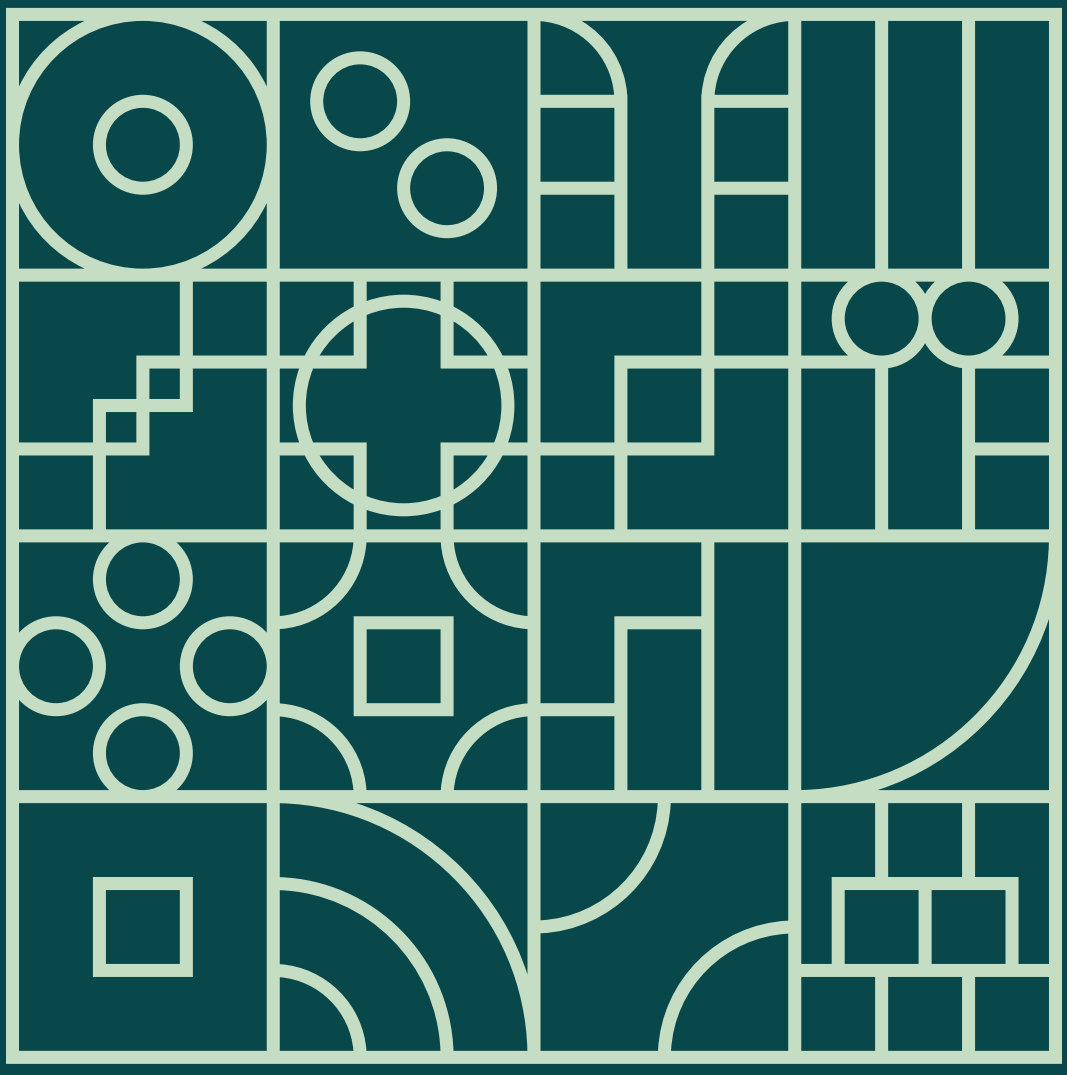
Making Conservation Conventional

Perspectives from a behavioral design process with farmers in the midwestern United States



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Introduction

"The landscape of any farm is the owner's portrait of himself."

Aldo Leopold

Sand County Foundation is a U.S.-based, non-profit conservation organization dedicated to working with private landowners to advance ethical and scientifically-sound land management practices that benefit people and the environment. Because most of the land in the U.S. is privately owned, Sand County Foundation believes private landowners hold the keys to meaningful environmental improvement. The land management decisions of farmers, ranchers, foresters, and other private landowners directly affect the quality of our food supply, the health of our soil, the quality and quantity of our water, and the habitat for most of the nation's wildlife.

A challenge, recognized throughout agriculture, is how to increase conservation practices on private lands. We generally know what works: treating each farm and farmer as unique, small groups of farmers working together, field days, word of mouth, peer-learning, whole-farm planning; and we know what does not: government mandates, telling farmers what to do, overly large groups. The question for Sand County Foundation, though, was why?

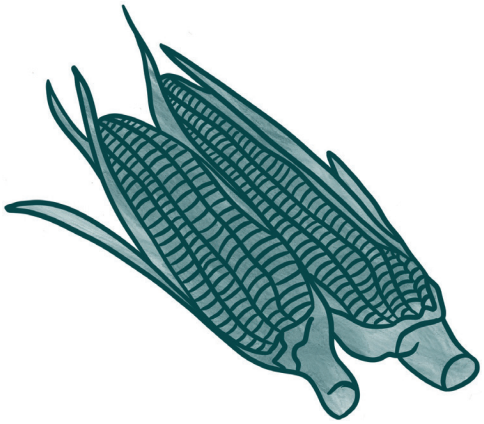
Sand County Foundation closely links its approach to conservation with that of Aldo Leopold. In *A Sand County Almanac*, Leopold wrote,

"The usual answer to this [conservation adoption] dilemma is 'more conservation education.' No one will debate this, but is it certain that only the volume of education needs stepping up? Is something lacking in the content as well?"

To explore the "content" question posed by Leopold, Sand County Foundation contracted with GRID Impact to begin an interactive exploration with farmers about adoption of conservation practices.

GRID Impact is a behavioral design social enterprise that partners with organizations and communities to co-create equitable, inclusive, and impactful approaches to economic, health, environmental, and social challenges. GRID conducts holistic and rigorous research; designs products, services, policies, and programs that respond to the unique needs and behaviors of communities; and builds the capacity of their community partners so they have the frameworks, methods, and strategies to lead community-centric design work long after GRID Impact is gone.

Human behavior is influenced by a wide range of factors, including cognitive biases, culture, economic resources, personal experiences, and social dynamics, and understanding its root causes requires careful examination. GRID Impact's research generates insights about the complexities of human decision making and action taking – helping to explain, for example, why people say they will do one thing and then do something entirely different or why people continue a specific behavior long after they have realized the behavior may not be the most beneficial for themselves. Often a small change in someone's environment can help redirect an inadequate or harmful behavior.



GRID Impact's integration of behavioral insights into a research and design process results in products, programs and services that respond to how humans actually behave in specific contexts. This process is both practical and innovative in that it looks for viable, feasible, and desirable opportunities that will have impact.

Through a grant from the Walton Family Foundation, the Sand County Foundation and GRID Impact joined forces to dig into our own biases, explore cognitive biases and obstacles we saw in conservation adoption, and build prototype concepts to share with farmers to determine if we could break through the conservation adoption wall.

What are cognitive biases?
Cognitive biases are psychological insights that help describe human behavior and how aspects of the environment can influence a decision-maker's decisions or actions. These psychological concepts have been studied for years and help explain sometimes unexpected human behavior.

For the remainder of this paper, "we" will refer to the joint team made up of Sand County Foundation and GRID Impact team members.

The partnership between the Sand County Foundation and GRID Impact builds on Leopold's thinking about this conservation adoption dilemma. As Leopold articulated, it isn't just that the volume of approaches to conservation must be advanced. The problem also isn't that conservation content alone needs to be advanced. Instead, our partnership was based on a shared understanding that how approaches to conservation are presented and received by land owners may need rethinking and improvement. Together, we identified a potential way forward – an approach to the adoption of conservation practices that is rooted in the experiences, contexts, and ideas of landowners in the Sand County Foundation network.

Our climate is changing. Floods and droughts are occurring on a regular basis. There are increasing pressures on our water quality – both drinking water and habitat. The hypoxic zone in the Gulf of Mexico continues to grow, jeopardizing multiple industries. We know the system as it stands now is not benefitting the long term health of humans or our soil. To change the system, we need to change how we view our soils and water and how we look to manage the land.

The solution can be found, at least in part, by working with the farmers themselves, those whose work is most impacted by these changes in climate and soil and water quality. We worked with a range of farmers and conservation agronomists in the

Upper Midwest of the United States, representing different land types, farming practices, and cropping systems. Our work with them was not just an interview, but a co-creative process inviting the farmers to generate their own ideas while providing feedback on prototypes and concepts developed by the GRID Impact and Sand County Foundation team.

This paper hopes to add to the conservation adoption literature by (a) sharing insights from our discussions with farmers, and (b) highlighting an example of how behavioral design can be applied to create context-specific interventions for this audience.

Context matters

Farmers are part of the agricultural industries that contributed over $1.1 trillion to the U.S. gross domestic product. America's farms contributed over $136 billion of this sum. These are often professional enterprises operating on individual ranches and farms. Farmers are not a monolithic group, even if they share common characteristics or reside in a local geography. As Reimer et al. (2014) explain, farmers have varying levels of risk tolerance and exposure to risk, diverse personal and environmental motivations, unique familial histories and social network influences, and varied interests in participating in conservation programs. Best management practices (BMPs) for conservation are also varied and complex. This means that implementing a one-size fits all approach to promoting conservation practices will likely fail because it will unintentionally exclude or marginalize subsets of farmers for whom motivations or previous experiences are different. Customization through contextualization is critical to determine appropriate approaches to conservation for a diverse farmer group.

Attempting to force a landowner to change their behavior to a desired conservation norm will likely fail if not customized or contextualized. The nuance of their particular needs, motivations, aspirations, behaviors, and assets have to be taken into consideration. Successfully designing for the context in which a farmer operates will ensure your program or intervention will more closely align to that farmer's existing behaviors, aspirations, and motivations.

As Buckminster Fuller expressed,

> *"I made up my mind . . . that I would never try to reform man – that's much too difficult. What I would do was to try to modify the environment in such a way as to get man moving in preferred directions." (Kolbert, 2008)*

What Fuller attempted to convey is that context matters a great deal in decision-making and action-taking. Trying to change people's minds about something they already believe in or do regularly can be futile - especially if these beliefs are deeply held or the behaviors are deeply ingrained in ancestral or societal experiences. As Michael Shermer explains in Scientific American, "people seem to double down on their beliefs in the teeth of overwhelming evidence against them. The reason is related to the worldview perceived to be under threat by the conflicting data." (Shermer 2016)

Buckminster Fuller offered a different approach to influencing decision-making and behavior: instead of trying to change minds, alter the context to influence behavior.

The context can include everything in the "external" world – physical spaces, communication, visual stimuli, interactions between humans, etc. Through observation and research, we can begin to identify the cues in contexts that influence human behavior. Then, we can begin to map the "systems of influence" (Klotz et al. 2019). After developing an understanding of this system, we as designers can begin to engineer this decision-making context. A multidisciplinary panel emphasized this idea when reflecting on design behavior for sustainability and reinforced the power of behavioral science to map contexts:

> *"In order to define problems, develop possible solutions, and embrace participation, designers need to understand how social structures, such as groups' histories, cultures, cognitive biases, power relations, differing access to resources, and knowledge systems, define, steer and*

> *inform stakeholders' mental models and perspectives. Behavioral science provides a systematic approach to doing so." (Akerloff et al. 2019)*

Behavioral science provides a strategy to systematically understand a lived context. Then, equipped with this understanding, we as designers and program managers are able to more intentionally engineer the details and features of our conservation programs, ensuring that these programs are tailored to the specific contexts of the farmers whom we are trying to influence. These tailored programs are key to connecting with individuals' needs and increasing the likelihood these programs will be sustainably adopted over time.

What we learned about context for farmers

Our initial interviews with farmers and independent conservation advisors revealed five themes: farmers experiment; new practices take time; change is tricky; seeing change shifts perspectives; and motivations for adopting a new practice vary widely. This section summarizes the findings from our interviews and integrates insights from social science literature relevant to each of these themes.

Farmers experiment

To identify practical farming practices, farmers try out different things. As one independent conservation consultant noted in an interview with the Sand County Foundation, "farmers are natural troubleshooters" and, as he recalled visits to farms in his area, he explained that,

> *"If I say, 'You've got a couple challenges here,' I've never been on a farm where he [the farmer] hasn't said, 'Did you see this, this, or this?' Then their [the farmer's] question is, 'what do you recommend because we've tried things and it hasn't worked?'"*

The advisor elaborated, "they [farmers] don't want anybody to know what they're doing but they're out experimenting. To me that's the perfect win-win. You go out and experiment with it on your farm and if you make it work, that's perfect." Farmers continuously experiment, then identify and adopt the practices that work best in their environment. Conservation farming practices are included in this experimentation, but not uniquely so. Farmers' livelihoods, dependent on the success of their farm, have always relied on their ability to adapt their farming practices. In fact, when exploring farmers' viewpoints on "climate change

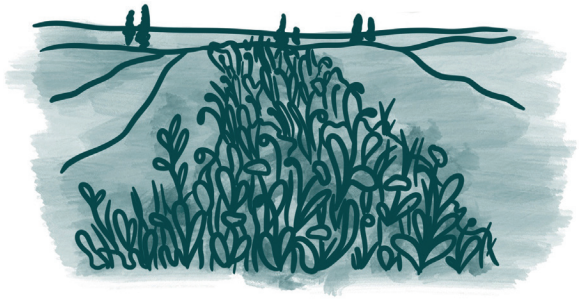
adaptation", researchers described that farmers view climate change adaptation just like any other practice. In that research, one farmer explained, "You use the term adaptation, we use the term management decisions. It's all the same thing." (Doll et al. 2017)

In the Doll interviews, "Participants repeatedly noted, 'Farmers always adapt.'" and that, "farmers do not view climate change adaptation as separate from any other changes in management they make to stay viable" (Doll et al., 2017). Any practice, including conservation practices, will be vetted by farmers' experimentation in their own context and environment. At times, this experimentation is linked to a farmer's identity. For example, when examining farmer's motivations, Ranjan et al. 2019 found that oftentimes farmers identified as innovators, curious to learn and, "willing to try and experiment with new practices, and learn from their experiences." Farmers who identified as innovators, continually learning and experimenting to determine what works best on their land, were motivated to adopt conservation farming practices.

This individual experimentation demonstrates that each farmer's practices are tailored to their land. Research on climate change communication emphasizes the importance of connecting climate change messaging to each individual (Moser and Dilling, 2008; Baumgart-Getz et al., 2012). When communicating with farmers, a key component of this individual connection must include tailoring promoted practices to the farmer's land. Even then, the communicator must recognize that each farmer will likely vet this practice by experimenting further to ensure that it works for them. Farmers experiment. They'll likely test recommendations before applying the practice to their land at scale.

This experimentation mindset presents an opportunity for promotion of conservation farming practices. See the "speak the same language" section to learn about how to work with this mindset as a practitioner.

New practices take time



Vetting practices can take time. In an interview with Sand County Foundation, one farmer who leads a watershed group cited an old adage relative to adopting new farming practices, "walk before you run." Another conservation-minded farmer explained, "Rome wasn't built in a day. Conservation doesn't happen in a year." A third farmer, who completely revamped his operation, explained that seeing change demands patience as, "it's not going to happen overnight." The process can require perseverance from farmers to reap the benefits of new farming practices as those practices take hold.

Among farmers, years was the metric of time cited in witnessing change. For example, a farmer in the process of shifting practices on his farm explained, "It'll be trial and error for a few years." Another farmer reflected on his journey in adopting a conservation farming practice and related,

> *"We're in our fifth year now. The first year we did it [initiated a conservation farming practice], it [our land] looked terrible and we thought 'oh, what did we get ourselves into', but by the third year... we were both so excited – taking pictures [of the land] and you know just so excited how beautiful it is."*

The farmers we interviewed understood they would have to invest time, effort, and money *now* for future benefits. Delaying gratification or reward goes against some basic human biases but is central to these farming practices.

In another instance, a farmer cited projects that took decades to adopt and implement. Shifting farming practices demands adaptation, dedication, time, and patience. It's important that practitioners who endeavor to shift farmers' practices understand this time horizon and adjust their own mental models of the work accordingly. People have a "present bias", meaning they overvalue benefits in the short term over potentially bigger gains in the future. Humans like immediate gratification and benefit. This is amplified in farming where decisions are often

made based on changing weather patterns and measurable data inputs. This inherent bias can be a major barrier to adopting conservation practices that may not demonstrate benefits immediately.

As practitioners, it's important that we are self-aware as we engage in nascent working relationships. See the "understand that change takes time and check your own present bias" section to learn more about this.

Change is tricky, and the status quo is comfortable

Humans tend to prefer the status quo, or for things to stay relatively the same, especially if things are working well enough. People tend not to change an existing behavior unless the benefit, reward, or incentive to do so is meaningful enough. Inertia – the tendency to continue in the current state – is strong, particularly when social norms reinforce and, in some cases, encourage the existing behavior. Together, status quo bias and social norms can be powerful influences on behavior, and given the inherent conservative nature of farming, must be embraced when introducing new methods of management. (Samuelson 1988)

One interviewee described this tendency, explaining that,

> *"Farmers do what they do for many different reasons - they're comfortable with what they do. We're all comfortable with what we do and with what people accept. Farmers have a set of practices that they understand, that they've been at least moderately successful [at]. They do what is socially acceptable to neighbors, family, friends."*

Another interviewee explained how this is true across generations of farmers:

> *"[That's] going to be your biggest [challenge]: social acceptance. Like I said, you know, the old farmers are pretty set in their ways. And even young farmers tend to be a little bit scared to step outside of their comfort zone because what will the neighbors think? That's going to be your toughest one."*

Humans stick to practices that are familiar and socially acceptable. In a 2019 systematic review of qualitative investigations of conservation practice adoption, authors found "farmers' perceptions that there was no reason for them to change their operations" discouraged adoption of conservation farming practices. (Ranjan et al. 2019). This is status quo bias at work; farming practices are often familiar because the practices have been implemented over a lifetime, sometimes across multiple generations. One interviewee pointed out, "farming is a job that they've done their whole life." It's important to emphasize that experimentation is oftentimes one of these engrained practices. However, this experimentation is typically conducted privately, and the decision to share practices that are different from that of a neighbor's is carefully considered. One farmer shared:

> *"...what it says, you know, by changing. That [changing] means subconsciously, we're saying that what you're doing is wrong and what we're doing is better. So, I think that's a big reason why farmers don't make these changes, because they don't want their neighbor to think that they're smarter than their neighbor, and then lose that loyal relationship that they've had forever."*

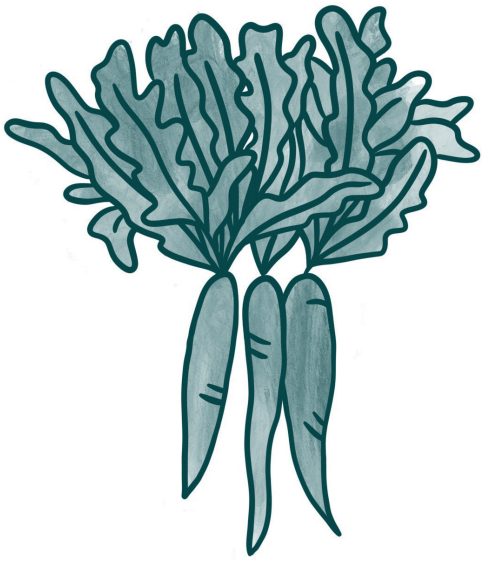
Farmers fear alienating their neighbors and disrupting the status quo by practicing new techniques and approaches so those that are curious about improving their practices (and, thus, their livelihoods!) often experiment privately. There are meaningful incentives to get these practices right, which further motivates farmers to try new things in a safe, private way – in "a part of the field that is in the back, where no one can see it." The risk of being "othered" due to deviating from the accepted social norm is significant enough to prevent farmers from experimenting in public. Interestingly, social norms can both inhibit farmers from adopting new conservation techniques or accelerate the adoption of new conservation practices across communities. As one interviewee explained, "peer pressure can help raise the bar."

This concept of peer pressure and social norms isn't new. For example, in a 2018 review of farmer decision-making, authors found that, "the opinions of family, friends, peers, and trusted advisors were highly influential on farmer decision-

making behavior, also helping to delineate what 'normal' farm management looked like" (Rose et al., 2018, p. 14). As the authors state, an individual's context dictates what is considered "normal". Farmers in our interviews easily referenced what constitutes normal in their community. These normative expectations (Bicchieri, 2017) informed farmers' decision-making processes in adopting a new farming practice. The influence of normative expectations can either facilitate or hinder the adoption of a conservation farming practice.

For example, if individuals perceive the normative expectation, or what their community believes they and others should do, is to implement conservation farming practices, this will facilitate further adoption or maintenance of these conservation farming practices. Other social scientists may refer to this normative expectation as 'promoting pressure' (Wallaert, 2019) to encourage the adoption of conservation farming practices. On the other hand, if individuals perceive the normative expectation is to avoid conservation farming practices, this will hinder further adoption or maintenance of conservation farming practices. Or, normative expectations can also function as an 'inhibiting pressure' (Wallaert, 2019) of the adoption of conservation farming practices. In this way, the power of normative expectations, which are dictated by one's social context, can function as a double-edged sword, promoting or inhibiting a desired behavior.

The status quo is comfortable for all of us. See the "consider the social context" and "who is doing the talking matters" sections to gain insight into opportunities to work with the status quo in order to promote conservation farming practices.



Seeing change shifts perspectives

When the benefits of a farmers' efforts become visible, these practices may become appealing to other farmers; seeing the land change as a result of conservation farming efforts can shift farmers' perceptions of these practices. A farmer recounted

how a neighbor witnessed the benefits of practices that he had developed over the years, and over time the neighbor changed his perception on farming and conservation practices:

> *"Five years ago we started to buy a farm from a neighbor and the land adjoins ours. This neighbor started to neglect caring for the farm after his parents died. It's surprising how neglected the farm was, and it's been interesting to observe the changes on the farm now that we're taking care of it. What's happened is that as the neighbor sees the farm improve, the neighbor is interested in continuing to farm and not sell it."*

Another farmer shared a story of a neighbor who, after openly dismissing conservation practices for years, eventually converted to conservation practices on his own farm. The farmer explained, "Like my father, it takes him [my neighbor] five years. He [my father] told me I was crazy… but now he's proud of it [my farm]." A third farmer reflected on changes over time from their neighbor, too, sharing, "we have a happy neighbor now, although he was a little sour at first." A farmer's perspective on a new conservation practice can shift after observing a neighbor successfully implement it.

This sentiment echoes research about whom individuals trust as sources of information. Individuals are more likely to trust people who are like them, or people whom they consider to be a part of their in-group. Individuals are also more likely to trust people who demonstrate expertise in the topic at hand.

Farmers interviewed shared that they are more likely to trust fellow farmers, specifically fellow farmers whose business appears to be going well. This piques their interest, initiating their receptivity to learn about new management techniques and practices. As Blackstock et al. states in their research about farmer behavior and water quality, "as experience and occupation are key factors that convince people of the reliability of the source; and people are more inclined to process in-group messages, the use of people from farming backgrounds or trusted networks is likely to enhance message uptake" (Blackstock et al., 2010). Who is sharing information is just as important as what information is being shared because who

delivers the information influences whether or not we listen. As we learned from interviews with farmers, this receptivity often leads to a shift in perspective.

How conservation farming practices are introduced is just as important as what practices are promoted. See the "demonstrate the power of conservation farming practices" section to learn more about insights into the how.

Motivations for ultimately adopting a new practice

The motivations for adoption of conservation vary widely. In discussing their conservation stories, farmers mentioned consumer demand, environmental stewardship, external funding, financial calculations, and a commitment to forward thinking as examples of their motivations for adoption of conservation practices. During these discussions, it was rare that a farmer described a predetermined, intentional journey toward conservation. Rather, farmers explained that through a process of experimentation they often adopted new farming practices that also happened to contribute to conservation efforts. The conservation benefits were a bonus to the new farming practices that benefited their farm! This echoes the findings of Prokopy et al. in a review on quantitative literature on conservation practices from 1982 to 2017 (2019). They found that, "taken as a whole, few independent variables have a consistent statistically significant relationship with adoption." Overall, Prokopy et al. (2019) acknowledge the complex contexts of farmers' decision-making and the various factors that, taken together, influence farmers' adoption of conservation farming practices. Decision-making is messy and complex.

Each farmer is unique, and each individual's path to adoption will be unique, too. Keep this in mind when considering the tactics and path to encouraging conservation farming practices.

How might we increase adoption of conservation farming practices among farmers?

Through our interviews and work with farmers introduced to us by the Sand County Foundation, we identified a set of design principles to help drive uptake and adoption of conservation practices.

Salience is well researched in behavioral science. It is the state or quality by which something stands out from its neighbors. It is key in working to utilize the limited perceptual and cognitive resources by focusing on the most pertinent subset of available data.

As farmers experiment, they're likely to implement practices most salient to them. If we work to make conservation practices appealing, readily available, or top of mind, we can increase the likelihood of experimentation with conservation practices. We know that how we make conservation farming practices salient matters. The way that a conservation practice is shared with a farmer will influence the likelihood of the farmer's adoption of that practice or another practice like it. Below we outline key principles to keep in mind, as revealed by our interviews with farmers, when endeavoring to increase the salience, and ultimately the adoption, of conservation farming practices.

Demonstrate the power of conservation practices

Show the power of conservation with a specific example

One method of making conservation farming practices salient is showing examples of farms where the practice has been implemented. Interviewees continually mentioned the power of seeing an example of a practice. The farmers all described seeing an example of a new practice through photos, videos, farm walkthroughs, or farm field days during which a group of farmers are invited to visit one farm. One farmer explained how they demonstrate a new practice to fellow farmers: "I show functional demonstrations and do field days. I like to show soil function and infiltration tests - proof that tilling up the soil isn't fluffing up the soil so water infiltrates."

In some cases, seeing a new practice could include a virtual simulation or modeling, but many interviewees emphasized farmers' receptivity to seeing an example of a specific practice in person on another farm. The simple act of observing a new practice implemented by a trusted neighbor can have profound implications for fellow farmers adopting the conservation approaches.

Show the power of conservation with a (eco)systems approach

Another method of making conservation farming practices salient is showing the effect that specific farming practices have on the broader ecosystem. For example, one farmer mentioned boating, kayaking, or aviation trips to explore the effect of farming practices on given watershed areas. This farmer reflected on his own personal experience flying and explained how this perspective of one's farm and its connection to the broader ecological system could be a tipping point for other farmers, too. He explained:

> *"It's one thing to look at satellite pictures or drone footage. It's a whole 'nother thing to get in an airplane, seat of your pants, after a rainstorm and look at booms in the rivers... follow the drainage, follow your ditch, follow it to the creek, follow it to a river, and then see what effect you're having... after a rainstorm put a young producer in*

an airplane, and let them follow the waters, let 'em follow it, to Lake Michigan or... wherever it goes and that for me was an overarching [realization]... we need to do a better job. And is that water better before it comes to my farm, or is it better after it leaves my farm? That view is getting people to that tipping point where they're gonna go, 'Alright, we need to do something, how do we do it?'"

Helping farmers connect the positive impact of their personal farming practices on larger ecosystems could boost their intrinsic motivation to continue trying new conservation approaches. One farmer described a systems-oriented approach to promoting conservation practices in order to bring fellow farmers to this tipping point. This farmer described, "a farm is an environmental system. We need to understand the system, otherwise the approach [to promoting conservation practices] makes no sense. This isn't about selling practices." This same farmer emphasized, "it's about principles, not practices." A systematic review by Ranjan et al. (2019) also found that, if farmers viewed their land and farming practices as part of a broader system, this view motivated adoption of conservation farming practices (Ranjan et al. 2019). [Furthermore, farmers who "identify as stewards of the environment are motivated to adopt conservation practices" (Ranjan et al. 2019)].

Over the course of our interviews, it became clear that many farmers share a holistic vision of how their land is one part of a broader interdependent system. These farmers are eager to share this vision with other farmers in their community.

Show, don't tell

Whether demonstrating the importance of a conservation farming practice starts by focusing on one effective practice or by sharing a bird's eye view of the connected ecosystem, the approach shows a farmer what is possible rather than telling them what to do. This is key when the benefits may be three years in the future. Across interviews, farmers emphasized the importance of opening a door to a conservation conversation so that a fellow farmer could walk through. Slowly opening the door could be sharing an idea, then walking away so that the farmer can consider it. Intentionally

opening the door could be sharing an idea rooted in concepts and a context familiar to the farmer. Familiar concepts align with our mental models, or how we see something working. A new idea rooted in this familiarity facilitates adoption. In order to open a fellow farmer's perspective to a different approach, it was important to initiate the conversation slowly, leverage the tactic of showing not telling, and ensure the process of initiating change built on the farmer's own mental model. Having a trusted neighbor champion conservation practices and showing the benefits can be an effective driver of adoption of these methods.

Speak the same language

Start positively and identify a challenge that the farmer is facing

Our interviews with farmers suggest to us that connecting with the farmer's individual needs and curiosities is an important aspect of moving into a new practice or management method. Many farmers suggested that this connection could be initiated by a preliminary walk on the farmer's land. Then, while walking on the farm, farmers suggested, "it's about finding what the farmer is most concerned about" and then connecting conservation opportunities to this concern. One farmer suggested specifically starting with a general question: "what's going on on your farm?" Another farmer emphasized making the conversation about a problem that the farmer is facing and described, "They don't even know they have a conservation problem. They... have a cash flow problem." Simply initiating the conversation could prompt an opportunity for conservation practices.

Many farmers mentioned the importance of initiating this conversation positively and opening the discussion with affirmation about the farmer's current practices. Fellow farmers emphasized how dedicated each farmer is to their work and how important it is for feedback to be presented strategically; starting the conversation on a positive note and focusing on a challenge that

the individual is facing on their farm may allow for a connected and personalized discussion.

Adapt to the farmer and the farm

Farmers continually described how farming demands constant adaptation. One farmer described, “You only make plans so that you can change them.” Another farmer shared a similar reflection when they stated that their advice to a fellow farmer was to maintain flexibility as, “any plan that we tried to implement that’s been rigid fails.” Any approach that promotes conservation farming must be adaptable, and promotion must align with the unique needs of the farmer.

Support the farmer over time

Many farmers emphasized prioritizing connection and building relationships with each individual farmer when initiating conversations about conservation practices. One farmer shared the viewpoint of fellow farmers reacting to the experience of short-term relationships with previous advisors, “How many years are you going to be around, and then be gone?” Other farmers emphasized the importance of a long- term connection. One farmer described how continuous connection makes it easier to adopt conservation practices and, “will help farmers reach their goals.” As farmers develop trust and relationships with fellow farmers, it is important that this trust and relationship is nurtured and sustained. Adopting conservation practices can take time, and the best strategies to apply could shift due to environmental or contextual factors. It is important that any resource that supports each farmer on their conservation journey continues the support throughout the journey.

Who is doing the talking matters

Farmers continually mentioned the stress of distinguishing between new ideas for farming practices and people trying to sell them something. As one farmer described, “it’s hard to differentiate input from people that want to help you versus people that want to make money off of you.” This experience reveals an opportunity to identify and leverage trusted sources of information.

When farmers described this void of a trusted source of information they often times also described a receptivity to advice. For example, one farmer explained that, "navigating something new without help is challenging." Another stated, "just another perspective helps. We're all human, we miss things." Many farmers emphasized that in order to trust advice about conservation farming practices, it was important that this advice comes from a source who has real experience" and is "an actual farmer."

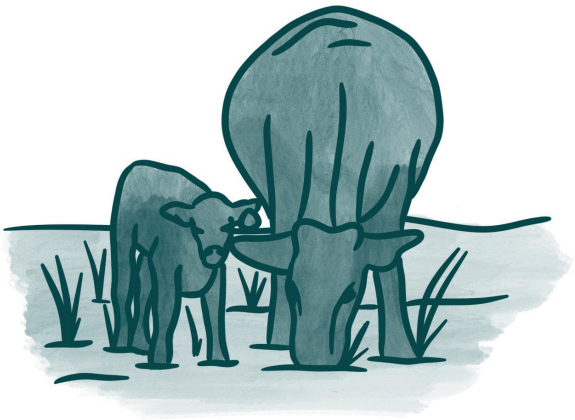
This emphasis echoes findings of a 2019 systematic review examining adoption of conservation farming practices (Ranjan et al. 2019). In this systematic review, the authors found that farmers "were always identified as trusted information sources that motivated adoption" (Ranjan et al. 2019). In addition, farmers stated that trust is crucial, and how information is presented is important. For example, one farmer shared that, "A farmer's personality, especially an all-knowing one, could turn farmers off." Carefully considering who shares advice about conservation farming practices and how this source of information can gain farmers' trust is an important component of designing an intervention to promote these practices.

Consider the social context

Harness social norms in the farmer's local context

Across interviews, farmers emphasized that it is hard to be different from other members of their community. One farmer described a thought process after visiting a successful farm that implements conservation farming practices, "[that farming approach is] kind of exciting, because I kind of like that, but on the other hand, wow, it looks really different from my neighbors and I really stand out so I'm not sure that I want it to look like that." This sentiment, the challenge of being perceived as different from the social norm, was woven into nearly every farmer's story of adopting conservation farming practices. This reveals both a challenge and an opportunity. It can be challenging for farmers to risk looking different from neighbors by adopting a conservation farming practice. However, once the farmer's neighbors are implementing conservation practices, the farmer feels pressure to

join. The social norms within the farmer's context can both encourage and deter the adoption of conservation farming practices.



Normalize perceived differences among farming practices to promote new social norms

Revealing the presence of fellow farmers implementing conservation farming practices could be a powerful intervention to encourage conservation practices among farmers. As farmers experiment they often experiment in an unseen area on their land. One farmer explained that, "when adopting something new, my approach is always, [to advise a fellow farmer to] 'find a field that's hidden somewhere so not many people can see it, because then you don't get the pariah factor and see how it works back there, see if it works for you.'" Because farmers oftentimes experiment in hidden areas of their land, other farmers cannot see their neighbors or fellow farmers in their community experimenting with conservation farming practices. It's hard to be different but our interviews confirmed that farmers are unique. Many farmers explained how they can be both shy to share their work, but really proud when presented with an opportunity to share their work with fellow farmers. This latent energy to share one another's hidden conservation experimentation reveals an opportunity to leverage the power of social proof to promote conservation farming practices. Furthermore, leveraging tightly-knit communities to promote new social norms and practices could be particularly successful in this context.

Understand that change takes time and check your own present bias

During an interview, one farmer stated, "Conservation is a slow walk, not a slap in the face." Conservation demands patience over an extended period of time for two key reasons: implementing farming practices takes time, and changing minds and behaviors takes time. All individuals, including practitioners, use mental shortcuts and rely on mental models to make sense of the world (World Bank 2015). It's just as important to be self-aware and understanding of how practitioners' contexts

and ways of thinking may influence the tactics to promote conservation farming as well as the expectations of timelines for target outcomes. Even in the best case scenario, when conervation farming practices are commonplace, the environmental impact of these changes will still take time. Practitioners working in the context of conservation need to keep this in mind and embrace the slow walk of conservation.

Reflections

Running million-dollar operations within current economic, regulatory and climate factors, farmers can be focused on short-term decision making – where success means not failing. Farmers can be slow to adopt new farming practices, especially ones that involve conservation or soil health. One proven method to increase engagement is the "farmer group", letting farmers tell their story to other farmers. To date, these groups have largely been dependent on unique farmer-leaders or well-connected conservation professionals.

Using behavioral science to analyze inherent biases and obstacles to adoption, Sand County Foundation worked with GRID Impact to dig into this process to determine how to enhance the successful concept of "farmer groups" by building out the "why" these programs work. Our daily work product continues to look the same – one-on-one meetings, field trials, and supporting municipalities and farmer groups in their work. But now, we understand why certain methods work better, and are focused a bit more on listening, on identifying inherent cognitive biases, and working to remove obstacles.

We see the need to develop tool kits and guidebooks for farmer group support staff and administrators to guide farmer-leaders in their work, and to minimize the need for individual champions. We want every farmer interested in conservation to find an easy way to learn more, in a socially-supported, low hassle way. The onramp to conservation must be easy to find and easy to climb.

Through the GRID Impact behavioral design-based process, Sand County Foundation focused on three factors as the key obstacles in farmer adoption of conservation: (1) present bias; (2) intention-action gap; and (3) social proof. We coined the term "ConserVisioning" as a shorthand way to describe the need to bring long-term thinking and planning to conservation, with a social network supporting the planning and execution of the conservation management. Simply

put, if the farmer can only think ahead to this year's harvest and next year's planting, it will be difficult for them to consider long term goals, let alone figure out how to change their annual management to improve soil health.

One additional set of obstacles we identified, "hassle factors," need to be reduced. By having a streamlined, community-appropriate list of conservation practices, it will be easier for farmers to join with neighbors in adopting new conservation practices. By focusing on the social component, long term social connections can be made, reducing the sense of isolation reported by many conservation adopters and building trust among the farmers to build out peer-to-peer programs. Creating a road map or planning tool for envisioning and achieving long term goals, will help farmers plan out short-term actionable steps to achieve long-term whole farm conservation.

The viability of these approaches and tools needs to be constantly developed, challenged, and redeveloped through a multi-year collaborative interaction with existing and piloted farmer groups. Continual feedback and improvement is essential to make a system or product one the farmers themselves create, and should provide a concept that is replicable and customizable throughout the country.

To take a concept from other arenas, working with farmers and farmer groups requires a focus on servant-leadership. To put it simply, it is the farmer's farm, and we are there only to listen and to offer help if asked. If we remember our role and work with each farmer or group where they are, as they are, we can learn what they need and support them as they find their own path forward. All the systems in the world, all the funding, and all the policy or regulations will only reach so far. Only through farmers adopting a land ethic – a long term relationship with the health of their land – will we find true and lasting change.

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To understand and design new approaches for the farmers Sand County Foundation engages with, we used GRID Impact's four-stage behavioral research and design methodology:

Our work began by exploring the specific context of the farmers Sand County Foundation wanted to focus on. We conducted initial interviews with several Sand County Foundation farmers to generate a foundational knowledge of some of the challenges they face with respect to conservation. These insights helped the GRID Impact team design a short learning course for Sand County Foundation staff to introduce the behavioral research and design approach. Over several weeks, we explored the various factors influencing farmer behavior and tried to diagnose some of human biases preventing farmers from adopting conservation practices. Through a participatory and collaborative virtual process[1], the team came up with five specific ideas that they felt might help promote the adoption of conservation practices among the target farmer group.

Then through facilitated workshops, the team explored the five ideas and developed them into two concepts to bring to farmers for feedback and iteration. Sand County Foundation conducted co-creation interviews with a range of representative farmers with the intention of understanding what elements of each concept might

1 Due to the COVID19 Pandemic, we were unable to hold in-person trainings, interviews, and design activities. Instead, GRID Impact supported Sand County Foundation remotely using a range of virtual collaboration tools. We conducted interviews with farmers over the phone and on virtual conference platforms. While not ideal, we were surprised and grateful at how accommodating everyone involved in the process was.

resonate with a larger farmer group. The farmers represented both early adopters of new farming practices and more "traditional" farmers who show slower adoption. While all farmers were in the Midwest, Sand County Foundation's core geographic focus, they were diverse in their land types, farming practices, and crops. The purpose of the co-creation interviews was to invite the farmers to generate their own ideas of what might work while also providing feedback on the concepts created by the Sand County Foundation team.

The feedback we received during these initial concept interviews allowed us to iterate and refine the ideas. From the two distinct concepts, we created one prototype of a potential service that might support farmers in their personal conservation journeys. Our joint team presented this service prototype to an additional set of farmers and farming professionals for feedback. During these prototype interviews, we considered the farming collective, not just individual farmers and their experiences. Our goal was to identify opportunities for larger groups of farmers to collaborate and work together towards shared conversation goals. We identified leaders in different communities who might be able to serve as influencers and help others adopt the new practices.

Armed with diverse feedback – ranging from specific ideas about language and verbiage to more strategic ideas about how to scale the service idea – we synthesized the information and developed an action plan for how to bring this service to life. Our intention was to bring groups of farmers together in-person to run small pilots of the new service idea. Unfortunately, COVID19 restrictions made this impossible in 2020 and 2021. As the Pandemic resolves, we expect to run a small-scale pilot of this new idea to help influence conservation decisions across a diverse set of farmers in the Midwest. Please stay in touch to learn more!