that contribute disproportionately to conservation/water quality issues. A small number of farmers expressed that regulations for property located along waterways might be an option, given their potential to contribute disproportionately to conservation/water quality issues. During this discussion, farmers raised questions about whose responsibility it should be to implement/monitor those regulations. Farmers suggested that a person familiar with the topography of a given area could be responsible for implementing/monitoring those regulations. The quotes below illustrate these points:

*“...why aren't we doing these [government] programs from the waterways out? ...The guys that are close to the waterways that creates the rivers, whatever, are the ones that are going to get the bigger benefit from doing this...Work your way out from there [mainstream waterways]. And there probably should be some regulations along those waterways honestly. Because there's some people out here that are a little sloppy on what they do...” – IN2*

*“...there's some pretty good funding...for cover crops, etc. [in my watershed] ...[However] there are a lot of guys [in a different region of the same watershed]...they just aren't going to do it...and a lot of these guys, big cattle feeders, do a lot of chopping. I mean, what an opportunity to get involved in this and they don't do it. There's a mindset out there that...[we don't like] the government. We're going to do what we want to do and that's it.” – IA2*

- 5) Regulation could help streamline government programs. For example, in an Indiana focus group, farmers mentioned that highly erodible land should be under CRP. However, they had seen instances of highly erodible land in production and productive land under CRP. To alleviate this issue, the farmers in this focus group felt that regulation could ensure that only highly erodible land is under CRP. Illustrating this point, a focus group participant mentioned:

*“[It's] aggravating for me to see whole fields in CRP, and we've got some highly erodible ground out there that [isn't]...it still gets under my skin that some of these high-productive grounds are sitting in a CRP.” – IN2*

- 6) Regulation of fall fertilizer application may be acceptable. Farmers in one Indiana focus group indicated willingness on restrictions to fall application of fertilizer. However, this group raised two concerns: 1) fertilizer dealers incentivize fall application through lower pricing because the dealers have more time and resources to apply in the fall, and 2) lack of availability of fertilizers in spring. Illustrating this point, a focus group participant mentioned:

*“...if you were going to mandate anything in, I guess that's [not applying nitrogen in the fall] something they ought to mandate.” – IN1*

For additional insights regarding structural barriers associated with regulating fall fertilizer application, please refer the section on conservation barriers pertaining to farm management (section 3.3.2).

- 7) Within the context of crop insurance, it was generally understood that conservation compliance would be necessary. Participants in an Indiana focus group felt that conservation compliance as they see right now is “a good start.” However, in response to the question about making adoption of additional conservation practices a requirement for crop insurance eligibility, a participant from the Indiana focus group mentioned, “...crop insurance is to protect your assets...I don't think crop insurance should be tied to anything else.” Although participants agreed that fines were a credible enforcement mechanism for conservation compliance standards, they discussed fining farmers for extreme negligence rather than circumstances beyond farmers’ control (i.e., extreme weather events). However, despite widespread support of conservation discounts, participants in several focus groups mentioned that crop insurance should not be heavily regulated because farmers need the resource in bad years (e.g., droughts/floods). For example:

*“We're still in a mode of trying to incentivize growers to have crop insurance to provide stability in their businesses so that we don't need disaster relief...[by tying crop insurance eligibility to conservation compliance] you're literally incentivizing them to not take crop insurance because you're going to have guys that are like, 'Fine, but now I'm not in it [crop insurance] at all, so*

*you've got nothing on me. So...now I am tearing out the wetland. I'm draining everything...Well, that's the attitude that some growers get because as much as adding regulation may do the positive, I think you're going to hurt it.” – IN4*

In a focus group in Illinois, when asked whether farmers would be supportive of extending conservation compliance to all cropland rather than just HEL, a participant mentioned:

*“I think it's a possibility, I don't think people would just reject it outright, it just depends on how it's laid out to the farmer. You know, step 1, 2, 3, and all you have to do. You're step 3 well you're doing these things, but this is the benefit, you know, so then the farmer can see whether the benefit is worth it to him for his farm.” – IL2*

In a focus group in Iowa, when asked whether tying conservation compliance to crop insurance would influence conservation behaviors, the following discussion ensued amongst participants:

*P1: “It probably would but who would be responsible for designing the matrix [of requirements] and how would that matrix be measured against your own farm?”*

*P2: “And also, how many compliance officers are you going to have to check every farm?”*

*– IA3*

### **3.3 Topic 2: Conservation barriers**

As part of focus group discussions, we were interested in learning about conservation barriers (both real and perceived). Overall, participants discussed barriers pertaining to perceptions of farm economics, farm management, government programs, rented versus owned land, and social norms. A summary is provided below.

#### **3.3.1 Economic considerations**

Farmers' economic considerations pertained to costs associated with adopting a conservation practice, as well as perceived risk of adoption relating to impacts to crop insurance premiums for new/early farmers, current commodity prices, and potential yield impacts. Participants in all three states made frequent reference to the real and perceived impacts of conservation adoption on the economic bottom line.

*“Just take that [cover crops] as one example. I work for NRCS. I see all the data. I've listened to all that stuff. But then, I also look at, ‘Okay, it's \$30 an acre.’ That's a big cost. I mean, in my budget right now, it's a big cost.” – IA1*

*“So, I think it's economic. It has to be...if you feel like having a conservation program on your farm, the long-term benefits of better soil, or wildlife habitat, or better drainage, is really hard to realize. And if the government doesn't provide a program to help...it's an expense to do that because you're taking ground out of production and prices aren't very good right now. So, you really have to have some kind of economic reason to do it because long-term benefits are just too far out there.” – IN2*

*“I've never [done] cover crop. I can see some benefits of it. But when you get looking at the financial end of it and then in the interim who's paying for that for the producer and reduction in yields or whatever?” – IN1*

*“I don't know if that guy doing strip-till and cover crops is truly in a better moneymaking position than I am buying old iron<sup>4</sup> and cheap stuff. From what I can tell, I'm better off to buy old iron and use cheap stuff and do more of a traditional route.” – IA1*

*“Probably cost [is a barrier]. It's cost and then you got to prove the benefit. It's not really clear you're going to get the benefit...your organic matter, your soil conditions are better the next spring but I've yet to be proven of that.” – IA2*

*“I think all of the excuses that I've heard, and I've used them myself, and one is cost. It costs plenty to use an airplane to fly on your [cover crop] seed. And then the extra expense of the*

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<sup>4</sup> Tillage equipment, planters, tractors, etc.



*seed...if there's an equipment cost to it or an equipment change, that's an expense that in the last four or five years is not been easy to have justified.” – IA3*

*“We know there's certain things that need to be done to try to make improvements and sometimes it's the funding. You can't break the bank trying to do some of this stuff.” – IN3*

*“I think it's the hurdle of bearing the cost for what purpose....if I spent money on the conservation methods, do I get an immediate revenue benefit from it? Often, the answer is no. You're not going to get dollars back” – IN4*

*“We have not seen the benefit of doing it [cover crops]. We cannot get it to stand alone and pay for itself no matter how we've tried it...So the economics just don't work for us...It's just too expensive.” – IN5*

Crop insurance discounts for conservation may be acceptable. In Iowa, there is a pilot project that provides \$5/acre discounts to farmers who try cover crops (<https://apply.cleanwateriowa.org/>). However, in one of the Iowa focus groups, participants were unaware of this program. In another Iowa focus group, farmers felt that the discount would help, but cautioned that participating in other government programs might disqualify them from participating in the crop insurance discount program; for example:

*“I think it would help...[However]...you can't double-dip...So, if I take EQIP money..., I can't take a 5% discount. Because the government says you're double-dipping and you can't do that.” – IA3*

Farmers in two Indiana focus groups had favorable opinions toward the idea of receiving insurance discounts for conservation implementation. These opinions were expressed when the research team referred to the Iowa pilot project – this was considered to be a carrot instead of a stick approach to regulation. However, there was some concern in focus groups that their actual production history yield (APH) could be reduced due to certain conservation practices, and thereby their insurance payouts could also be reduced; for example:

*“...you pick up any new ground, you start out with the county average...starting out as a new farmer, you've got 10 years before that yield's kicked out...So, screwing up [yields] once sticks with you for 10 years as far as any insurance goes...It's an insurance company, so they're limiting the risk. They're trying to tell you, ‘Do whatever limits risk.’” – IA1*

*“My neighbor said that's why [decline in yield affecting APH] he doesn't do no-till because he thinks for the first three years maybe or so he would lose yield while his soil is adapting to that new system.” – IA3*

*“...because they use a 10-year average for your yields...if you have any low ones it's going to bring your average down. So especially, and I've heard this for years, you've got to be dedicated to no-till and just bite the bullet and take the transition period. But with prices like these, nobody wants a transition period.” – IA3*

*“...you're talking about yield...So if you lose one year, you have one year down, that's not just a one-year problem, let's say it's only 10 bushels that you dropped your 10-year average down one bushel. So that would be an issue for me because...you're doing the cover crop as a risk...so now you're just not only getting a risk of investing in the cover crop, now you're also losing your yield. So that's not just a one-year problem, that's a 10-year problem” – IA2*

### **3.3.2 Farm management**

Participants' perceived barriers to conservation adoption related to farm management included soil moisture management. Drainage water management is an integral component of farming operations. Indeed, farmers' concern about managing the level of moisture on their farm was expressed in all focus groups. For example:

*“Our first step on our farms are putting more tile...the soil's too wet. They won't germinate. We need tillage to dry it out. So, I'm ignoring all those programs and focusing on tile...But that'll give us more options in the future if the fields are more fit. You can do different tillage practices. You can get in there with the high-clearance tiller more often to do side-dress or whatever. But if your field's wet and muddy, you're out of options.” – IA1*

Specifically, we asked focus group participants to reflect upon inclement weather during this past year's farming season, and how, if at all, did it influence how they thought about farm management and conservation practices. Indeed, one of the first reflections pertained to managing their farm in relation with excess moisture, as illustrated in this conversation amongst focus group participants:

*P1: "Timing is everything in farming. I don't care what you do."*

*P2: "Right. The last of couple years...for us, we just were trying to get by with as less manpower as possible, but it's just been a struggle trying to get done..."*

*P1: "The wetness. Even if you did have time the ground is so wet, you're just squeezing mud from here to there..."*

– IA3

A question of particular interest for the research team was to understand if the inclement weather influenced farmers' perceptions about the importance of conservation practices. For some focus group participants, dealing with excess moisture on their fields brought to fore the importance of tiling. For others, it made them think about conservation possibilities associated with managing drainage on their farm. For example:

*"I think that's the biggest thing, is we have to realize tiling is a necessity almost with these weather patterns...I remember when I was a kid, when it rained, it was half an inch, and now, if you get rain, it's three and a half inches, and what do you even do with it?" – IN4*

*"Only thing I could see was subsurface drainage. I need more tiling in the fields. And that would've helped a lot more if we had a lot more tiling, more patterned tiles in there. Our problem was too much residue on top of the ground. It just wasn't drying out... Getting the moisture away in the spring is something we need to address a little bit more." – IN3*

*"I think there could be some amazing opportunities of conservation drainage, not surface drainage, subsurface drainage." – IN4*

When prompted that tiling is not a conservation practice by itself, a conversation ensued among focus group participants suggesting that they believed it does aid in conservation. For example:

*P1: "...the question is will tile help conservation? I'm going to have to say, in my opinion, it does."*

*P2: "it's a type of a filter too...[it] let's pure water come out, than if you didn't have any tile system at all it would just have to ran off or it would just sit there and basically become a marsh in the worst case scenario. So, I would totally disagree."*

– IN3

Expressing similar sentiments, focus group participants in another Indiana focus group mentioned:

*"I think that you're going have more [weather] extremes...I think we're going to try to continue to do tiling and other things...that's our conservation practice. We see more pattern tiling, and that's what we'd like to do. That's our main focus right now." – IN5*

*"In the scheme of our operation, doing that systematic drainage [tiling] is kind of a piece that moves us towards more and more reduced tillage." – IN5*

The topic of inclement weather also resulted in discussions around farmers' experiences with specific conservation practices, especially no-till and cover crops. The following quotes from different participants in an Iowa focus group illustrates how excess moisture in fall forced them to no-till their ground, subsequently resulting in them seeing the benefit of no-till in spring, and therefore motivating them to adopt no-till in the future:

*P1: "...we usually no-till all of our farms over east but we usually try disc around home. And we disc and it'd get mucky underneath and we couldn't go on this [farm], so we ended up no-tilling a lot because it was firm. And the no-till worked a lot better."*

*P2: "And that's something I would definitely agree with because we till everything. And after this year, that's what I noticed, that tillage ground, it would stay wet."*



P1: *“We could go on a no-till field...we pulled in some fields that were disked and we had to pull out and we'd go into a field that wasn't [tilled] and it worked fine.”*

P3: *“Our neighborhood was the same way. We did the same thing. We watched guys disking, turn it off...And we just went no-till, and so far, we're happy with the decision this year.”*

P1: *“We no-tilled a lot more than we were planning on...I'm thinking that next year I'm going to be no-tilling, especially my bean ground...”*

P4: *“I think you're going to see more guys pushing that no-till next year because they were forced to it this year.”*

P1: *“And I saw how it worked...I think you're right, it's going to push more people towards no-tilling.”*

– IA2

In central Iowa, the research team asked farmers to explain their thoughts about relationships between tillage and soil moisture. A focus group participant said, *“Seems to me [on] no-till [ground] that rain ran off because the ground was hard.”* The following quote from a farmer in a different focus group in Iowa highlights the negative effect of weather on cover crop adoption, but supports a view that excess moisture motivates no-till because their ground was “firm”:

*“I guess we saw a lot less cover crops put in this fall because everybody was way behind. And also, I saw some of my neighbors struggling to get their crops planted because of cover crops...it was just one of those years...but I've been no-till for 20 years and my ground is so much more firm that I didn't struggle with tracks and tearing out a lot of stuff because of that. And I think that's important.”* – IA3

In another focus group, no-till was perceived as a practice that hindered the ground from drying, and therefore, was not implemented. For example:

*“It [the weather] changed our decisions greatly because a lot of the conservation practices is more residue on the soil or growing [cover] crops on there which hindered ability to get on the ground because it was too wet. So, we had to work [till] some ground that we wasn't planning on.”* – IN3

The same farmer also saw a difference in yield on their tilled versus no-till ground, providing further rationalization for them to till their ground. They mentioned, *“...there was almost a 10-bushel difference on these beans...One was no-till, and one was not, and planted a day afterwards. So that's huge. And same variety. So, they just didn't take off. Well, the ground was worked, dried out, whereas no-till was wet...So, you could see it throughout the whole year that they were behind the others.”*

Adverse effects of weather were also mentioned as a barrier to cover crop adoption. For example:

*“Last fall was a pain in the butt enough to try to sow wheat let alone getting any cover crops, and it all depends on the weather...”* – IN1

*“We had almost 50 inches of rain this year, which normal is 38. And the year before we had 59 inches of rain. So, we're getting a lot of precipitation to deal with. The cover crops that I planted this year, we seeded them at the normal time for us, and they just didn't grow this year. I think it's because it's just cold, wet, snow was on it...the weather did affect my cover crops [negatively]”* – IA3

Although we saw mixed, and somewhat contradictory, responses in terms of inclement weather influencing farmers' perceptions about the importance of conservation practices, the evidence highlights the complexity of farm management, especially with respect to managing moisture on the farm.

In addition to discussing barriers pertaining to managing excess moisture on their farms, participants noted other barriers, including increased overall management effort and that the timing surrounding a given practice can impact overall farm operations. For example:

*“I don't have time to babysit my fields all or treat every acre like a test plot. It's not going to happen. So, a high-management system, even if I believe all the numbers and think it's the right thing to do, that's going to add difficulty as far as adoption [of conservation practice].” – IA1*

*“I've talked to a lot of the cover-crop guys...and if you're going to try and do it after tillage, our growing season is so short that I don't know what around here is probably going to work...So now I've got to not only address cover crops...but then I also have to address my management because if I'm going to rip or do any fall tillage, then cover crops doesn't fit in that.” – IA1*

*“Timeliness again is important in whatever [cover crop] you plant. And killing it off, or what happens if you can't get in and get it done, then you've got a disaster? And all of those kinds of things. And change is always hard. You've done things the same way for years and again” – IA3*

*“We tried it [cover crops] for three years. It was a train wreck for us. We won't go back to that for a while...we did ryegrass down around a hog barn as part of a nutrient management plan...It got so big we couldn't get it killed. And we sprayed it twice and we still could not get it down.”*

– IN5

*“If you're talking [about] cover crops...It's a timing thing...you get such small windows of time where you can do something that's a positive thing rather than a negative thing. I don't know how you throw that [cover crops] into the mix when you're trying to just take care of business.” – IN5*

It was also noted that in terms of nutrient management, fertilizer dealers lack capacity to support spring fertilizer application, as is illustrated in this conversation amongst focus group participants:

*P1: “I generally don't put fall application fertilizer on unless I can till the ground. I don't put it on in open ground. I just don't put it on or the ground's going to flood and the water's going to move...I know fertilizer guys don't like that, because they got all this work to do in the spring. And they get pissed at you.”*

*P2: “They will do it \$3 or \$4 cheaper, just so they can get it out of the way until spring.”*

*P3: “Well, there's only so much they can do in the spring, too.”*

*P4: “They've only got so many employees and they've only got so much equipment, and that equipment's scattered over so many farms.”*

– IN1

This barrier was also discussed among farmers in an Iowa focus group; for example:

*P1: “It's a little concerning...but as farms and farmers get bigger...let's just say 10,000 acres and they just couldn't get over it all because of the weather...because their nitrogen, they put it on in the fall because of time constraints. How are you going to handle those kinds of issues because they can't get it all on in the spring...it is impossible.”*

*P2: “Even if farmers had put all their nutrients on in the spring, the infrastructure isn't set up for everybody to do it in the spring. So, there's the bottleneck there too.”*

*P1: “Because nobody in our area got anhydrous on this last fall. It's going to be a mess come spring. How do you do that?”*

– IA3

Adverse effect of weather on fall versus spring application of nitrogen was also discussed more generally in one of the focus groups in Illinois. For example:

*“...you read articles all the time about Fall applied nitrogen. Like you ain't getting that much use out of it come Spring...there's two mentalities that go with that. And I don't know how you educate [farmers] that be either fall applied, or spring applied gets away [runs off] just the same—can get away just as fast with adverse weather conditions.” – IL1*

### 3.3.3 Government programs

Barriers pertaining to farmers' perceptions of government programs included specific program elements such as the amount of paperwork, timing associated with applying for the program and obtaining payments, and program requirements. For example:

*"You have to wait 60 days for this, you can't buy anything, you can't pre-purchase anything until all this paperwork is done." – IN1*

*"But that holds true for any kind of government funding that you might get as a farmer. You have one experience like that and then you find out that, well, there is money available for cover crops or whatever. And then you're kind of like, 'I don't know. Do I really want to...do all this hoop jumping for a little bit of funding?' And maybe it's a lot of funding. Maybe it's worth it. But that's what you kind of sit there and debate. And then after you've debated in your mind, a lot of times you're kind of like, 'I don't want to do it.'" – IN1*

*"We got to have an economist come out and do this, and we got to have this person come out and do this, and then in six weeks, they're going to tell you that, 'This going to cost 150 grand, and we're going to cost-share that at 50%. You want to move forward tomorrow?'...The enrollment period ends on Friday. Today's Thursday...I feel like that's how it always is. No, I'm not going to spend \$75,000 today. I'm a person that likes to think about it and get methodical." – IN4*

Farmers' frustration with the amount of paperwork is also illustrated by this conversation amongst focus group participants:

*P1: "How does a government form that you fill out compare to one that's in the private sector? I mean, if you just think about it, it's like these questions don't even make sense...and that's probably a part of the problem."*

*P2: "...You've got to go through all these hoops and hollers to get something real simple that you're entitled to, but then they make the process so complicated."*

*– IN4*

Focus group participants also discussed barriers concerning program requirements, especially pertaining to the inflexibility of government programs and their unavailability. For example:

*"Last year, I wanted to do no-till beans in the corn stalks. I didn't sign up for [a government program] because I wanted some flexibility...I didn't think that I was going to manage very well, especially the first time I'm trying the no-till beans in the corn. And so, I was able to rip it. I didn't have to go cancel a cost-share application or get reassessed a 10% payback or anything like that. I had the flexibility to do what I want" – IA1*

*"...sort of the problem with NRCS is that they have to develop a standard that works from Maine to South Dakota down to New Mexico." – IL1*

*"...[I] have another farm that has some highly erodible ground. It had to come out of the CRP, and now there's no program to get it back into yet. So, either we're going to go back to farming it for a year. And what'll happen is what's happened before. They farm it for a year and sell them." – IN1*

*"If the farmer's willing or wanting to do a program, you don't want the government saying 'Well you can only do this. You know, you got to stop right here,' when you want to maybe even do more. It's like you want to let the farmer be able to make it right for his farm." – IL2*

*"CRP has trended down now, and you can't even enroll...a year [or] two years ago you couldn't get anything enrolled anyway. Some of that, I think should be funded." – IN5*

An important barrier pertaining to government programs was an incongruence between farmers' expectations from programs and the details of implementation. Several aspects of incongruence emerged during the focus group discussions. One such aspect was the tendency of conservation agencies to follow the nine-steps of conservation planning process versus helping farmers deal with specific issue(s) on their farm. For example:

*“One thing I've observed is sometimes the NRCS—I know they're confined by the rules, but, I think there's farmers that want to try something, but they go in there for technical assistance, or help trying to find money, but the NRCS wants you to do it complete full tilt. And a lot of farmers aren't really ready to go the full tilt way. They'll step into something a little bit at a time.” – IA3*

*“...I'm just worried about one or two ditches here where it's starting to erode. And then all of a sudden, they're tromping from my farm down to the next one. Well, you know how much do you want big brother to know. And I can see where people feel that they're being invaded. And so, if...I call them for one problem, and then all of a sudden, they want me to spend a million dollars and fix my whole damn farm...and I don't think anybody wants big brother to have that big a footprint” – IL1*

*“I remember one time we had a particular farm that we were contacted about. And the number of practices that they were asking us to implement would have been, I mean, extremely tough and would have removed quite a few acres from production. Everything probably would have been about 14, 15 miles of terraces. And thank God, I mean, I have nothing against those. But some of the other stuff that they wanted us to do was...I thought it was a little over the top.” – IA2*

*“I think there are just a lot of hoops...we've done [government] programs where you have to do five steps to do the one you want. They tie so much together...I understand where they're coming from, but it seems to us like they tie a lot together. And then their expectations sometimes just aren't practical.” – IN5*

Another aspect of incongruence was the perception that conservation agencies tend to overdesign conservation practices. Subsequently, this led to an inflation in the estimated cost of the project, thereby demotivating farmers from participating in cost-share. For example:

*“Like with [another farmer in the meeting]...our last experience was, it could be done a lot cheaper. The same way, and it made me feel like, ‘Why would I want to spend say \$20,000 and they're give me 50%? When I can do for \$12,000 and getting exactly the same thing. And I don't want to go through this funding stuff.” – IN3*

*“...on a farm that we own...we put in a waterway, and we went through FSA Soil and Water to help us plan that because they were going to cost-share on it, which they did. Well, the waterway cost \$50,000, okay, by the time we had the engineer work done. It had to be built to specs. So anyway, of the \$50,000, the actual cost of the work done was \$10,000. We would have [saved money by] doing it ourselves, leaving them out.” – IN4*

*“We were a little frustrated working with NRCS last year. Some of their designs were [based] off LIDAR. Sometimes they're not even out there in the field. And I'm a real-worlds kind of guy...they came in with their elevation numbers. And we built nine of them [terraces]. Two or three of them, I wish we hadn't done. It's just so large and so long that it kind of messed the farm...over design might be [what NRCS did]...” – IN5*

When asked what led to cost inflation, a farmer from one of the Indiana focus groups mentioned, *“I think they [NRCS] over design...they try to design something for a 100-year [storm event]...We've had some pretty large rains, and everything has got to have a maximum thing. And we all know sitting here at this table that we can design something here today. And, yeah, it may fail once every 10-years or 15, but should we design it for 100 years? Is it cost effective?”*

Yet another aspect of disconnect between farmers' expectations from government programs and program implementation was NRCS' conservation outreach strategy. Typically, these ranged from farmers' complete unawareness of government programs to instances when farmers expressed frustration with the way program information was conveyed to them. For example:

*“[[Unlike extension]...I find that there's never great, clear answers [from NRCS] other than, ‘Well, here's the application deadline.’ Well, what does it all do, or what's the dollars-and-cents?...Let's see EQIP, for example. Well, I'd just go into a pot. They'll tell me after the*

ranking... 'Well, your allocation goes into the pool. We'll let you know.' I can't go to the banker like that..." – IA1

"This late summer, I were down there, and I went and talked to someone about cover crops...I gave them my phone number, and contact, and [told them that] I would be interested. The secretary gave me all the literature and everything. 'I'll have him contact you.' And to this day he's never contacted me." – IN3

### 3.3.4 Rented farmland

Barriers surrounding rented farmland pertained to the level of landowners' farm income dependency, declining rate of CRP, landowners' financial motivations, long-term payoffs of conservation, aesthetic preferences, and type of land tenure, (i.e., cash rent versus shared crop). For example:

"... [Because CRP rates have come down from 300 dollars/acre to 230 dollars/acre]...for the landlord who has control of their land, it's not as enticing. And...she's 75 years old. Her cost of living is going up, like medical, nursing home, whatever. So, she wants all the money she can get too. So, it's not just the farmer worried about profit. It's the landlord worried about profit...if someday the next generation inherits land, and they're all 45 and have a job, you'll see a lot more conservation efforts because it's [their] side income." – IA1

"...It actually had to be a crop share to where the landowner actually materially participated in every part of the operation. Then that landlord, all of a sudden, instead of just looking for the almighty dollar, he's looking for the person that's going to take the best care of his land." – IA1

"...If I'm a farmer and I think something needs to be done. And I approach the landlord, and I say, 'Well, this really ought to be done. I can check into it at NRCS, if you want me to?' But then from the landowner side, 'Well, he's just being a crybaby. Wants me to fund something that really doesn't benefit me as a landowner.'" – IL1

"...practices like buffers and terraces. Sometimes landlords don't want you to go for it because...the newer generation, they just inherited the ground. 'Well, how many acres got [out of] production. Oh, so you mean I'm going to make less for this.' 'Yeah, but you're getting ready serving your ground.' 'I don't care. I've never seen it.'" – IN3

"One farm is owned by three people, one is local and the other two are in California. And so you can convince the one person that's here, but then you got two other people to convince that you've never met. So that's where...it seems like the only thing that gets through is, 'Well, what's the benefit financially to me? I'm going to put it in a program, and you're not going to pay rent on it anymore. How's it going to affect them?' Maybe they are retired, so they want the second income." – IL2

Perceptions that investments in conservation on rented land would not accrue to the renter, landowners' aesthetic preferences being incongruent with cover crops, and competition for rented land, are seen as barriers in this conversation among focus group participants:

P1: "70% of the land in Iowa is rented. And there's such a competition for land. If you have to wait 5, 10 years for yourself to have that practice returnable-- I mean, there's a lot of competition out there. And a lot of landowners, I'm afraid, aren't too interested in conservation. They just want as many dollars per acre..."

P2: "They in Arizona they want their check."

P1: "Right. I think that's where the biggest rub's going to be, is if your landlord is on this. And a lot of them-- my mother, I rent some ground from her...the first three years I put cover crops...She says, 'Well, you got some weeds [on] your own field'. This is brand new. 'How'd your weeds get so bad? Nobody else's looks like that.' And this is my own mother."

– IA3

Several of the aforementioned barriers are also illustrated in this conversation among focus group participants:



P1: "...On some rented ground...you can do everything you want but if the landlord isn't willing to spend the money on the terraces and stuff, a guy can only do so much if he's not willing to help... So then why spank me because Lord knows I'm not going to spend money on a rented piece of ground to put terraces in or a waterway."

P2: "No, there's no incentive for that."

P1: "No, so some of it is out the guy [out of your control] that's actually operating or farming some of that ground."

P3: "But we live in is this environment here where everybody, all the landlords, want maximum cash rent. So, if you're going to...put terraces on it, they're going to want to raise [cash rent] it more." – IA2

Landowners' absenteeism, often a function of their living outside the state in which they own their farmland and resulting lack of place attachment, were other barriers often expressed by participants. For example:

"Absenteeism, indifference, uninformed." – IN2

"I think that's more of the case people that are not in the county anymore. They inherited and then just let the farm manager handle it. They're pretty much removed from it." – IN2

"...even if the landowner was the farmer of that piece of ground at one time, chances are they don't live on it or near it. Their closest relationship with that piece of ground is the rent check they get twice a year and the taxes they pay on it..." – IA1

"As the [land] ownership base gets diluted or spread out geographically across the country, it's just maximized return. They [landowners] may talk the talk, but they won't walk the talk...They want the money." – IN5

"We have more and more distant landlords and absentee landlords who aren't there...So, as the landlord gets further and further removed, it gets harder and harder for them to know the conservation value." – IN5

A few related aspects of absenteeism, such as the tendency to maintain status quo and multiple ownership when the land passes on to the next generation, is illustrated in this conversation among focus group participants:

P1: "They don't understand it [conservation]..."

P2: "I think most of them farm the old way."

P3: "Well, this is how I've seen Grandpa do it, but I live in California now..."

P4: "Yeah, we got one farm that took us 10 years to get him to tile..."

P3: "What'd it cost them?"

S4: "Well, exactly, by waiting that long, exactly."

P3: "A lot of it is money. It's not maybe the old farmers, it's more like, okay, their kids now all own it and there's six of them. They each got to pony up \$10,000 apiece to put on terraces on a quarter, good luck. You're never going to get it. They're like, 'Well, what's that much for? Do we really need it?' There's a lot of hurdles there."

– IA2

### 3.3.5 Social norms

In several focus groups participants referred to their neighbors' experiences with conservation practices. These references were often suggestive of having formed strong opinions about the practice itself, which were also indicative of strong social norms that created a milieu of disregard for the conservation practice. For example:

"...we have a neighbor. We sit there, and we watch him, that he's doing the strip-tilling in the cover crop, the whole yard. We can kind of laugh at it because it's a joke. I mean, how high does the cover crop have to get to really amount to anything? A few little hairs out there that tall, that a cover crop? We had another neighbor. He had a cover crop one year this tall. That's the last



*year he's done it. I think it probably cost him the next year. No-tilling beans into that probably cost him too much because he hasn't gone back to it..." – IA1*

*"...one thing that really stuck out in my mind, I watched a neighbor try to kill ryegrass there one year, and he couldn't spray it. He couldn't do anything because it kept getting wetter and wetter and wetter and wetter, and the ryegrass kept getting taller and taller and taller. You could eventually see that he had planted it, for whatever that was worth, but it was in direct competition with this dead vegetation that finally fell over and matted down on the ground." – IN1*

*"...the money we invest per acre, I mean, go back 30 years ago we'd put \$50 an acre and it covered everything. That don't go very far anymore. So you really don't want to trip and fall. Because like I said, everybody [neighboring farmers] notices here." – IA2*

*"We have some neighbors that are in a program where they've had cost-share on their cover crop...five-year [program]...He told me this is the fifth year. He said, 'As soon as that's over, we're out...' They said, 'Hey, this is causing more problems to us than what it's worth. We're not going to do it.'" – IN4*

The negative effect of social norms is also illustrated in this conversation amongst focus group participants:

*P1: "If something's working for us, we're hard to change...if you drive by what we're doing and what somebody whose crops are no-till...I wouldn't trade my cornfield for them because I'm pretty sure we're coming out ahead on the economic side."*

*P2: "I agree with [referring to the fellow FG participant]. Probably in the last 20 years in our neighborhood, everybody that ventured into no-till corn has backed down over."*

*P1: "It's been a train wreck. And those guys are two or three days behind everybody...The no-till guy around here is waiting two days, I think, before he can run. And we just run a minimum till VT tool, and we can warm it up and go. So, I just feel like that's an advantage for us." – IN5*

### **3.4 Topic 3: Market-based policies**

During the first round of focus groups with farmers, we asked participants to provide feedback on two specific market-based policies: 1) water quality trading program, and 2) fertilizer tax. Participants in all focus groups had primarily negative feedback about these policies. For example:

*"Sounds like..., 'For a couple of dollars, we'll trade so we can dump crap in the river. So, you have to put up with the problem.'" – IA1*

*"What is it with Des Moines Water Works taking the stuff off of the water for drinking purposes? They're getting a permit for nothing, to be able to dump it right back into the river. Makes absolutely no sense, see?" – IA1*

Participants also had several follow-up questions about the programs, as exemplified in this conversation amongst participants in one Indiana focus group:

*P1: "How would these wastewater treatment places be funded? Through the consumer that they sell their refined water to or..."*

*P2: "Who interprets this? The water company or the government or...?"*

*P3: "Who regulates that?"*

*– IN1*

Participants also discussed the underlying morality of water quality trading programs. For example:

*"So, if you don't pollute, you get credit and sell them to somebody who is polluting... Yeah, that sounds like great stewardship." – IN2*

*"I guess to me, it's the morality of it. It just seems like it's not quite kosher...I guess you're benefitting, maybe not monetarily, but that you are not polluting your ground or your waterways."*

*But that's not really decreasing the pollution. It's just shifting the responsibility onto somebody else... ” – IN2*

Questions about taxing fertilizer resulted in discussions about lack of knowledge of the correct amount of fertilizer to apply. There was a perception that taxing fertilizer would penalize farmers who already apply the correct amount of fertilizer. According to one Indiana participant, taxing, and therefore making fertilizer more expensive, was perceived to be going in the “*wrong way*” (IN1). For example:

*“You can't wrap your hands around how much nitrogen you need in a year and that's why some people are doing three or four applications. All we can do is hit a happy medium for a year because we don't know what the outcome's going to be. So, I think that is a good program to study but I'm not sure they have the answers for it yet.” – IN1*

*“[By taxing] you're penalizing the guys that are doing the best they can. Being the good stewards of the ground, other than tillage. I mean, you can point your finger at me all day long. I'm fine with that, but for the guys that are trying to be conservative on their inputs, putting them in the right place, you're punishing them for the guys that are just being sloppy.” – IN2*

Overall, focus group participants seemed to have less understanding of, and interest in, market-based policies. Therefore, asking them about these policies was a barrier. Subsequently, these questions were not pursued in the second round of focus groups.

### **3.5 Topic 4: Certification programs and private sector funding for conservation**

We asked participants to provide feedback on whether consumer demand for, and interest in, buying food grown “sustainably” influences the choices they make about farm management, including adoption of conservation practices. Initial reactions in most focus groups entailed discussions on whether consumers understand realities of what it takes to farm. For example:

*P1: “We've talked about...urban sprawl and losing acres to other areas. Our grounds are going to have to be more productive. So, some of these [conservation] practices and some of the consumer wants, take you backwards where you'd probably get a yield drag...”*

*P2: “Right. I think it plays into letting the tail wag the dog. I appreciate so much that today's “consumer” is concerned about where their food comes from, how their food is grown, and it's done so responsibly. But, I mean, unless you are boots in the field, you have no idea what it takes [to farm]...”- IA1*

*“...that's trouble, when you get the consumer involved, because some people are— they think they know it all, or don't have a clue. We got too many of them now. – IL1*

*“On a personal scale, well, it's a huge luxury to be able to say, ‘I want to know where my food comes from.’ And I buy a side of beef from somebody I know because we have that access. But from a day-to-day farming perspective, no, that doesn't drive my decision-making.” – IN4*

Consumer involvement in their food was viewed with skepticism but was also considered as a growing trend. This point is illustrated in this conversation amongst focus group participants, and the quote afterwards:

*P1: “Makes me nervous, but it doesn't influence me in terms of conservation practices I adopt.”*

*P2: “Yeah.”*

*P3: “Yeah...Nervous, but it hasn't changed my practices. But the potential for it to hugely change everything, and I think it will. And I like the idea of people getting more involved in their food, but I think they need to be educated about the realities of food production...I think they have this idealized view of agriculture, again, a disconnect because they're not out there, they don't know the reality of it”*

*– IA2*

*“I think it's a tricky slope...what the consumer wants and what we can supply I think are two different things...Everybody wants this organic product, but I'm not sure most people know what*

*organic is... So, I think the consumer is so misinformed of what we're doing and what's safe and not safe.” – IN5*

As part of discussions about consumer demand for sustainable food, we also wanted to understand farmers’ interest in certification programs that provide premiums to farmers for adopting conservation practices. Farmers in some focus groups felt that there was a niche market for certification programs – therefore indicating some level of buy-in. In other focus groups, farmers made recommendations for these programs, such as less paperwork, and cautioned against these programs being perceived as regulatory in nature.

*“It's a niche market for somebody that feels they want that...It's like growing crops that are non-genetic or non-GMO crops.” – IA1*

*P1: You could do it in livestock... It's probably not a bad idea...when margins are tight, for a little extra incentive. If you're making a lot of money, I don't know if you want to do a bunch of paperwork. But if you're looking for an extra few dollars an acre, it's probably a good incentive...*

*P2: “I think as long as the paperwork is minimal [farmers would participate]”*

*– IA2*

*“Yeah. I think that there is a niche market there and somebody is willing to pay that \$3.50 a dozen. Well, that's great, but once you start regulating everybody, you'd have to fall under those same rules as the guy making the \$3.50 a dozen...it just doesn't work.” – IN4*

*“I think you could [incentivize conservation via certification programs]. With programs like that, there are a lot of people that will participate given enough manpower. You know you can only sit on one seat at a time. And if you barely have enough time to get your stuff done as it is, why do you want to take on the next challenge of putting out a of a cover crop? If there was a-- maybe that practice would work with a private contractor that did the seeding. You know more people would be into a program like that.” – IL1*

*“I would have to see how it [the certification program] could pay. If the fact that I've gone through the certification program means I get a premium when I...sell my beans, sure. That would be one way to incentivize it, is if I know I'm going to get a premium.” – IN4*

Discussions around certification programs also resulted in farmers in several focus groups asking the research team to clarify the definition of “sustainability”. In several other focus groups, references were made to “consumers” living on the coast having a different mindset. For example:

*“I would like to hear your definition of sustainability.” – IN3*

*P1: “I also think that this sustainability issue is maybe overblown and driven by not necessarily a group, but it's kind of like it's contagious throughout the industry. One group starts it, and then everybody jumps on the bandwagon...”*

*P2: “How do you classify sustainable? What you consider sustainable and what I consider sustainable.”*

*– IL1*

*P1: “If you look at California where they changed the law where you cannot have birds in cages, and before birds, free range. Okay. Those eggs are so much more per dozen...Just stand back [at a grocery store] and watch the consumers...they go to the cheap eggs...So, the consumer is proving that, hey, it sounds good, right, but at the end of the day, we're going to buy more economical eggs. And so, it doesn't always work. Consumers are not always willing to pay a premium for things.”*

*P2: “And maybe they are in California or maybe they are in Florida or New York or wherever, and that's fine. But don't go regulating me in central Indiana because my customers are perfectly fine with me raising those birds in cages.”*

*– IN4*

*“I lived in California for a while and they're just nuts out there...these people will go to extremes to buy organic milk or beef or pork and all this stuff. That's the mindset of the West Coast.”*

– IA2

During the second round of focus groups with farmers, we asked participants to provide feedback on the idea of corporations providing incentives to farmers for adopting cover crops. Some focus group participants were skeptical about such programs and felt that corporate interest in conservation was mainly to boost their public relations (PR) image. This point is illustrated in this conversation amongst focus group participants:

*P1: “My question is, what's in it for them? If they're donating money into this.”*

*P2: “There's a catch to it.”*

*P1: “There's a catch to everything. So, what's the catch?”*

– IA2

Further during the conversation, participants in this focus group made remarks such as, *“I think the PR angle is huge”* and *“I think they're just [in it for] good PR.”* Participants in some focus groups followed a more cautionary approach, whereas in others they indicated interest in corporate funding as long as it is voluntary. For example:

*“I'm scared. I'm a little bit reserved about having someone come in there and test everything and then say, ‘Oh, well. You got to do this. You got to do that.’” – IN3*

*“I would want to know...so there's no strings attached...that's my first question. What do they want back out of it? What do I have to do for it?...And for us, the price of the [cover crop] seed and getting it applied is one thing. But getting it managed in the spring [is another thing]...you got to look at the whole aspect of how much are they willing to jump in the water with you and what do they want for it?” – IN5*

*“[If participation in the program is] voluntary, I'm all for it...ultimately, why is that corporation interested? Why is a PepsiCo interested? Because the consumer is interested. ...that free market's driving it, which is a good thing. It's the way it should be driven. Not from the government down but from the consumer...” – IN5*

*P1: “...I think if they [corporations] want to put those programs out there, that's fine. And they [farmers] can choose whether or not to participate.”*

*P2: “Right. Well to me, that's corporate responsibility. If they're going to charge people more for mayonnaise at Whole Foods, why shouldn't they allow the farmers...[to get] some of that [additional] value...because they [corporations] need our certification that they could go out and point to newer food journalists that you know, this guy [farmer] is actually doing what we're saying.*

– IA3

We also asked participants to provide feedback on which corporations they would like to work with. Responding to this question, a farmer mentioned:

*“I think that all depends on the area you live in and what you're producing. If you're producing anything those companies want. Like around here, we produce nothing for McDonald's except for maybe the pork and the beef.” – IA2*

Discussions around funding preferences for corporate funded conservation programs resulted in farmers enquiring, and making recommendations regarding the amount of incentive, as illustrated in this conversation amongst focus group participants, and the quotes afterwards:

*P1: “I would say if they paid \$10 an acre, they would not get much attention. If they paid \$25 I think that would be significant.”*

*P2: “They might get some interest.”*

– IA3

*“...it would be kind of interesting to see what different prices [incentives] results in different things. But I would have to say it [such corporate funded programs] would be multi-year”*

– IN3

*“For management practices like cover crops, a dollar per acre makes sense. Or if it's more of an implementation of a grass waterway or some kind of system, then [incentives] on an individual basis.” – IN5*

### **3.6 Topic 5: Conservation targeting**

The concept of conservation targeting is grounded in the premise that farming in some areas in agricultural landscapes have disproportionate environmental impacts, which provides a rationale to prioritize specific areas for conservation. Prioritization therefore can take the form of directing both financial and technical resources towards these areas of conservation priority. We asked focus group participants if they would be receptive to an approach that would direct funding and technical assistance to targeted sub-field areas. We also asked participants how they would feel if a natural resource professional contacted them about a potential issue on their farm. Overall, farmers' responses to, and receptiveness towards, conservation targeting was mixed: In Iowa, participants mostly had a favorable view, whereas in Illinois and Indiana responses were mixed.

Participants with positive perceptions towards conservation targeting felt that the process would help direct resources to areas that need it the most. Moreover, working with farmers who operate targeted land would elevate the visibility of on-farm issues for that farmer. If the targeted land was rented, that could also help elevate the visibility of on-farm issues to the NOL, therefore motivating them to adopt conservation practices. However, it was also suggested that directing resources towards historically unprofitable areas should be a long-term strategy for a farmer, rather than a solution for the short-term. Additionally, participants expressed that field-scale engagement should be conducted by someone the farmers trusts, and with whom they have a working relationship. For example:

*“...it's the right approach because then you're making sure the best dollars get put in the places that need it the most...it would have to be the right person calling me up...if that were a program run through my commercial agronomist...somebody I already have a relationship with who's saying to me, 'Let's look at this,' rather than...somebody from some federal office...” – IN1*

*“Well, if it's going to help it [the land], yes. But if it's something we're going to take out of production and it's going to be short-term, no.” – IN2*

*“...we're in that particular field that needs that piece of conservation...And as time goes on, you just kind of let it go.” – IN2*

*“...open the blind spots. You can't see them for a reason. And if technology can facilitate farming more effectively [by targeting sub-field areas], then I'm all for that, as long as the approach is in that assistance and helping-out frame of mind and not that penalizing frame of mind...” – IN5*

*“...[In my watershed] I think a lot of funding is focused on very sensitive environmental areas...I think that's where you're going to get your landlord [involved].” – IA2*

*“...They looked at it [a targeted area on my farm], and they said, 'there's 1,500 acres that drained down right through your area, and we'd like to reduce nitrate loss.' So, they put in a dam [under Conservation Reserve Enhancement Program]...I was glad because that ground was useless to me anyway...so now I'm getting rent on it.” – IA3*

*“I went to a meeting...and they had targeted areas that they knew that would help...those were priorities where they want to start and then work out from there. So, I think a contact on to a landlord or a tenant that had an area like that would [help].” – IA3*

Unlike participants in Iowa, participants in one of the Illinois focus groups expressed strong opinions against the concept of conservation targeting; for example:

*“...[targeting my land is] invasion of my privacy. If you showed up on my doorstep and said, '...I got this picture of your farm. And you're losing a lot of soil here, here, and here. And we would*



*sure like to show you how to protect that.' That drone is no more invasive to me than your footprints." – IL1*

Further expressing their opposition towards conservation targeting, the farmer mentioned:

*"...if my seed dealer comes out...and we go out there, and we find out that, 'Oh, there is a big spot out there that really could use a ditch, or a tile, or whatever.' That's information that I somewhat requested. But if you show up from...Nature Conservancy, and you show up on my farm. And said, 'Oh, we have this drone or satellite picture of your farm, and you're losing soil here, here, and here. And we want you to do something about it.' Right there's the door...unless I somewhat request that information. I don't think anybody better show up on my door."*

*– IL1*

In contrast, participants in the second Illinois focus group, had favorable views towards conservation targeting. For example:

*"[I am] interested. If it's a problem and we can help, we'll be more than happy to." – IL2*

*"You want to put your bucks where you can get the biggest bang out of it, that's only good sense." – IL2*

Participants who had negative perceptions felt that the process should be complemented with incentives and that it should have a system built in to also assign accountability. For example:

*"...it's a little Big Brother-y. So there definitely have to be some, holding a carrot to go with it... for someone to come call me up or knock on my door...it kind of answers that response of, 'Nobody's going to tell me what to do, right?'" – IA1*

*"...if it [sub-field area] is a problem, is it on me or is it on my neighbor? Because his water comes through me...How do you assign who's at fault...?" – IN1*

### **3.7 Topic 6: Communication networks**

Focus group participants mentioned several information sources related to generic farm management, as well as information specific to conservation. For example, a participant mentioned, *"I try to stay informed. I try to call in at least once a year to either my...ISU Extension agronomists"* (IA1). In one of the Indiana focus groups, a participant mentioned, *"I do read my emails that USDA sends me. It has a lot of that stuff on there. I do a lot of reading on AgWeb and different magazines and stuff...I have been to a few field days...but I just pick it up on my own most surely. Just by reading."* Other focus group participants also used online sources as well as farm magazines and field days. In addition, participants talked about their reliance on other farmers for information, as exemplified in this conversation in one Indiana focus group:

*P1: "[We share information] As a unit.*

*P2: "Did this work for you? Oh hell no, don't do that...And that makes a lot of difference there."*

*P3: "There's one thing about farmers, they do communicate they will talk to their neighbors, and you can bounce stuff back and forth"*

*– IN1*

Relying on neighboring farmers, or farmers in general, as an information source was also mentioned in several other focus groups. For example:

*"...they [neighboring farmers] are probably one of the better sources. You find someone's always a good example, and someone's always an example of what not to do." – IL1*

*"...seeing what some of the neighbors are doing since that's working. Talking to them, to me that works pretty well for our area. You watch one guy do something. You'll get an opinion."*

*– IN3*



*“Sometimes you hear about things. So and so [a neighboring farmer] is trying something. So, then you see it. You see how it works for them this year. Well maybe I should try and look into that next year.” – IL2*

Participants from one of the Indiana focus groups also mentioned that they watched YouTube videos about conservation. In fact, one participant mentioned that they followed a millennial farmer, and had watched their YouTube videos. A participant in this focus group had participated in the INfield Advantage program (a multi-organization/agency partnership in Indiana), and felt that *“Programs like that are good and I wish there were more people involved” (IN1)*. However, discussions in this Indiana focus group also revealed a salient communication gap with respect to participants’ unawareness of cover crop research being conducted at Purdue University. Indeed, a question about whether participants had heard about cover crop work out of Purdue resulted in responses such as, *“Are they doing any?”* and *“You never see Purdue quoted in any of the known farm magazines” (IN1)*. When asked whether focus group participants attended field days and whether they were useful, a participant from the Iowa focus group agreed they are useful, but highlighted the complexity of farm decision-making. For example: *“I think the field days are great. They’re helpful, seeing neighbors try something new or try something different, but every piece of ground is different; every operation is different. And so, well, that’s me. I’m glad it works for that producer. But here’s my list. Here’s my long, long list of why it wouldn’t work, or if it did work, here are the realistic things that are just not going to happen today for me.”* In contrast, participants in one of the Indiana focus groups did not like going to field days.

We were also interested in learning about focus group participants’ trusted sources of information. Farmers emerged as a trusted source of information. For example:

*“Either your fellow farmers that you can trust, or your agronomist would be the first ones I would think of... I’ve actually been trying to mentor myself with farmers in my area that I consider kind of a pinnacle of conservation. Asking them questions, not trying to bother them, but driving by their fields to see what they’re doing.” – IA3*

*“[I trust] my neighbor, the guy that’s doing it. I have access because of where I work, so people that are trying some things that I respect a lot, and I can see what they’re doing. I will weigh that up here versus anything that I get in an email or a publication or is on the counter at our office”*  
– IA1

Similarly, participants in one of the Indiana focus groups mentioned, *“You probably would start with somebody who’s used it”* and *“The first person I’d go to is the farmer who’s done it for 15 years” (IN2)*. In a different Indiana focus group, pesticide meetings conducted by Purdue extension emerged as a trusted source of information, *“to a certain extent”* by one participant, whereas the second participant felt that they, *“would certainly trust Purdue Extension above any university like Berkeley” (IN1)*. Participants in this Indiana focus group also trusted local conservation agency staff. In another Indiana focus group, participants expressed trust in the local conservation agency staff, but were somewhat skeptical towards information coming from Purdue. Indeed, a participant referred to the 80’s and mid-90’s when, *“Purdue pushed it [no-till] as a cure-all for everybody and it just wasn’t.”* Purdue was also perceived as government by a participant in this focus group.

In contrast, farmers in a different focus group in Indiana perceived research conducted by universities, including Purdue, to be unbiased, and therefore trustworthy. For example:

*“...I tend to look towards university sources and research that you tend to interpret them as being unbiased...you don’t necessarily put as much faith in commercially-funded research that is promoting their products. It’s a little harder to trust even if it is maybe fine research...I tend to think a lot of times I’ll look to the university research, University of Illinois, Purdue, sources that you feel are trusted and unbiased.” – IN4*

Trust in university research and extension was also expressed in focus groups in Illinois and Iowa. For example, when participants in an Illinois focus groups were asked who they trusted with scientific information about conservation, a participant responded, *“U of I”*. Similarly, a participant in Iowa mentioned:

*“Well, I think [I trust Iowa State] Extension. I go to a lot of their meetings and get a lot of information there. I try and read as much as I can about trials and things that people have tried and so forth. I try and keep up to date as much as possible.” – IA3*

In an Illinois focus group, participants were asked who they did not trust for information. In response, the following conversation ensued among the participants:

*P1: “The banker.”*

*P2: “Number one, I wouldn't trust the banker.”*

*P1: “He'll tell you to sell land when you shouldn't, not buy land when you should be. It's always the opposite.”*

*– IL2*

Discussions around participants' information sources also resulted in several recommendations for how information should be communicated. For example, a participant from the Iowa focus group mentioned, *“I think Iowa Soybeans Association's kind of a good model of research. So, they don't use test plots. They use farmer in-field trials, and they're all strip trials. So, it's not just one half of the field, one practice, one after the other. They're stripped...”* (IA1). In one of the Indiana focus groups, a participant cautioned against farmers feeling that they are talked down to, for example: *“I think we, as a group, don't like to be talked down to. I mean, if you can put it across to where it's a learning benefit for everybody involved, that's one thing, but nobody likes to be talked down to”* (IN1).

### **3.8 Topic 7: Motivating wide-spread adoption of conservation practices**

Identifying strategies to motivate wide-spread adoption of conservation practices was yet another focus group discussion topic. The research team encouraged farmers to share their views about, and ideas about how to motivate, wide-spread conservation adoption. Several ideas emerged and are summarized below.

#### **3.8.1 Adopting conservation incrementally**

Focus group participants felt that adoption of a conservation practices should happen incrementally. To that end, farmers highlighted the importance of adopting conservation in moderation, i.e., experimenting on a small-scale, before making a practice part of their entire farming operation. Elaborating on the need for incremental change, while also highlighting the complexity of doing so, the farmer mentioned:

*“...changing the whole [farm] system...has to happen incrementally. That's why it doesn't just happen over one growing season...one piece of advice that I hear over and over...is start small so that you're not putting your whole operation in jeopardy if you screw up really bad one year. And I think that is good advice. But on the other hand, if you're making a whole systems change, you got to have the equipment to do it. So, I'm not going to go buy or even rent a strip-till machine for 20 acres or 40 acres.” – IA1*

This idea of incremental change also resonated with other Iowa participants and was mentioned in Indiana. Participants in Indiana also highlighted the importance of adopting conservation in moderation. For example:

*“I think you have to do it [adopt cover crops] in moderation because we had a farmer that did all of these...corn acres the following fall with ryegrass and he had a local fertilizer plant spread to kill it in the spring. But the day they wanted to do it and the day they had to do it was not the day he wanted it done. And that's where his mistake came. And the weather changed, and they couldn't get back to it. And when he put the planter in there, everything wrapped around the chain, so that's why I say you have to do things in moderation.” – IN1*

Participants in Iowa also supported the idea of adopting conservation in moderation, however, felt that conservation programs should have the flexibility to incentivize such an incremental approach. This point is illustrated in this conversation amongst focus group participants:

*P1: “I think more practices could get established if they had some sort of graduated scale, I don't know. But have farmers kind of step into it, get some confidence and some security...”*

P2: “Yeah. I think if they could try 10 acres or 15 acres or something at a time rather than you've got to do 80 acres or none. That would be a way that they could try it out.”

– IA3

Overall, promoting conservation adoption, incrementally and in moderation emerged as a strategy to motivate widespread adoption.

### 3.8.2 Long term, flexible funding support

During the first round of focus groups, both Indiana and Iowa focus groups revealed farmers' preference for long-term funding support for promoting adoption of conservation. For example, an Indiana participant questioned the gain from programs that have farmers sign up for a year and then the program dissipates. For example:

*“I just feel like with...using cover crops for instance, that it's kind of a one year, ‘Let's get signed up and get these guys on.’ ...we had a big run and cover crops, but they've all kind of dissipated. So I guess what did we gain out of that program? The longevity of that, to me, [is] short-lived...It needs to be a long-term commitment for the farmer and the government...a long-term commitment with these programs would help people [farmers]...be involved.”* – IN2

When asked about what a long-term funding commitment would look like, the farmer thought 7 to 10 years. This strategy, however, was not just limited to Indiana. For example, a farmer from Iowa mentioned, “I think the cost-share has to be available year after year. It can't just be as, ‘We'll start you out with 25 acres for one year, and then you're on your own’” (IA1).

However, during the second round of focus groups, the strategy of long-term funding support received mixed responses, as is illustrated in this conversation amongst focus group participants:

P1: “Yeah, that [long-term funding support] would give me a chance to try different things or different types or different areas if it was spread out for more years.”

P2: “I don't know. I don't know if I'd want to lock myself into anything for 8, 10 years”

P3: “Yeah. I was going to say they're getting ready to hand-tie you.”

P2: “... even though probably would take that long to see some of the benefits that you don't know”

– IA2

Participants in this focus group continued to criticize the merits of a long-term funding support, in light of uncertainties surrounding the Farm Bill, and whether or not that long-term funding support would last. This point is illustrated in this conversation amongst focus group participants:

P1: “based off the way they do funding for these programs, I don't know if they could develop a program that would be funded for eight years.”

P2: “Because they don't know what their funding is?”

P1: “Yeah.”

P3: “Exactly.”

P4: “Yeah, exactly. You don't know what administrations are going to do...”

P5: “Every time you go in there you ask them something and they say, ‘Well, we don't know what the new farm bill is going to say’”

P3: “Right. Exactly.”

P5: “...or what's going to happen with this or that.’ Their hands are tied and we kind of forget that, too...”

P4: “It sounds to me like they want a commitment, but I mean, we need a commitment from them also”

– IA2

Mixed views also emerged in Indiana focus groups, as illustrated in this conversation amongst focus group participants, and the quotes afterwards:

*P1: "...[long-term cost share for cover crops] can certainly give you a longer term to invest into equipment or to be willing to try and incorporate it."*

*P2: "Yeah. I agree...But my second question is, what happens at the 4-year mark if something needs to change? Is there a penalty? What's the exit? So, in some regards, longer is better, but in some regards, if the exit is painful, then maybe...keep the term short..."*

*P3: "I agree with what's already been said. I think you're going to have to give it time to see if it's going to work, but I don't want to get into it if it's a disaster and can't get out if that doesn't work."*

– IN5

*"...a hassle [associated with conservation adoption] for a 2-year program versus a hassle for a 10-year program, okay, it's worth the hassle [for a 10-year program], but at 2 years, maybe it's not worth the hassle." – IN4*

*"Once you're in a program, you've got to follow the rules or you get knocked out of that. In 15 years, they [a farmer] would be really upset that, 'Oh my gosh. We've got 5 more years of this.' They're just thankful that they've only got one. This year, they're out." – IN4*

However, participants in this focus group also saw the value in long-term funding support allowing farmers to, “see the benefit” in a cover crop program. They recommended long-term funding support to be progressive, as illustrated by the following conversation amongst focus group participants:

*P1: "What if they changed that [funding] style and made it a progressive opportunity? So, after year one, maybe it's only 3 bucks or 4 bucks an acre, but after year two, it's 11?...and then the next year, it's more and more and more...just staying in it [the program] for year five, it makes sense because I'm going to get \$20 an acre, ultimately getting the same amount of money...but then they can walk away if it's something that's hurting their business instead of helping them."*

*P2: "And they get rewarded for staying in it if it works well."*

*P1: "Yeah, yeah. Exactly, trying to make it work. Sometimes you've got to give outside the box"*

– IN4

In another focus group in Iowa, a farmer suggested that long-term funding should account for whether the land is owner-operated or rented. For example:

*"...to me it'd [long-term funding] have to be on owned land not rented because renters can change every year or every couple of years. And they might not like what's being done. So, you have to be a little careful with that, I think." – IA3*

Taken together, while there seems to be some interest in long-term funding for promoting conservation, such programs should commit funds despite changes in agricultural conservation policy, disburse funds progressively, and account for whether or not the land is rented. By doing so, long-term funding support could become a viable strategy to motivate widespread adoption of conservation practices.

### **3.8.3 Localized, small-scale problem driven technical advice for farmers**

As part of identifying strategies to motivate wide-spread adoption of conservation practices, farmers were encouraged to think creatively. An idea that emerged in one Indiana focus group was to build a means to provide localized, non-governmental, technical assistance to farmers with the goal of solving a small-scale problem. Several farmers from the focus group supported this idea, on the premise that: 1) such a platform does not currently exist; 2) small-scale problems do not need government funding and/or involvement; and 3) farmers don't know whom to approach for small-scale problems. For example:

*“I have smaller areas that need attention, and I wish there were someone that I could go to, not necessarily to do a government waterway because that's more money than I even want to get into. I just want to solve a small problem...it would be nice if Purdue or the extension service had someone that you could go to that would help design something on a small scale. I'm not asking for funds from the government. I'm asking for plans and a good economical way to do it.”*

– IN1

A lack of awareness regarding whom to approach, combined with farmers' lack of self-efficacy in solving small-scale problems, is highlighted in the quotes below:

*“A lot of times you don't know who to ask...whose jurisdiction it is and how muddy you want to make the water.”* – IN1

*“...if I'm in that situation [a small-scale problem], I'd feel paralyzed. I don't want to make the decision and go out there and put something in and screw it up...But you really don't want to go spend all your time and money going down the road of the full meal deal with the government either. It would be great to have a third party that could navigate that for you [by] providing the assistance.”* – IN1

Ideas for a third party providing such a localized, small-scale technical assistance included leveraging the role of extension. In general, farmers felt that the current capacities and experiences of individuals who are familiar with the local context could be used to implement this idea, instead of hiring new staff for each county.

This idea was also pitched to the participants in another Indiana focus group. Whereas some participants felt that farmers either have the capacity to solve the small-scale problem or know whom to call, others felt that this approach had some value. Indicating support for localized, non-governmental, technical assistance, a farmer mentioned:

*“I think that would be a good idea...maybe it's just a source of information that would be telling you what to do, but say, ‘I have a question. What can I do?’ and this person has some options. I see the value in that.”* – IN2

#### **3.8.4 Large-scale field demonstration, but with local applicability**

Participants in Iowa and Indiana spoke about the value of sound research in helping inform their farming decisions, including conservation adoption. Two specific aspects of research emerged: 1) scientific rigor, and 2) source of research-based evidence. Scientific rigor of research was discussed in the context of ensuring that the research findings were applicable to a farmer's operation. For example:

*“...one of the comments I hear [from farmers] is they don't trust test plots. It's not a big enough data sample... It's like, ‘...[that] probably is true for that little speck. But what about the whole farm...?’ So, having a bigger sample.”* – IA1

Another farmer from the Iowa focus group felt that more research should come from universities. When asked whether research done on a university farm would be perceived to be applicable to an actual farm, the farmer replied, *“University farms have to be scattered throughout the state because there's a total climate change between right here in Ames, Iowa... what works in here is totally different from Southern Iowa”* (IA1). Indeed, farmers questioned the applicability of research to their specific operation, especially if the research did not account for the local biophysical context. To that end, farmers saw value in research that had localized applications, but was rigorous with respect to inferences used to apply to a bigger sample.

In terms of the source of the research, at least one Iowa participant was critical of research coming from farmers' test plots, *“Personally, I'd like to see a lot more research coming from university tests rather than personal tests because farmers are the best liars in the country”* (IA1). This sentiment was in contrast with an Indiana participant, who said, *“It's got to be from a farmer in our area...It doesn't matter to me if it comes from Purdue or Illinois or anywhere. It's got to come from someone in this area on these soil types...What matters is the people in this area that have grown it on 80 acres and averaged that yield. Then we'll go for it.”*

Relying on multiple sources of research was another recommendation. For example:



*“...multiple resources is always good...if you put all your eggs in one basket...you’re asking for trouble. I think you have to make sure that they're resources that you use such as another farmer or some trusted colleague, but also university research and things like that...I agree...it's going to be people that have experienced the same things that you're experiencing, have the same soils types or the same weather pressures and things like that, that you're going to put probably the most stock in.” – IN2*

Making research-based evidence applicable to the local biophysical context was a theme common across Iowa and Indiana. Similar to the opinions expressed in Iowa, a farmer from Indiana mentioned, *“Today, we're testing hybrids. Tomorrow, the same plot's going to be testing tillage practices, and the day after that, it's going to be testing herbicides. Now, what made the impact? ...you suddenly realize that they have not eliminated variables but induced more variables, then suddenly, all that research...”* [another farmer added] ... *“isn't as valuable.” – IN2*

Expressing this theme, a farmer from Iowa mentioned, *“Maybe, if they would have particular farms chosen or fields and said, ‘Hey, we're going to help this individual and use it as an incubator in a region to show them that this does work and keep good data and make the data available to everybody, as far as cost and all of that.’ That may help.” – IA2*

### **3.8.5 Promoting conservation through government programs**

Although several conservation barriers were discussed by focus group participants across the three states, these conversations also resulted in several recommendations for government programs, thereby these programs potentially acting as an avenue to promote widespread adoption of conservation practices. Recommendations to improving government programs included: involving experienced farmers in program design, institutionalizing support for NRCS staff to observe and learn from conservation innovators in a given region/watershed, and basing cost-share allocations on watershed dynamics. For example:

*“...the producers have to be involved in constructing a [cover crop] program. I mean, talk to the guys that are out there that have decades and decades of experience in their own backyards. Speak to them. Get some ideas from them.” – IA2*

*“One thing I've tried to do if I see somebody who's really doing [conservation], I'll talk to the NRCS guy and just say, [you should] talk to him and see what he's doing right and maybe you can pass this on to some people.’ Because I said, ‘I think they're doing a great job.’ And I think that's what it takes, is an example [to promote conservation]” – IA3*

*“if there is a farm sitting there, and you build this nice big fancy waterway and you pay half. But it's all long on your 60-acres, but there's 320-acres of water comes at it. How is 50% [cost-share] fair to the landowner? You know when you're 60-acres is only a sixth of what caused the problem.” – IL1*

In light of several barriers making it difficult for farmers to participate in government programs, farmers in an Indiana focus group suggested a possible overhaul of current programs. For example:

*“...we have offices and agencies that were designed and laid out for our grandparents. They weren't designed for the farmers of our generation, and nor have they necessarily adjusted toward that...maybe it's time to overhaul the whole damn thing and find a way to make it relevant to the way farm operations are today because what worked 75 years ago, 50 years ago, 25 years ago doesn't necessarily work in today's age...It's much more of a business than it used to be, and I think that's maybe part of the problem, is that those programs and those offices and those workflows were designed for more smaller operations, and now, we're moving towards fewer, larger operations, and they're not necessarily relevant anymore.” – IN4*

### **3.8.6 Promoting conservation on rented farmland**

Discussions around whether and how working with landowners created barriers to adoption of conservation practices also resulted in several recommendations for promoting conservation on rented land, as a means to facilitate widespread adoption of conservation. These recommendations include directing conservation messages and incentives towards absentee landowners, educating them about conservation practices and programs, and facilitating a good working relationship between the tenant farmer and the landowner. For example:



*“They [landowners] would have to at least understand, same as the farmer, that there's a value in conservation. Same message that you got to convince me that the cover crop has a value, and it affects my bottom line...This has a value...if you convince them that they're protecting their long-term investment, there's maybe even more of a value to them than even I have on a year-to-year [lease] where I'm just struggling to make my tractor payment or combine or whatever.” – IA1*

*P1: “...some of your conservation message should be probably geared towards your absentee landowners.”*

*P2: “It could be a good reason to go down to Arizona, hit some retirement homes.”*

– IA1

In one of Iowa focus groups, farm managers were identified as a potential conservation messenger to NOLs. For example:

*“...farm managers, they have to encourage it [conservation] with the landowners. And then, of course, then they can pick and choose who they want to farm on the ground because of that...farm managers manage a lot of this rented ground. Not all, but a lot of it...their bottom line is affected by 12% or 10% or whatever the gross, and if they aren't getting very much gross, they don't get very much return. So again, they have to educate the landowner.” – IA3*

Similarly, in Illinois, when asked who the most important person would be to approach in order to move the conservation needle on rented farmland, a participant mentioned:

*“...the farm manager...there are a lot of farm managers...I guess there's a lot of families out there that run several hundred acres and it's managed by a bank or an independent farm manager that, until someone rattles his cage, all he's worried about is the return for his client. And so, I [as a tenant farmer] have no need to poke a bear, I guess. – IL1*

In Iowa, a farmer recommended a more generic approach towards educating NOLs. They mentioned, *“what I think you need to [do is] go to the landlord and say, ‘You lost your valuable resource because you lost your top soil. How're you going to build it back up? It's going to take some effort and some work and some dollars. Do you want to do that?’” – IA3*

In Illinois, a farmer recommended, *“A lot of new advertising I think needs to be focused on the people that...own land or manage the land rather than the people that are operators. – IL1*

Discussions around messaging approaches to NOLs also resulted in the recommendation that NOLs should not be approached directly. The following quotes from a focus group in Iowa are illustrative of this point:

*“if you have the NRCS or the FSA go talk to my landowner without me, that doesn't reflect very well on the tenant, because the tenant is typically responsible for the operations of the farm. So, I think that would be an awkward and hurtful step.” – IA3*

*“As a farmer you don't want to be dictated to what [you] have to do...if one was [to be approached] before the other, the tenant would be the first.” – IA3*

*“I think if the tenant has the support of the NRCS and that these practices are going to be a good thing, then he can approach the landlord and say, ‘I'm willing to do this because it will help your farm, so what are you going to contribute?’ Or not necessarily ask that question but you will be part of the solution here...I think the tenant is the first one you have to start with because they know the farm usually pretty well.” – IA3*

In addition to directing conservation messengers and messages towards NOLs, farmers recommended directing conservation incentives towards them. Specifically, a recommendation from focus group participants in Illinois and Iowa was to provide landowners with tax credits. For example:

*“So some of these programs need to be more landowner focused and more carrot to the landowner rather than the guy that's farming it, if we're truly, truly worried about water quality...there has to be some sort of carrot for the landowner...if you want to really incentivize*

*them, put some sort of a tax credit or something in there for them, also for conservation practices to the landowner himself.” – IL1*

*“I think it [conservation] could be incentivized...it used to be, my son when he was first starting a farm, that if you rented land to a beginning farmer, there was a deduction on your Iowa income tax to help that beginning farmer. Maybe something like that could be enacted...a lot of absentee landowners pay state taxes here...[by providing a tax-credit, we could] at least get their attention. Their accountants say, ‘does your tenant farm in this manner?’ ‘Well, I don't know. Well, why?’ ‘Because there's a \$10.00 per-acre tax credit if you do.’ Or whatever that magic number is. And they'll say, ‘Maybe I got to get thinking about that.’” – IA3*

*“...if there's some sort of tax credit...and they'll [NOLs] say, ‘Why didn't I know about this?’ I think that's how you get the conversation started.” – IA3*

### **3.8.7 Education and outreach**

Focus group participants suggested educating, as well as conduct outreach with, farmers and the general public, to motivate widespread conservation adoption. Specific to farmers, building awareness was key, teaching that *“...conservation practices are good for the soil in the long-term” (IN2)*. Discussions around outreach activities for the non-farming public resulted in a farmer cautioning that such approaches often end up romanticizing agriculture. Therefore, the farmer suggested:

*“I don't mean that you should...have them [the public] come out and dig through the mud and chase pigs through a fence or anything like that...I think if you're going to show commercials or ad campaigns about what farming is like, I think you could show the struggles with how do I balance my books when I turn this poorly drained part of my field into a production ground...the general public, needs to appreciate the struggles that we go through. And maybe then they'd be feeling not so angry about some of their tax dollars going towards helping us conserve some of that resource that we all benefit from.” – IN2*

Another farmer from Iowa suggested, *“...people have got to be out and see what's going on. I mean, we always hear the negative to this. Does anybody ever come out and actually see what we're doing out here with the filter strips and waterways...” – IA2*

In a different focus group in Iowa, a farmer suggested, *“I think we have to have a partnership with the public somehow. Not just through government but because again, they're the ones that drive this whole sustainability issue...it's more than just going to the farmer's market every Saturday morning and buying their food. I think they need to be a little more involved...” – IA3*

Whereas the aforementioned recommendations were directed towards farmers and the general public, focus group participants also made several recommendations for NRCS' outreach. These recommendations were made in light of farmers' unawareness of programs administered by NRCS. For example:

*Give me five programs that are going on right now [in the watershed]. We just don't know what they are...It's NRCS's fault for not educating the farmer in general. This is across the country... So it's amazing how just not being educated on what programs are available leaves you not taking advantage of the programs to take advantage of the cost...my mom sits on the Soil and Water Board, and I don't know about the programs...because she's not in the NRCS office.” – IN4*

*“Just communication all the way around is lacking nowadays. And I don't know what programs are out there. Unless I walk down there [to the NRCS office] and ask them, and hopefully they'll help me. I don't know.” – IN3*

In light of their unawareness of NRCS administered programs, farmers' recommendations were to adopt an electronic mode of communication. For example:

*“I would love for [NRCS outreach] to be more efficient actually just instead of these programs taking so much to administer. Instead of paying those people in the office, get it out there in the field... This is the world of technology...How about an email that comes to me or a mailer that*

*says, '...we just want to make you aware that your farm...would be qualified for these types of programs on these types of farms. If that's something that interests you, please see [our staff] at the office.' He'd [the farmer] be able to pick and choose instead of I just want somebody to come in here [to NRCS office] so that we can actually do some stuff." – IN4*

*"I think a lot of people don't make a habit of going into the NRCS to find out information and we don't really seek it out. It's not really in magazines. I think if they had a mass email, just like what they do [FSA does]...the FSA and NRCS should know who fulfills [has] emails...so if there's 13% of the people don't, obviously you probably think that maybe a letter would be better for them, instead of email. But, these are modern times, there's a way to get a hold of people."*

– IA3

We also found evidence in support for using mailing as a mode of reaching out to farmers with programs information and opportunities. For example:

*"there's a lot of new programs coming out. Just even mailing a simple pamphlet that has the basic benefits of 'Hey, look at this. Check this out. Here's contact information...' that's one way of at least getting an offer right away...the problem with web...I use them but then you're missing so many people...So, you don't know who you're reaching." – IL2*

## **4 Results from non-operating landowner focus groups**

### **4.1 Topic 1: Conservation barriers on rented farmland**

As part of focus group discussions with NOLs, we were interested in learning about conservation barriers on rented farmland. Overall, participants discussed barriers pertaining to: 1) farm economics – current commodity prices, cost of adoption, farmers' financial motivations, and economic concerns in general; 2) farm management – time required for and timing of conservation practice adoption, lack of equipment required for conservation practice adoption, and farm equipment tailored towards large scale farm operations; 3) government programs – unawareness of programs, reduced monetary incentives, and general concerns about working with agencies administering government programs; and 4) NOLs' perceptions of tenant farmers' status quo bias. This section encompasses discussions from seven NOLs and were analyzed separately from farmer focus groups. The quotes provided below are illustrative of several of the aforementioned barriers:

*"It is a dreadful time to be in farming financially, economically. And to try something completely different, these things [conservation practices] that we're doing are not so uncommon from what our grandfathers did, but we just haven't seen it, the farmers of this last generation. And so, it looks so different from the business model that we've had" – FG3*

*"I've spoken with him [my tenant farmer] many times about cover crops, and I think one of the reasons he's not able to do it is because he has a lot of other acres to harvest. And then when do you have time to go back and seed for the cover crops? So, the window's not open very long, and he also said it's pretty expensive." – FG3*

*"...a deeper issue we're talking about all around is that more of a corporate mindset of the bottom dollar [among farmers], as compared to...[farmers] who are really concerned about land stewardship. And these are just two such diametrically-opposed topics, and how do we bridge that gap?" – FG3*

*"The economic terms is what he [my tenant farmer] said [is a conservation barrier], and the timing is what I sort of surmised. I may ask him again, but I've been thinking, 'Well, gee, maybe I could go out there and just broadcast the [cover crop] seeds myself.'" – FG3*

*"...if you're just a tenant and you're doing it [cover crops], chances are you don't have the labor to do it yourself. But if it becomes widespread...there's going to have to be a lot more drills out there to get it done. If you were going to do half the acres in Iowa, there isn't enough equipment to get it done in a timely fashion." – FG1*

*"The other thing that we're seeing is this huge equipment...they're tearing out waterways and getting rid of the smaller patches, because you can't turn those 50-foot [wide equipment]*

*around...[therefore] terraces are gone and waterways are gone so that this big stuff [equipment] can actually do the farming. I think that's going to hurt in the long run.” – FG1*

*“...when they came up with the Pollinator Program and then they did increase the price per acre for that, all of a sudden a lot of people [NOLs] decided that that was pretty good. Now my understanding is that the Pollinator Program is not going to be available anymore. I don't know whether that's true or not...” – FG1*

*“The biggest barrier for our not putting it totally in conservation is that we have not had a program available that we could use for it to take it out of production. I mean, maybe that's being too financially motivated. But it's our land and we want it to be at least moderately productive...If a program came up that gave us even a moderate amount of income, or maybe I could even say minimal amount, we would take it. – FG2*

*“We are working with waterways, and we do have a great need for a second waterway...part of that issue is the financing, and working with NRCS.” – FG3*

*“...that's [promoting cover crops on my land] going to be a tough job because teaching an old dog new tricks is not going to be easy. But I'm very interested in this whole notion.” – FG2*

Whereas several of the aforementioned barriers are common to those expressed in farmer focus groups, the ones unique to rented farmland include: 1) Lease terms – high cash rent, farmers' expected duration of leasing the land, and cash rent lease versus shared crop lease; 2) NOLs attributes and demographics – absenteeism, financial motivation, gender, and age; 3) demand for rented farmland. The quotes provided below are illustrative of several of the aforementioned barriers:

*“It's pretty tough [to adopt conservation practices] when cash rent prices are so high. Some of them are absolutely ridiculous in this area.” – FG1*

*“...cover crops, and even those other practices, they kind of have to come from the landlord. Because if you're renting that land, a long-term project just like putting in tile, you can usually get some kind of a graduated, or get some kind of payment back if you get pushed off that farm...but something like...cover crops and other [conservation] practices too...[if] you're going to be renting it [for] two years, putting the cover crop on is going to be pretty low on your list.”*

– FG1

*“I would think that in a shared [crop rent] situation, that you would be able to implement some [conservation] practices easier than you would in a cash rent basis. Kind of like with the cash rent, it's the [tenant] farmer pretty much controls everything in that situation, at least in my opinion.” – FG1*

*“...the first hurdle would be to get more landowners to accept a crop share lease because I'm an Iowan, most landowners they want the top cash rent. I've been at meetings where the guy pulls his worn slip out of his billfold, which is a copy of how much rent he got for this nice big field. And that was the only thing he had in mind is the most rent. No ifs, ands, or buts. He didn't worry about any other attributes, and that's a big challenge to overcome that attitude.” – FG 3*

*“The kid that inherited grandpa's farm that lives in New York, he doesn't give a damn. He just wants to get a check every March 1st or whatever it is”. – FG1*

*“Trying to get the new generation [of NOLs] to understand it [conservation], I don't know if they're as interested because they're living in different places. But maybe as they get older, they will. But that's another issue.” – FG2*

*“...there are an awful lot of us - mainly women - growing in large numbers who are becoming landowners who do not live on the farm, on the land, near the land, maybe other states away. And they have very little understanding, appreciation, besides, ‘What can I get out of it?’ ...for some of those individuals if our long-term goal is that the soil in the United States become healthier, that maybe some of these [soil health] metrics could be a benefit to encourage them to do more than what they've done.” – FG3*



*“There are some farm operations around that they just get out the plat book and call up everybody [NOLs] saying they're interested in renting their farm. And their incentive was they were going to pay more rent than what they're [NOLs] now receiving or something of that order.” – FG3*

## **4.2 Topic 2: Motivating wide-spread adoption of conservation practices on rented farmland**

Identifying strategies to motivate wide-spread adoption of conservation practices on rented farmland was another focus group discussion topic. The research team encouraged NOLs to share their views about, and ideas about how to motivate, wide-spread conservation adoption. Several ideas emerged and are summarized below.

### **4.2.1 Communication with NOLs via their tenant farmers**

In at least two focus groups, participants expressed that their conservation decision-making was informed by their tenant farmers, and therefore, they should also be part of the focus group discussion. In fact, in one focus group, a participant explicitly stated that the channel to initiate conversations about conservation practices would be to approach NOLs via their tenant farmers. The quotes provided below are illustrative of this theme.

*“I think the guy that farms my land would be someone that we should have on this call because he is a great steward of the land.” – FG1*

*“...when I was approached about using a cover crop, I went right to him [my tenant farmer]. I wanted his opinion. Because, believe me, if he doesn't want to do it, ain't no way on earth it's going to work.” – FG1*

*“...you ought to be contacting him [my tenant] as well. And so, whether we come together, I don't think [that's important], what's really important is you're getting to him rather than our getting together.” – FG2*

### **4.2.2 Conducting education and outreach with absentee landowners**

Although NOLs noted that absenteeism is a conservation barrier, focus group participants saw the potential to surmount these barriers by devising strategies to conduct education and outreach with absentee NOLs as a potential channel to promote conservation behavior on rented farmland. The quotes provided below are illustrative of this theme.

*“...when you've got a landlord that's the little old lady that's inherited the ground, or her husband farmed it and she's away, and trying to get them to some kind of a meeting is almost impossible. But I know of some guys that have gone to that person on a one-on-one basis and explained what they wanted to do and why they wanted to do it, and they were all for it.” – FG1*

*“I think that's the essential question [how we reach out to absentee NOLs] because we're dealing with ignorance, not necessarily a deliberate ignorance, but it is just simple ignorance of not understanding, and having no concept that soil has life, that it can be healthy, and not healthy.” – FG3*

*“I would guess a lot of those people [absentee NOLs have a] farm management company manage what goes on their farm...if you could convince those farm management companies that, ‘Hey this is something that will improve the land, will make everybody more money down the road,’ I mean, they might be a good resource to convince, and I would think there wouldn't be many.” – FG1*

*“...you can go to all of your county courthouses. They know who owns the land. It's a matter of public record. If you want to reach out to people in Florida, there's a record at [the] county courthouse [and] the mailing address because they send them out tax bills...Once you find them though then what are you selling them?” – FG1*

*“So many of the women [don't] live close to their land...they should visit their farms. They should talk to their farmers and find out what's really going on and get educated. And I think women*



*would be good stewards, sharing this with other female farmers, I believe they would care about producing a healthy soil comparable to having healthy kids I guess.” – FG3*

*“I don't know if there's a way to learn by statistic reports who recently inherited land...I'd start there because I think that's a prime time when people maybe have inherited a place they thought they knew, but now suddenly it's up to them. And I think that the door is cracked open for them to say, 'I need to be learning more about this right now.' In those first two or three years would be a good time.” – FG3*

In addition to specific recommendations about conducting education and outreach with absentee NOLs, focus group participants made recommendations for education and outreach with NOLs, in general. The quotes provided below are illustrative of this theme.

*“I think you've got to maybe bring them [NOLs] out to the farm on a tour just to see what's going on [to better understand what it takes to raise a crop].” – FG3*

*“I hope [referring to a fellow FG participant] look into Women for the Land...[and] be part of a Learning Circle because I think that helps women learn to be stronger advocates for their land...in our group [at the meeting] I know one or two women who have had a very difficult situation with family members who are farming [but] are not open to the conservation practices...[they] had to just grow on their own acceptance that it may mean breaking with that partnership, and seeking someone else who's more open to these practices.” – FG3*

*“I don't know how you get landlords to meetings that'll do that [motivate them to adopt conservation practices]. It looks like incentives, like a tax cut or something might get to landlords, but to convince the tenants, you have to get them in meetings that convince them that, 'Hey, this is going to make the ground better,' and have them go to the landlord and say, 'Hey, I want to put cover crops in...' And maybe that can swing, and they'll see some improvements in time.” – FG1*

## 5 Implications

The following section highlights implications that emerged from farmer and NOLs focus group discussions. Implications are split across the following sections: 1) Overarching observations; 2) Recommendations for policy and practice; 3) Knowledge and research gaps; and 4) Action items for WFF.

### 5.1 Overarching observations

- **Regulation seems credible; may be acceptable with conditions.** We found an expected level of disdain for regulation. Focus group farmers appeared to be somewhat supportive of a regulatory framework that is science-based and inclusive of agricultural and non- agricultural actors and based on incentives rather than penalties. Overall, farmers' conditional support for farm regulation was discussed in light of several approaches that should be considered prior to imposing regulations. For example, regulation should be based upon science ([see section 3.2 for further details](#)). Although, it is important to also note that some farmers expressed skepticism towards scientific research, especially questioning the scientific rigor and the source of research-based evidence ([see section 3.8.4 for further details](#)).
- **Regulating fall application of fertilizer may be acceptable.** Regulating no fall application of fertilizer may be acceptable, however there are structural barriers, including limited application personnel and storage in spring. For example, fertilizer dealers incentivize fall application because they have more time and resources to apply in fall ([see section 3.2 point # 6](#), and [section 3.3.2 for further details](#)).
- **Targeting seems acceptable.** Focus group farmers agreed that funds should be targeted to farmland that have a disproportionate impact on water. However, this idea was salient to everyone because farmers do not necessarily want to be told what to do (especially by the government). Farmers with negative perceptions towards targeting felt that the targeting process should be complemented with incentives ([see section 3.6 for further details](#)).
- **Conservation payment program may be of interest.** There was some enthusiasm surrounding the conservation payment program such as the one implemented in Iowa, where farmers were given \$5/acre of cover crop acreage; however, \$5 is probably not enough to offset concerns with a yield hit. Farmers also cautioned that participation in this program might disqualify them from the crop insurance discount

program because they cannot participate in two programs simultaneously ([see section 3.3.1 for further details](#)).

- **Conservation compliance may be acceptable with conditions.** Participants did not seem concerned with the idea of conservation compliance (related to crop insurance discounts). However, they emphasized the importance of communicating the benefits of conservation compliance to farmers. Farmers also raised questions regarding who will be responsible for designing the requirements how it will be enforced ([see section 3.2, point #7 for further details](#)).
- **NRCS programs and practices: inflexible and overdesigned.** These emerged as significant barriers. For example, NRCS tends to follow their nine-steps of conservation planning process versus helping farmers deal with specific on-farm issues. Focus group farmers also conveyed that overdesigning conservation practices resulted in cost inflation. As a result, farmers were often motivated to implement the practice on their own instead of participating in NRCS programs ([see section 3.3.3 for further details](#)).
- **Consumer involvement/demand and certification program.** There seemed to be a disconnect between farmers and consumer demand. For example, farmers interact with grain elevators, not retailers. There is potential openness to certification programs, but questions (and skepticism) remain about who will capture the value. Farmers often complained that consumers don't understand what it takes to farm, at times alluding to a rural-urban divide, in light of their suspicion that coastal elites should not direct Midwest farming ([see section 3.5 for further details](#)).
- **Conservation on rented land is difficult.** Focus group discussions confirmed what we already know – implementing conservation on rented land is difficult because at least two parties are involved. Specific barriers included, but were not limited to, NOLs financial motivations, long-term payoffs of conservation, aesthetic preferences, and type of land tenure. Farmers indicated a preference for conservation communication to be directed at the farmer first rather than the NOL ([see section 3.3.4](#) and [3.8.6 for further details](#)).
- **Unawareness of conservation programs.** Farmers across several focus groups seemed to be unaware of conservation programs. Those who'd reached out to their local conservation agency expressed discontent with the information provided to them or complained about the agency not following up on their visit. Farmers felt that the agency was not proactive in promoting conservation programs, and did not make use of modern technology ([see sections 3.3.3](#) and [3.8.7 for further details](#)).
- **Risk management-conservation interactions:** Several interactions between risk management and conservation adoption/behavior were identified in our focus groups. The two most prominent inter-linkages identified were the perception that some conservation practices (no-till and cover crops in particular) may, even if temporarily, reduce yield by several bushels per acre. This “yield drag” effect is viewed as a barrier to adoption not only because yield translates into revenue, but because this affects the Annual Production History (APH) that is part of the farmer's yield history record with the Risk Management Agency ([see section 3.3.1 for further details](#)). This directly affects the yield basis for payouts farmers are eligible for under federally subsidized crop insurance. The effect of a temporary “yield drag” will persist in 10-year average yields that determine APH.
- **Water quality trading programs and taxing fertilizer are not popular.** Participants from the first round of focus groups do not appear to be interested in water quality trading program and fertilizer tax. Incentives, rather than taxes or mandates, are a preferred approach to conservation adoption. However, these farmers also do not seem to understand the fundamentals of the programs. For example, farmers questioned the underlying morality associated with letting someone pollute in lieu of receiving a credit. Education about these programs could provide a better basis for understanding farmer willingness to participate in such programs ([see section 3.4 for further details](#)).
- **Long-term cost-share programs.** The views about funding models (duration in particular) represent both support for and resistance to longer term conservation contracts. Farmers expressed an underlying tension between long-term funding enabling them to view the benefits of conservation adoption versus getting ‘locked in’ to a program without having the option to discontinue the program ([see section 3.8.2 for further details](#)). The Conservation Stewardship Program (CSP) is something of a “sweet spot” because these contracts are typically 5 years long, and thus longer than 2-3 years under EQIP and less than 10+ years under CRP. Because the farmers that participated in our focus groups are not aggressive adopters of conservation practices already, these farmers would not generally qualify to participate in CSP because it enrolls farmers who already doing some baseline level of conservation on their farms. The movement of

CSP from FSA to NRCS, and incorporation into EQIP under the 2018 Farm Bill may mean that changes in CSP will occur going forward.

## 5.2 Recommendations for policy and practice

- **Leveraging/supporting farmer networks.** Neighbors appear to be a salient trusted source of information and point of leverage; they are also important from the perspective of building social norms. Programs like INfield Advantage could be effective, especially if the network did not require farmers to implement field trials. Farmer networks, such as the National Corn Growers Association’s Soil Health Partnership or National Wildlife Federation’s Cover Crop Champions, could be an appropriate means to get the message out about conservation to ‘non-choir’ farmers. Farmer networks should continue to be supported and evaluated for effectiveness (especially for ‘non-choir’ farmers). These types of networks could also address some of the skepticism we encountered about the scientific validity of some studies.
- **Providing small-scale assistance.** NRCS and SWCD currently provide technical assistance for small-scale issues, however some farmers may not realize this opportunity is available. Small-scale assistance should be marketed and/or it needs to be determined how best to let farmers know about this type of assistance.
- **Designing private cost-share programs.** Some farmers are continually dissuaded to participate in government cost-share programs due to perceived time consuming paperwork and bad timing of payments. It may be worth considering designing a private cost-share program that does not have as much paperwork, that pays the farmer prior to conservation implementation, and disburses funds progressively.
- **Conducting outreach on university experiment farms/plots.** Some farmers tend to distrust experimental evidence because they perceive the data to be based off varied geographic and climatic regions. Universities have experimental fields and plots located throughout their states. The fact that these exist, along with data from those fields and plots, should be communicated to all farmers. An awareness building and communication campaign may be warranted.
- **Partnering with farm magazines to communicate research.** Our findings, which align with previous research on farmer information sources, indicates that farmers read farm magazines. Therefore, university extension could partner with farm magazines to better communicate their research/work.
- **Promoting CRP.** Due to the new Farm Bill, the time is ripe for promoting the Conservation Reserve Program (CRP). Promotion could include targeted mailings to farmers and landowners who farm/own Highly Erodible Land that could be transitioned to CRP.
- **Funds could go towards building a cover crop expert program.** In this context, an idea suggested in one of the focus groups was aerial cover crop seeding of the entire county. This could be combined with funds to support agronomists who can provide localized technical advice in spring. In addition to negating the barrier of time management, this approach could also help alleviate economic concerns associated with cover crop adoption.
- **Developing risk insurance programs, including conservation discounts for crop insurance.** Focus group farmers appear not to be willing to take on risk around conservation – the risk of yield reduction to implement conservation is not worth any other benefit that might be seen. Adding some certainty to government programs (for bank loans and for profits) through something like a risk insurance program may be warranted. There was interest in the idea of discounted crop insurance for conservation implementation. However, farmers expressed concerns about yield reductions associated with cover crops, no-till, and other practices negatively impacting APH yield endorsements and crop insurance payments.
- **Promoting incremental change.** Focus group farmers discussed the value of changing slowly by implementing one conservation practice at a time. In order to implement more conservation over more acres, it may be worth promoting incremental rather than whole farm change. Small-scale conservation (or related technical assistance) may speak to farmers’ desire for incremental change, by focusing on the problem the farmer approached NRCS for. This approach is in contrast with the common notion that NRCS overdesigns and tends to recommend more than one practice. Overall, farmers seemed open to change, but they want it incrementally and step-by-step.
- **Educating the public.** Farmers complained that the public does not understand how complicated and difficult farming is. A public education campaign about farming could be way to build public support for farming and thus public funding for conservation – such a campaign could be oriented to the general public, as well as NOLs.

- **Communicating to NOLs via tenant farmers.** We found that a communication channel worth pursuing is to communicate to NOLs via their tenant farmers. Entities working with NOLs, such as NGOs, non-profits, universities, etc., often face the challenge of identifying NOLs. In contrast, farmers who operate rented farmland are more visible. Taken together, this is suggestive of using tenant farmers as a starting point to initiate conversations about promoting conservation on rented farmland.
- **Communicating to NOLs via intermediaries.** Farm managers emerged as a potential messenger to NOLs. However, participants also expressed the need to educate them about conservation practices and programs.

### 5.3 Knowledge and research gaps

- **Excess moisture and conservation behavior.** Due to climate change, excess moisture in soil in the spring could increasingly become the norm, instead of an anomaly, therefore necessitating more research around how perceptions around managing excess moisture influence conservation behavior. For example, we found contradictory views about whether no-till reduced or increased soil moisture.
- **Uniform conservation messaging.** Focus group farmers seem to have many reasons why they will not implement conservation or even make general changes to their farm operations. Through our own research, we have found that farmers feel there is too much information and different conservation messages from different advisors and groups. This can confuse farmers or shut them off to new ideas entirely. Further research is needed to determine trusted messengers and types of information for non-choir farmers, as well as what a uniform conservation message for non-choir farmers would look like.
- **Barriers unique to rented farmland need closer examination.** Several conservation barriers emerged in our focus groups, including ones that are unique to rented farmland, such as landowners' financial motivations, their demographics and attributes – age, absenteeism, aesthetic preferences, etc. – and high demand for rented farmland. These factors further underscore the salience of recognizing the challenges of promoting conservation on rented farmland, and therefore the need for more research on this topic. For example: 1) Testing the salience of providing tax-credit for landowners. 2) Identifying key messengers and salient messages for NOLs.
- **Understanding farmers' preferences towards certification programs.** Our findings suggest that questions surrounding farmers' preferences towards certification programs need to be answered in order to assess their interest. Given that these programs are often an outcome of consumer demand for, and involvement in, their food, perhaps there is a need for a research-based farmer-story campaign directed towards consumers so that farmers feel heard. Doing so, we believe, will help “urban” people understand the difficulty of farming and reduce farmers' negative perceptions towards “urban” people.
- **How to promote incremental adoption of conservation practices?** Our findings suggest that focus group farmers seem to resist a systems approach to change. Instead, they prefer adopting practices incrementally. This may indicate a preference for incremental change among ‘non-choir’ farmers versus a preference for ‘systems-thinking’ among choir farmers, and is a topic we believe needs further research.
- **Understanding persistence of conservation adoption beyond EQIP cost-share.** Anecdotal evidence suggests that a high rate of farmers that receive EQIP cost-share discontinue in-field or temporary/reversible edge-of-field practices after short-term contracts expire. Empirical evidence to understand persistence of adoption beyond EQIP contract horizons could aid future targeting conservation efforts and program enrollment.

### 5.4 Action items/recommendations for WFF

- Evaluate the effectiveness of different types of farmer networks in promoting conservation adoption.
- Fund program or research surrounding the perceived conservation barriers around dealing with excess moisture in soil and how that affects cover crop and no-till adoption. Of particular interest would be farmers who were forced to no-till in fall, but saw subsequent benefits in spring, thereby positively influencing their perceptions around no-till.
- Implement simpler contracts with farmers as a way of exploring/testing a different way to pay or cost-share farmers to do conservation. Research suggests that providing cost-share money upfront motivates farmers to participate in programs. This could also be in the form of technical assistance to farmers.

- Make a strategic investment on rented farmland. For example: 1) Incentivize NOLs to incorporate conservation stipulations into their leases. 2) Pay for cover crop seeds to implement cover crop adoption on rented farmland. 3). Provide tax-credits to NOLs.
- Investigate the role of bankers in promoting or hindering conservation adoption. In this light, funding education for bankers around conservation practices might be warranted.

## 6 Supplementary Material

### Farmer demographic and background data

The following data are combined results from paper surveys distributed at ten farmer focus groups (IN=5; IA=3; IL=2).

Table 1 Farmer Education

What is the highest level of education you have completed? (n=43)		
	<b>n</b>	<b>%</b>
<b>Some formal schooling</b>	2	4.7
<b>High school diploma/GED</b>	7	16.3
<b>Some college</b>	9	20.9
<b>2-year college degree</b>	3	7.0
<b>4-year college degree</b>	18	41.9
<b>Post-graduate degree</b>	4	9.3

Table 2 Farmer age and acreage owned/operated

	<b>Mean</b>	<b>SD</b>	<b>Min.</b>	<b>Max.</b>
<b>Age (n=43)</b>	56.58	15	28	85
<b>How many acres of farmland do you own? (n=41)</b>	1046	1797	75	9000
<b>How many acres of farmland do you operate? (n=42)</b>	1781	1909	0	8300

Table 3 Farmer affiliation with an environmental/conservation or farm organization

	<b>% yes</b>	<b>% no</b>
<b>Are you affiliated with any <u>environmental or conservation organization</u> (e.g., the Nature Conservancy, Sierra Club, Pheasants Forever, Trout Unlimited, etc.)? (n= 43)</b>	25.6	74.4
<b>Are you affiliated with any <u>farm organization</u> (e.g., Farm Bureau, Cattlemen’s Association, National Corn Growers Association, etc.)? (n=42)</b>	71.4	28.6



Table 4 Succession planning

<i>Do you have a farm succession plan? (n=43)</i>		
	<b>n</b>	<b>%</b>
<b>Yes</b>	36	83.7
<b>No</b>	7	16.3

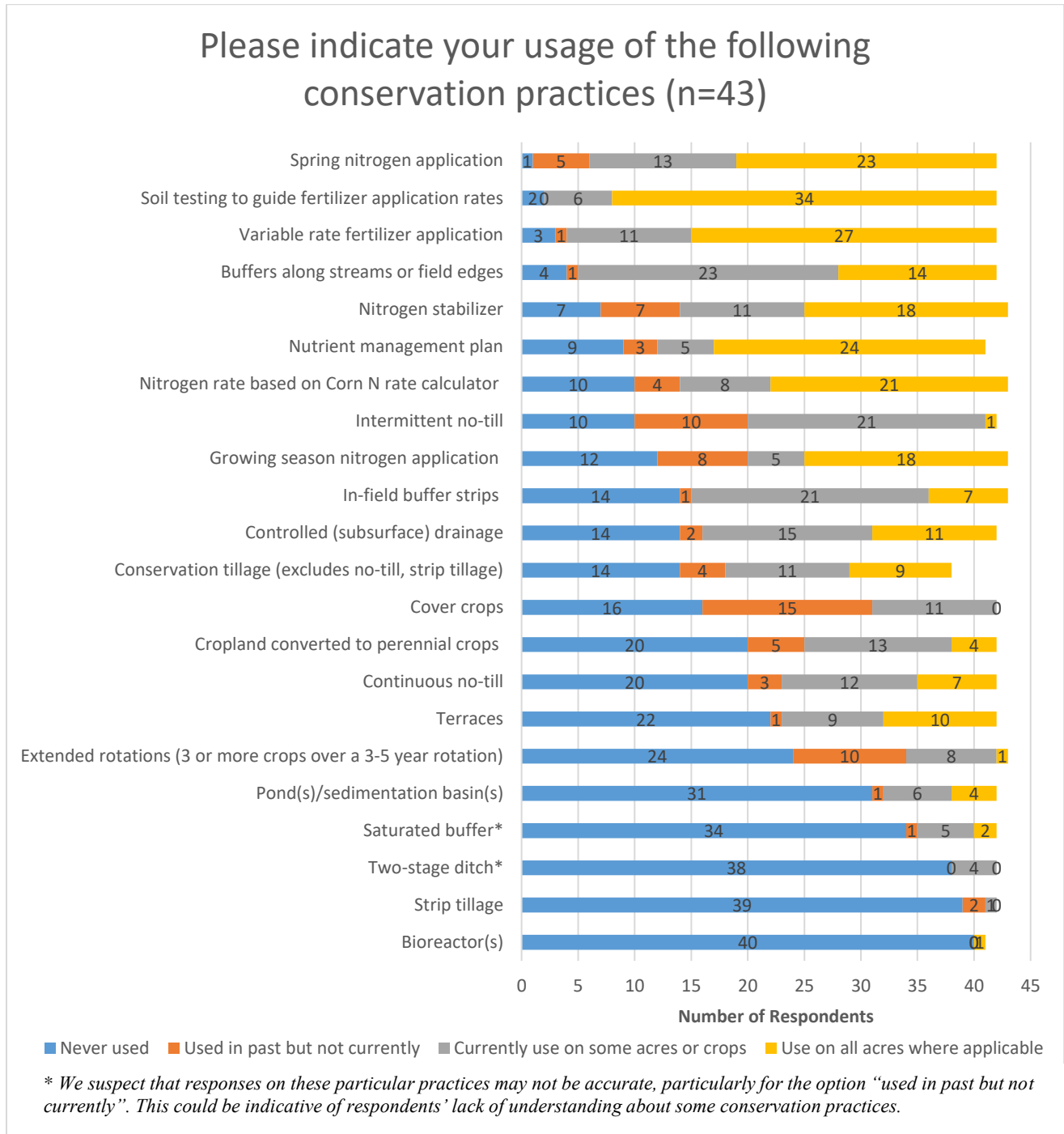
Table 5 Conservation payments

<i>Have you ever received conservation payment (e.g., EQIP, CSP, other cost-share)? (n= 42)</i>		
	<b>n</b>	<b>%</b>
<b>Yes</b>	36	85.7
<b>No</b>	6	14.3

Table 6 Water quality awareness

<i>Are you aware of water quality problems in the Mississippi River Basin? (n=43)</i>		
	<b>n</b>	<b>%</b>
<b>Yes</b>	41	95.3
<b>No</b>	2	4.7

**Figure 2 Respondents' conservation use**



## Appendix A – Farmers’ Focus Group Questions

In our discussion today, we will talk about agricultural conservation practices and programs. We are interested in learning your opinions about, and experiences with, conservation practices and programs. Specifically, we are interested in hearing your ideas about how to encourage conservation practice adoption and conservation program participation in your state.

Conservation practices can be defined as practices that minimize potential negative impacts of agriculture (i.e., reducing erosion and protecting water quality) while maintaining or enhancing benefits such as soil health and fertility. The term conservation practice can refer to practices that are implemented on a yearly basis, such as cover crops or no-till, or relatively permanent structural practices such as grassed waterways or terraces. Installation of tile drainage is NOT considered to be a conservation practice unless combined with a nitrogen-loss reducing practice such as a bioreactor or a nutrient-removal wetland. Examples of conservation programs include Environmental Quality Incentives Program (EQIP) and Conservation Reserve Program (CRP).

### Generic questions

1. Did inclement weather during this year’s planting season influence how you think about conservation practices with respect to their effect on soil health and water conservation, including flood mitigation? If yes, how? If no, why not?
2. What do you think are the barriers to conservation adoption?
3. What could be done to encourage more adoption? What do you think will make your peers adopt conservation practices?
4. Adoption of conservation practices and participation in conservation programs are predominantly voluntary. How does voluntary nature of conservation limit its effectiveness?

### Government programs

5. We often hear from farmers that they are willing to adopt conservation practices if they are paid or receive substantial cost-share. What do you think? Does this mean that making conservation work is difficult economically?
6. What do you think are the limitations of current incentive programs? What type of incentive will be more attractive to you – financial, technical, others? Most incentive programs provide 50% cost-share, is that enough or is there different percentage cost-share that would be more compelling to you?  
[Probe: How might that percentage change depending on the practice?]
7. We know there are several barriers to working with government programs such as the lengthy paperwork, eligibility requirements, and availability of cost share. Can you think of any solutions to these issues? Are there other barriers that prevent you from wanting to participate in government programs?
8. Most conservation programs provide cost-share for 2 to 4-years. Some farmers feel that government cost-share programs are too short-term, and this deters them from participating.
  - a. Would a program providing cost-share for 5-years, 8-years, 10-years be more effective? If yes, why? If no, why not?
  - b. What would it take for you to keep doing cover crops and/or no-till past 10-years?
9. What suggestions do you have for financing conservation without relying solely on two sources of funding: the farmer and the government?

### **Certification programs and private sector funding for conservation**

10. Consumers are increasingly concerned about whether the food they buy/consume is grown sustainably. How, if at all, does that influence the choices you make about your farm management, including adoption of conservation practices?
11. Some agribusiness firms are promoting certification programs to help farm operations measure the impacts of nutrient runoff and soil erosion reduction practices. The purpose of these programs is to keep better track of sustainable practices used throughout the food supply chain with the goal of marketing products to eco-conscious consumers.
  - a. Would you be interested in participating in a certification program?
  - b. What aspects of a certification program need to be present or absent for it to appeal to you?
  - c. Would you need incentives to participate? What types of incentives?
12. In Illinois, Pepsi, Mars Petcare, The Nature Conservancy, and The Illinois Council of Best Management Practices are offering cost-share incentives to farmers to pay for cover crops.
  - a. What do you think about the idea of corporations providing such incentives to farmers for cover crops?
  - b. How long should a program like this provide incentives for it to be effective?
  - c. Would you prefer cost-share on cover crops, a \$/acre incentive like the program in Iowa, or upfront funding to cover the cost of cover crop seeding?  
[Probe: Do you have an idea of how much funding would be compelling enough for you to participate?]
  - d. Which corporations would you be willing to work with? Are there corporations you wouldn't want to work with?
13. In previous focus groups some farmers have complained that NRCS programs tend to focus on the whole farm operation and aren't flexible enough to address one issue at a time. Is this a concern in your area?
  - a. Would you be more interested in technical or financial assistance that focused on one issue at a time rather than addressing whole farm operation plans?
  - b. Should this be a private sector service, or should this type of assistance be part of NRCS's approach?

### **Conservation compliance, crop insurance**

14. Conservation Compliance is a program that links eligibility for Farm Bill program benefits such as subsidized crop insurance and the Price Loss Coverage (PLC) and Agricultural Risk Coverage (ARC) programs to use of certain soil and water conservation practices on highly erodible land (HEL). There has been some discussion about extending Conservation Compliance to cover all cropland rather than just HEL and requiring some standard of conservation practice adoption to be eligible for subsidized crop insurance and other Farm Bill programs.
  - a. Would you support an extension of Conservation Compliance to all cropland? [Probe: Extending to nutrient loss or habitat provision?]
  - b. What if you were required to adopt cover crops or only apply nitrogen post-planting?
  - c. What level of conservation compliance threshold seems fair to you?
  - d. What suggestions do you have if conservation compliance thresholds were to change?

15. What is the best way to enforce conservation compliance?
16. If you received a price discount on your crop insurance for implementing conservation practices, would this encourage you to adopt conservation practices?

*[Probe: What aspects of such a program need to be present or absent for it to appeal to you? What conservation practices would be appropriate for such a program?]*

*[Probe: If there was a way to protect your actual production history yield (APH), say by excluding yields the first season after conservation practice adoption when calculating APH), would you be fine with the idea of a discount on your crop insurance premium for conservation adoption?]*

### **Regulation**

17. There has been some discussion about regulations for agricultural production. Do you think there's a credible threat that agricultural production will be regulated?
18. What do you think future farm regulation looks like? How credible is that threat?
19. Given the environmental impacts of farming, do you think there might be such a thing as a "fair" level of regulation? Are there things you think farmers should not be allowed to do?

### **Conservation network integration**

20. Do you actively look for information about conservation?
  - a. If yes, where do you get information about conservation?  
*[Probe: Field days, YouTube videos, following people on social media, crop advisor]*  
*[Probe: What do you hear from these sources? Do you like what you hear?]*
  - b. If no, why do you not seek out information about conservation? What can be done to motivate you to actively seek information about conservation? If you do not attend field days, what can be done to motivate you to attend field days?
  - c. What do you think would get more farmers to go to conservation-related events and/or seek out information about conservation?
21. Who do you generally trust for information about farm management? Why?
22. Who do you generally trust for information about conservation practices? Why?
23. Who do you trust for scientific data about conservation practices? What type of scientific data would you trust?
24. Do you look at your neighboring farmers to help you make decisions about your farm? Why/why not?
25. Do conservation agency staff communicate with you? If yes, how? Does that work for how you manage your farm? If yes, how? If no, why not?
26. Conservation funding and technical assistance generally goes to the farmers and landowners who walk into the USDA service centers seeking conservation assistance. What can be done to reach farmers and landowners who do not seek conservation assistance?

### **Targeted/precision conservation**

27. There has been increasing discussion of using GIS, satellite imagery, and other precision ag technology to identify areas of farms that have high potential for nutrient and sediment loss, and then approach farmers to discuss conservation possibilities.



- a. How would you feel if a natural resource professional were to contact you about a potential issue on the land you farm?  
*[Probe: What if it was your land being targeted?]*
28. Precision agriculture technologies are increasingly used to evaluate profitability at the subfield level. If you could accurately identify historically unprofitable subfield areas in your fields, ...
  - a. How would your management of those areas change?
  - b. Would you consider putting those areas in perennial vegetation. Why/why not?
  - c. Other options?
29. What do you think about the idea of directing cover crop incentives towards counties that contribute disproportionately to water quality problems, in order to maximize broader application and minimize cost, while also maximizing environmental benefits?

### **Rented Farmland**

30. Are you renting any farmland? What are some of the barriers to working with landowners?
31. Do you ever talk to your landowners about conservation? If your landowner lowered the rent, would you be willing to adopt conservation practices? How much would they have to lower it for different practices?
32. What ideas/suggestions do you have for engaging with landowners about conservation on their farmland? Can you think about any alternative incentives program that can help facilitate this engagement?
33. Who do you think should be approached – the tenant, the landowner, or both, by local conservation agencies, universities, NGOs, non-profits, etc., in order to promote conservation on rented farmland? What do you think about an approach where organizations approach landowners via their tenant farmers?

### **Wrap-Up**

34. What haven't we talked about - think outside the box- what else could be done to encourage adoption?

## Appendix B – Landowners’ Focus Group Questions

In our discussion today, we will talk about agricultural conservation practices and programs on the farmland you own. Specifically, we are interested in hearing your ideas about how to encourage conservation practice adoption and conservation program participation on rented farmland.

Conservation practices can be defined as practices that minimize potential negative impacts of agriculture (i.e., reducing erosion and protecting water quality) while maintaining or enhancing benefits such as soil health and fertility. The term conservation practice can refer to practices that are implemented on a yearly basis, such as cover crops or no-till, or relatively permanent structural practices such as grassed waterways or terraces. Installation of tile drainage is NOT considered to be a conservation practice unless combined with a nitrogen-loss reducing practice such as a bioreactor or a nutrient-removal wetland. Examples of conservation programs include Environmental Quality Incentives Program (EQIP), Conservation Reserve Program (CRP) and other state and federal programs that provide cost-share and technical assistance to help farmers and landowners to establish and maintain conservation practices.

1. Are you concerned about potential water quality impacts from agricultural operations on your farmland?
2. Are you concerned about potential loss of soil quality on your farmland?
3. How do you ensure that your tenant is taking care of your land? (Probe: who rents the land: family, a family friend, neither?)
4. What do you think are the barriers to conservation adoption on rented farmland?
5. What suggestions do you have for how to motivate widespread adoption of conservation practices on rented farmland?  
[Probe: Do you have any policy recommendations, e.g., developing tax incentives for landowners (property tax relief), developing incentives to recognize stewardship among landowners, etc.]
6. University researchers and others are working to develop measures of soil health to quantify the value of building or degrading soil. Do you think it would make sense to have soil health metrics that are taken into account by land appraisers?
7. What messages resonate with you about conservation practices? What would you need to know to be interested in having conservation practices on your land?  
[Probe: soil health, land value, pollinator habitat, current environmental impact of production, e.g. nutrient runoff, carbon sequestration, water quality, etc.]
8. Would you be willing to accept lower rent if your tenants were to adopt conservation practices that maintain or improve soil health on your farmland? How much rent would you be willing to drop in order to encourage your tenants to adopt soil health conservation practices?
9. Would you be willing to accept lower rent if your tenants were to adopt conservation practices that reduce negative water quality impacts from your farmland? How much rent would you be willing to drop in order to encourage your tenants to adopt water quality conservation practices?
10. If you were to use your lease to enforce conservation adoption on your farmland, what would that look like?
11. Does your expected duration of tenancy, i.e., how long your current tenants might rent your land, influence how you feel about encouraging them to adopt conservation practices? Why/why not?

12. How/when should groups (e.g., ag. lenders, university extension, non-governmental organizations etc.) communicate with you? Who do you trust for information? (probe regarding: farm managers, university extension, ag lenders, etc.)
13. Would you be willing to convert some of your farmland into edge-of-field conservation practices that reduce nutrient and soil loss such as buffer strips? Would you be willing to participate in government programs that allow you to do so? Why/why not?
14. Do you see value in building forums for landowners to come together, e.g. Women-only landowner learning circles, general landowner groups, etc. Why/Why not? Just to clarify, these forums provide landowners the tools they need to make farm management decisions, including adoption of conservation practices and programs. Women learning circles are exclusively for women landowners.
15. Do you see value in building forums for landowners and respective tenants to come together, e.g. lease meetings organized by extension offices, farm managers holding such get-to-know meetings, etc. Why/why not?
16. What suggestions do you have for reaching out to absentee landowners, i.e., those who own land in a given state but live outside?
17. How does having a cash rent lease versus a shared crop lease affect your ability to talk to your tenant(s) about conservation practices?  
*[Probe: Does having a shared crop lease make it easy/difficult to get your tenant to use conservation practices? In contrast, does having a cash rent lease make it easy/difficult to get your tenant to use conservation practices?]*
18. What haven't we talked about - think outside the box- what else could be done to encourage adoption on rented farmland?

## Appendix C – Focus Group Participant Background/Demographic Survey

1. What year were you born?
  
2. What is your gender?
  
3. How many acres of farmland do you own? *(Please enter a numeric value in acres)*
  
4. How many acres of farmland do you operate? *(Please enter a numeric value in acres)*
  
5. What do you grow on your farm? *(Check all that apply)*  
 Row crop       Specialty crop       Livestock       Other \_\_\_\_\_
  
6. What is the highest level of education you have completed?  
 Some formal schooling       2-year college degree  
 High school diploma/GED       4-year college degree  
 Some college       Post-graduate degree
  
7. Are you affiliated with any environmental or conservation organization (e.g., the Nature Conservancy, Sierra Club, Pheasants Forever, Trout Unlimited, etc.)?  
 Yes       No
  
8. Are you affiliated with any farm organization (e.g., Farm Bureau, Cattlemen's Association, National Corn Growers Association, etc.)?  
 Yes       No
  
9. Do you have a farm succession plan?  
 Yes       No
  
10. Have you ever received conservation payment (e.g., EQIP, CSP, other cost-share)?  
 Yes       No
  
11. Are you aware of water quality problems in the Mississippi River Basin?  
 Yes       No

**12. Please indicate your usage of the following conservation practices. (Please provide a single response for each practice listed below).**

Conservation practice	ever used	n past but not currently	tly use on some acres or crops	on all acres where applicable
a) Cover crops.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b) Continuous no-till.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c) Intermittent no-till.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d) Strip tillage.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e) Conservation tillage, excluding no-till and strip tillage.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f) Nutrient management plan.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g) Soil testing to guide fertilizer application rates.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h) Spring nitrogen application.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i) Growing season nitrogen application (i.e., post-planting side-dress).....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j) Variable rate fertilizer application.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
k) Nitrogen rate based on Corn N rate calculator (e.g., Maximum Return to N)..	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
l) Nitrogen stabilizer (e.g., N-SERVE).....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
m) Cropland converted to perennial crops (e.g., hay, pasture, trees).....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
n) Extended rotations (3 or more crops over a 3-5 year rotation).....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
o) In-field buffer strips (e.g., contour buffer strips or “prairie strips”).....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
p) Buffers along streams or field edges.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
q) Saturated buffer.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
r) Controlled (subsurface) drainage.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
s) Two-stage ditch.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
t) Bioreactor(s).....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
u) Pond(s)/sedimentation basin(s).....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
v) Terraces.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>