

Grow More Messaging Guide

Outreach and Communication Strategies to Increase Adoption of Soil Health Practices



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National Wildlife Federation
1200 G Street, NW, Suite 900
Washington, D.C. 20005
www.nwf.org

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A field of mixed cover crops. Credit: SWCS Media Library.



Corn growing in a no-till system with interseeded cover crops. Credit: SWCS Media Library.

Aim and Scope

In this guide, we outline key strategies to overcome the social and cultural barriers to soil health practice adoption...

This guide is designed to help soil conservation and other agriculture outreach professionals plan and execute effective outreach strategies to advance sustainable agriculture practices. Based on the ongoing efforts of the National Wildlife Federation (NWF) in the Upper Mississippi River, Great Lakes, and Chesapeake Bay regions, this guide centers outreach on soil health practices by advancing an understanding of the motivations and barriers to widespread adoption of these practices. By leveraging key principles from the social and behavioral sciences, sustainable agriculture outreach can be more effective at reaching new audiences, especially those farmers who have not

readily adopted soil health practices in their operations. In this guide, we outline key strategies to overcome the social and cultural barriers to soil health practice adoption through effective communication and outreach programs. While this guide can be helpful for outreach professionals to incorporate new approaches to reach audiences beyond the traditional “choir” of innovative producers who typically attend conservation events, it also serves as a supplement to NWF’s Grow More training program. This Grow More program, introduced briefly at the end of this guide, equips natural resource and agricultural professionals with knowledge, tools, and strategies through in-person and virtual workshops.

The Importance of the Soil Health Approach

For all of the attention conservation in agriculture has received as of late, a casual observer could conclude that soil health has achieved near universal implementation. From farm publications to rural town coffee shop conversation, the practices that build soil health including no till, diverse rotations, and rotational grazing are popular topics. Outreach field days by conservation districts, agencies, and university extension also frequently promote such soil health practices. Yet, for all of this attention, actual adoption of practices continues to lag. By all estimates, cover crop acreage remains in the single digits, albeit with strong annual growth.^{4,5} The recent 2017 Census of Agriculture, conducted by the U.S. Department of Agriculture (USDA) revealed strong growth in cover crop adoption, but with total use still under 5% of all row crop acres.⁸ No till, despite having a 40 year head start over cover crops, is still used on less than half of all row crop acres and continuous no till, or never-till, is used on far fewer acres.¹¹ With a continuing focus on the importance of soil health in research and media, ramped up outreach efforts by extension and conservation organizations, and cost-sharing opportunities by the USDA Natural Resource Conservation Service (NRCS), these practices should have much higher adoption rates than they currently do. In spite of numerous reports and analyses documenting

the economic, environmental, and long-term profitability benefits of soil health, one can reasonably ask, just what more do we need to get widespread adoption of soil health practices?¹²

Soil health has significant positive ramifications for everything from agricultural productivity to farm profitability to water quality to carbon sequestration.^{12,13} As all of the research indicates, soil health can be a game changer for solving many of our current challenges from individual farm profitability to long term productivity all the way up to major systemic issues such as water quality and climate change.



Multi-species cover crop mixture.
Credit: SWCS Media Library.

This guide identifies why a majority of farmers have not yet adopted soil health practices. More importantly, it seeks to understand how conservation outreach methods have failed to reach key audiences of non-adopters and how they can be improved to better equip conservation outreach organizations to further spur widespread implementation of soil health practices.



A Grow More training workshop. Credit: Adam Reimer, NWF.

What has Limited Farmer Adoption of Soil Health Practices?

Farmers face a number of challenges when deciding whether to change farming practices, which explains much of the slow adoption of soil health practices nationally. While these challenges are numerous, they vary considerably from producer to producer. Recent reviews of the research literature on conservation decision-making demonstrate that few factors consistently limit adoption of the variety of soil health practices.¹⁴ Rather, the limiting factors change from practice to practice, and from farmer to farmer. Understanding these challenges is key to defining strategies for overcoming these through outreach and social support.

Economics

Some economists argue that the economics of cover crops just don't quite work, or at the least the economic benefits remain hazy. The growing literature on the economic advantages of soil health show that soil health practices such as no till and grazing cover crops have the same or better profit margins than conventional practices.^{12,15} The economics based rationalization also assumes that farmers fit the prevailing rational



A clover cover crop. Credit: SWCS Media Library.

decision-making model popularized in mid-20th century economics, that has since been proven inadequate in explaining human behavior and decision-making across various populations but also farmers.^{9,12,16-18}

Another cost related explanation for limited adoption is that some farmers face higher transition costs to implementing soil health. While costs of switching practices can be a factor, many have been able to make the transition keeping in mind the long term savings and benefits to the farm operation. All farms face different potential costs for adopting any particular practice through the equipment available for use or purchase, capital currently tied up in sunk costs of existing equipment incompatible with soil health practices, as well as the costs to obtaining and learning new information. Stories from farmers who have adopted soil health practices clearly illustrate the highly variable

transition costs, with some farmers incurring significant costs to evolve their farming operation to soil health practices versus others that do not, showing that costs alone are not the deciding factor.¹⁹

Geography

One explanation for limited adoption is that soil health practices produce varying levels of benefits on different soil types, geographies, and/or climates. While this certainly may be true to some extent in terms of ease of implementation of soil health practices, it nonetheless fails to explain the fact that farmers across the country in a wide range of soils, geographies, and climates have begun to implement soil health practices.⁸ If such limitations of geographic variability exist, one should also presume that such variability impacts other practices as well, resulting in clearly defined regions of adoption and non-adoption based on soil type and/

The growing literature on the economic advantages of soil health practices show that soil health practices such as no till and grazing cover crops have the same or better profit margins than conventional practices.^{12,15}

Box 1. Glossary

Belief: A personal acceptance that a statement or concept is true. Beliefs may be based in actual facts or reflect a lack of knowledge by the individual.

Attitude: A positive/negative evaluation of a technology, practice, or concept.

Social norm: The belief that a behavior is expected or desired by others. Norms reflect the social expectations we perceive, including what others are doing.

Personal norm: A personal belief that we should engage in a particular behavior or set of behaviors.

Identity: Our self-conception of the roles we fill in society, both professionally and personally

or climate. However, the random pattern of adoption clearly shows such factors do not hold explanatory power. A review of the 2017 Agriculture Census indicates the inconsistent geographic application of cover crops. Indiana and Illinois share similar climates, soils, and dominant crops (corn and soybeans), and yet cover crop adoption is almost three times more common in Indiana (8.2% of acres) than in Illinois (3.3% of acres).²⁰

Risk

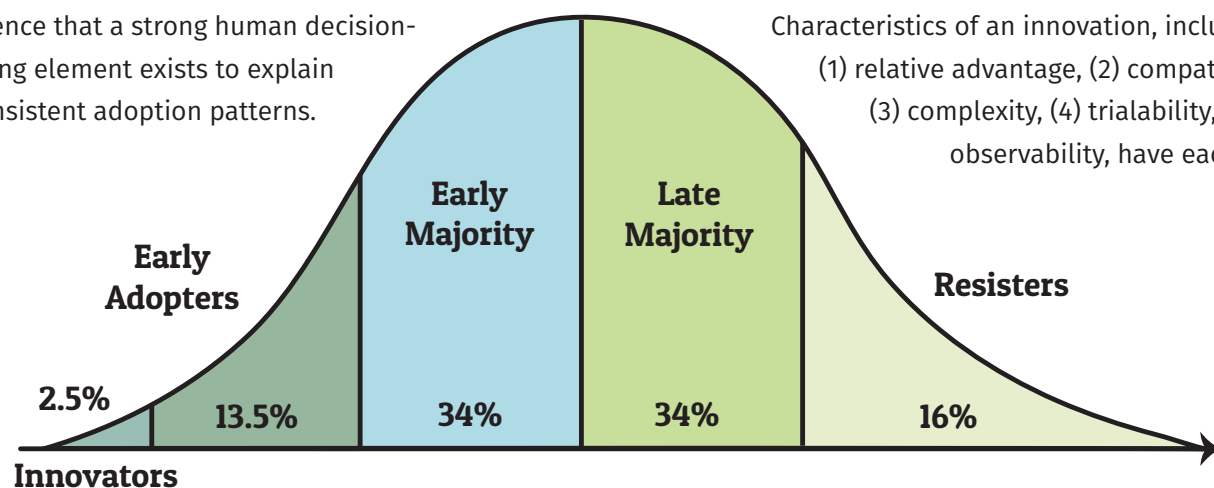
Another explanation for why some farmers have adopted soil health and others have not is that they bear differing levels of risk in reduced yield and/or lost income. Here again, it isn't false to say that farmers will face different levels of risk or even that some farmers are more risk averse than others and that these play a role in shaping the decisions of farmers.^{9,21} Stories from farmers who have adopted soil health once again highlight that fact that adoption patterns do not fit potential reduced yield/income realities nor do they fit well with risk aversion indicators.



All current explanations for lack of soil health practice adoption fail to recognize the considerable variability in adoption. Reasons of economics, geography, climate, transition costs, and risk tolerances do not provide adequate explanations since they do not produce recognizable patterns for current adoption rates. Instead, the wide variability in adoption patterns appears to be more readily explained by a different set of factors, primarily in the social and psychological realms. Recent reviews of 35 years of research have revealed a wide range of factors that motivate and limit conservation practice adoption. While technical and economic factors, including farmer education, financial capacity, technical knowledge and capacity, and land tenure, can limit adoption in some instances, these factors do not consistently explain the lack of widespread adoption of key practices.¹⁴ Rather, cultural and social factors, including environmental attitudes and connections with conservation professionals and other conservation-oriented farmers, appear to play a large role in spurring uptake.^{14,22,23}

Understanding Farmer Decision-making

Farmers, like any other group of people, vary considerably in their personalities, values, attitudes, knowledge and capacities. This personal variation contributes to widely different goals, risk tolerances, and motives (Box 1 includes definitions of some key concepts). Some of the geographic variation in adoption patterns can be explained by direct social influence. There is certainly some limited grouping that occurs with soil health adoption attributed to the social influence neighbors have on each other. Yet, in many farming communities in which similar sized farmers growing similar crops (such as corn and soybeans) on similar soils face similar transition costs and yield risks, some farmers have whole heartedly adopted soil health while neighboring farms continue their use of conventional practices. Both situations provide evidence that a strong human decision-making element exists to explain inconsistent adoption patterns.



It should be noted here that moving to soil health practices within a farming operation typically requires not just the adoption of something new, but giving up a current practice or approach. No till is a change from fall or spring tillage. Planting cover crops replaces traditional fall tillage and winter fallow. These soil health practices can be described as an innovation to the farming system. When it comes to making the decision to change practices, a common pattern emerges: the innovation adoption curve.

The innovation adoption curve, popularized by Everett Rodgers' Diffusion of Innovations, first published in 1962, noted a series of characteristics of the innovation that determined the speed with which a population adopted an innovation technology or practice²⁴.

Characteristics of an innovation, including (1) relative advantage, (2) compatibility, (3) complexity, (4) trialability, and (5) observability, have each been



Cover crops interseeded with corn. Credit: SWCS Media Library.



One-on-one outreach in action. Credit: NRCS Photo Gallery.

found to influence adoption decisions.^{25,26} Rogers found that individuals' perceptions of these characteristics predict the rate of adoption of innovations. Rogers defined relative advantage as "the degree to which an innovation is perceived as being better than the idea it supersedes".²⁴

But just as important in determining adoption rates and patterns are the characteristics of the individuals in the population that determined their willingness to try or adopt new practices. The Diffusion of Innovations model, as described above, explains what these attitudes and subjective norms are based upon. The Diffusion of Innovations model, and related theories of decision-making have been used to explain the uptake of a wide range of behaviors, from embracing information technology and healthy eating to conservation actions²⁷. Applied to farming, this model indicates that innovators (2-3% of the population) are quick to adopt a new practice. Early adopters (about 14%) take a calculated approach to risk and will adopt new practices at the first sign they could work. The middle and late majority adopters (nearly 70% of the population) are risk averse, wait for a practice to be fully proven by innovators and early adopters before attempting, and are highly dependent on social cues. They need to feel a practice is socially acceptable before they try it. Finally, the refusers or resisters, roughly 16% of the population, will avoid adoption at all costs.

It is important to note that innovators and early adopters have dramatically different adoption factors and information needs than those of middle and late adopters. The key factor is the difference in need for social cues. Innovators willingly counter social pressure and early adopters require little to no social support. The middle majority, however, require strong

signals from peers and institutions that a practice fits their decision-making model to adopt a practice. The adoption decision must be obvious and easy, conditions that improve with social and cultural support. Although middle adopters look to early adopters for cues, adoption by early adopters does not guarantee middle and late adopters will follow. NWF has worked with researchers in the last few years to further explore the difference in decision making approaches of innovators, early adopters, and middle adopter farmers. These studies provide evidence to support the importance of these differences and their implications for outreach (see Box 2 for more details).

Farmer Motivations and Decision-making

Understanding the factors driving individual decision-making patterns is key to increasing the uptake of sustainable soil health practices. Beginning with a knowledge of those factors provides the basis for developing strategies that can increase farmer willingness to change behaviors. Within Rogers' Diffusion of Innovations model, the characteristics of the innovation are not the only key factor to consider; social factors, including outreach and promotion, are also important variables that can affect how new practices are perceived. Conservation outreach professionals can serve as key change agents who can influence adoption choices made by farmers.



Soil health practices should be presented in a way that makes sense to how farmers make decisions. Particularly in the case of technologies and practices with longer payoffs or those requiring bigger shifts in farmers' fundamental understanding of agronomy, adoption rates will increasingly become dependent on the ability of outreach efforts to communicate to farmers the justification for adoption. The process of innovation diffusion is as much about understanding and communicating to the motivations and information needs of farmers as it is about the characteristics of the innovation. Acknowledging the role of the social context in which farmers make decisions is an important aspect of outreach planning. To being understanding how to influence the decision-making process, we must begin with understanding social systems and domains of influence within social systems.

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Box 2. Differing Motivations of Early and Middle Adopters: Results of Recent Research

In a qualitative study of farmers and outreach professionals in Indiana and Iowa, researchers at Purdue University found that early adopters were more likely to use ‘systems thinking’ approaches that emphasize the complexities of new practices and their interconnections with other aspects of farm management.¹ Middle adopters, on the other hand, preferred a more linear approach that focuses on addressing discrete challenges in farm management. In particular, traditional conservation and soil health frames are not effective at reaching middle adopters, and there has been too much focus on long-term benefits of practices. In interviews, both farmers and professionals emphasized the importance of being oriented on problem-solving. When outreach professionals come out to farms to help overcome a discrete problem, they build really strong relationships. The implications of this study for outreach to middle adopters are clear: outreach should focus on message frames that emphasize short term, production-oriented benefits, including time and cost savings, short term soil quality impacts, and addressing ongoing problems. Outreach frames that emphasize that conservation tillage, cover crops, and other soil health practice will result in eased management burden are likely to be more effective with middle adopters.

In another study by researchers the Ohio State University, there were similar takeaways about the difference between early and middle-adopters. Using surveys and interviews of Ohio farmers, this research found that middle adopters were most interested in the benefits of cover crops to address soil compaction, nutrient retention, pest management, and reduced fertilizer need, while they were most concerned with timing conflicts with their current system, perceived complexity, and uncertainties due to weather.¹⁰ Messages that bundle different benefits together in one narrative were the most resonant with middle adopters. This could be where soil health concepts work as a bundling strategy: cover crops improve the physical and biological quality of soils, reducing compaction and weed pressure and improving nutrient retention, which has the potential to reduce inputs. Strictly economic benefits are met with a large degree of skepticism, so having these as a leading message is limiting. The last key finding from this research is that early adopters are more risk tolerant than middle adopters and exhibit stronger stewardship and environmental attitudes. Taken together, this research demonstrates the key differences between early and middle adopters and the importance of using motivations that speak to the concerns of middle adopters.

Internal Barriers to Adoption

While our intention is not to downplay real challenges to farmer adoption of cover crops and soil health (such as access to planting equipment, easily measurable and relatively quick return on investment, and time and effort to learn new practices), we nonetheless need to acknowledge and address significant internal factors to how farmers perceive new practices and information that determine their willingness to even begin the process of considering a new practice.²⁸⁻³¹ These internal barriers are often waived off as unimportant or, more often, as reflections of the limitations of the innovation.

Processing and incorporating information takes a significant amount of focus, energy, and effort, all of which are limited resources. Humans are wired to conserve that cognitive focus and energy, so we often prefer the status quo, which requires little or no mental effort. Status quo also presents a “safe” decision in that it is already tested and fits our behavioral, normative and control beliefs.²⁸

Unfortunately, this leaves us vulnerable to slow, long term risks that build over time. Often these risks are overcome only by making early decisions well before evidence of heightened risk becomes available.

Conversely, our need to conserve energy and focus results in resistance to learning new concepts and patterns of behavior.

Status quo decision-making is further cemented through social influence. We avoid change due to the fear of the emotional consequences and the toll those consequences take on our identity and emotional and social wellbeing. When trying a new practice or innovation, we risk the potential for experiencing failure, which counters our individual psyche and identity as successful people.³² Conversely, we also experience some concern with the potential for experiencing success with the innovation, particularly if the innovation confronts or contradicts some of our prior-held beliefs.⁹ Success with the new practice may force us to admit that our long-held prior assumptions and beliefs were inaccurate or wrong. Few people would admit to this fear, but yet it remains a subconscious reality that for some must be addressed before they can adopt an innovation. Finally, we often seek to appeal to or prove to others that we are upholding or fulfilling group norms or beliefs. If an innovation is not yet a dominant practice within a group, or it in some way challenges the identity, beliefs, or norms of one’s main social group, then conflict, either internally within one’s identity, or externally with other members of the social group, will occur.^{33,34}



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Trusted Influencers

Research shows that farmers seek information from a wide range of sources, including farm industry suppliers and dealers, private crop consultants, Cooperative Extension, farm media (including social media), federal, state, and local conservation agencies, and friends, neighbors and other farmers.

For farmers, key influencers include agronomists, input sales people, and other farmers, particularly successful farmers with whom are shared other commonalities (local community or church affiliation, similar crops or products produced, or other interests).³⁵ Reliance on influencers often depends on the domain of information (see Box 3). Research shows that farmers seek information from a wide range of sources, including farm industry suppliers and dealers, private crop consultants, Cooperative Extension, farm media (including social media), federal, state, and local conservation agencies, and friends, neighbors and other farmers.

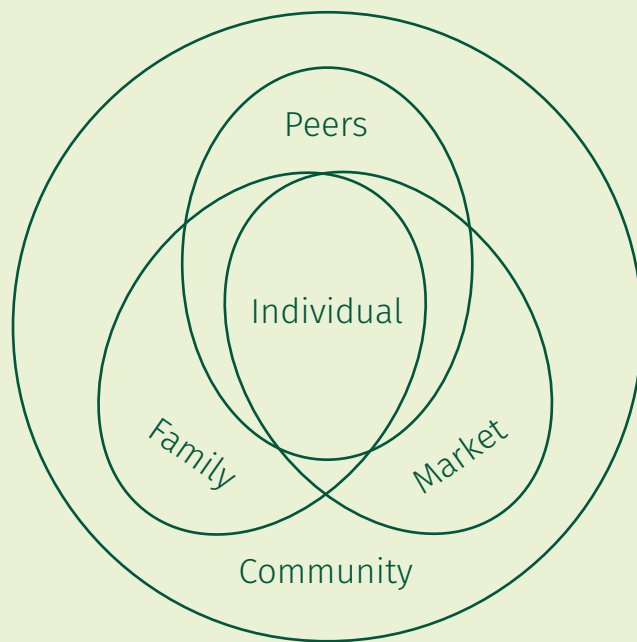
The type of information the farmer is seeking and the personality and experiences of the farmer all matter when it comes to the sources they trust. For example, recent studies have demonstrated that for information on nitrogen management, farmers tend to consult private sector sources, while they are more likely to trust Cooperative Extension and government agencies for conservation information.^{36,37} Farmers generally consider agronomists and crop consultants as knowledge experts and look to them for guidance on crop and livestock management. Farmers also see input sales people as important knowledge arbiters, albeit with some reservations because of the potential conflict of interest. Farmers often trust other farmers the most

when it comes to information on production practices. Conservation professionals can play an important role in farmer decision-making as well. When it comes to influencing farmers adoption of soil health practices then, conservation professionals in public and not-for-profit institutions are likely to have significant influence, though it is also important to note the important role of other agricultural stakeholders in the decision-making process.

For middle and late adopters, the social diffusion of information is an important step in the development of commonly held and accepted knowledge. Unlike innovators and early adopters who perceive the development of knowledge as a process at the individual level, middle and late adopters process knowledge through their social groups to significantly inform their individual decisions about a practice. It is through that social process by which middle and late adopters define socially acceptable practices such as the definition of a good farmer, the definition of a beautiful field, and the practices that meet those definitions.^{38,39} This socially-filtered knowledge process defines the range of acceptable practices farmers must follow if they are to remain part of the group and meet commonly held values and definitions of appropriate behavior.^{40,41}

Box 3. Understanding the Role of Social Context

Social systems are essentially the collection of **domains of influence** acting upon any individual; these domains help to shape an individual's beliefs, views, and behaviors. These domains can be thought of as ever expanding rings of groups, institutions, and structures. Particularly important domains include family, local peers and communities, markets (from local to global in scale), and governments. Behavior occurs within a social and cultural context; that is, within the patterns of social life. In this way social behaviors are not solely under the control of the individual but are influenced through social patterns and norms and are shaped by the rules, relationships, expectations, and resources of the culture of the social system in which they operate.³



What is perceived to be acceptable behavior is typically reinforced by family, peer, and community relationships and in the case of economic relationships—such as farming economies—by the market that dictates economic opportunity and slack resources available to risk undertaking an innovative practice.⁹ These overlapping domains and systems can incentivize and inhibit different behaviors, either through direct influence or more subtle nudges. The influence of these domains on a given individual varies based on their personalities, past experiences, and context. These social influences are filtered through memories of past experiences, hopes and plans for the future, varying levels of concern for social status, which factors of an innovation the individual places emphasis and which factors receive discounted consideration, and myriad other considerations. While this may seem as if these individual factors indicate no two individuals are alike in their decision making, there are, however, patterns among different subsections in the innovation curve, allowing us to focus outreach strategies to target subsections of the innovation curve.

Designing Outreach Strategies to Increase Soil Health Practice Adoption

Strategies to Reach Middle Adopters

Based on behavior change research, the National Wildlife Federation has developed an approach that focused on innovating on traditional outreach approaches. NWF's Sustainable Agriculture team has developed a number of messaging and outreach strategies to specifically target outreach to farmers with middle and late adopter mentalities. The predominant characteristics of these middle adopters include fairly high risk aversion, a relatively high level of awareness of and sensitivity to in-group, and use of multiple criteria when making decisions). This group represents a majority of the farming population and hold characteristics that make them more likely than resisters (who have significantly less concern for maintaining in-group mores but also more risk aversion) to adopt cover crops and soil health, as long as the associated innovations are communicated in ways that meet their information and decision-making needs. In the conservation outreach world, this is often where practice adoption stalls or plateaus.



A no-till field in spring. Credit: SWCS Media Library.

In soil health outreach, cover crops and other practices are often presented from the viewpoint of innovators. This occurs subconsciously as messengers, typically farmers who have already adopted cover crops or staff of conservation organizations, will justify cover crops and soil health from their innovator or early adopter mindsets. Phrases like “test it out,” “don’t worry what the neighbors think,” and “you’ll have some failures, but overall will be better off” are common. Not only are these not helpful for middle adopters, they can deter future adoption by middle adopters because of

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their poor fit, and sometimes antagonism, with middle adopter mentality and decision-making. For example, innovators often see potential challenges associated with changing practices as an opportunity to overcome failure and build self-confidence, while middle adopters see these challenges as too risky and a reason to stick with what they have been doing. If the purpose of conservation outreach is to make it easy to change, different approaches will be needed for these disparate audiences.

With these principles in mind, the following eight messaging tactics may be helpful for guiding innovators and early adopters conducting outreach to middle adopters to not necessarily change their decision-making process, but to better present cover crops and soil health in ways that better fit middle adopter processes.

1. Tell Them Why They Should Care

Never begin a conversation or presentation by diving right into the specifics. Instead, explain the purpose for learning and give your audience a reason to want to take an interest in the information. If your audience doesn't see the value, need, or importance of the information they are about to receive, their attention will turn to subject matter they do perceive as worthy of their time and focus. For effective learning to occur, we need much more than clear delivery of information on implementation. Try to connect soil health to the values and decision-making factors that the audiences commonly use. The simplest path to drawing that



A typical scene from a conservation field day. Credit: NWF.

connection is to remind your audience of why they chose their occupation and make the connection to cover crops and soil health.

2. Emotions Matter

Emotions play a key role in defining what the brain perceives as trustworthy information or data. As much as we would like to believe people are “rational” decision makers balancing objective benefits and costs, decision-making is much more complicated. Ample data

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To better conform soil health practices to the mental model of middle adopters, information should be presented within the context of solving specific existing or current problems.

exists on the economic benefits of cover crops, but the challenge is that farmers uncomfortable with changing their own practices will view such data with a heavy dose of skepticism. Further, middle adopters tend to impose socially defined limits on acceptable practices from which they may choose the economically rational selection. Often new practices get defined as outside the realm of possibility. Stress, fear, and anxiety are highly influential to our decision-making, particularly in our perception of acceptable strategies or actions, as we seek to resolve or avoid these emotions. To get through or overcome one emotion, we need another emotion to provide a stronger replacement. To make cover crops and soil health an acceptable option, part of the process must include addressing the emotions experienced with adopting cover crops and soil health.

3. Protect the Ego

No one enjoys being told they are wrong. Being confronted with new information that challenges our existing beliefs and behaviors is often challenging. Our egos will go to significant lengths to protect our self-conception as rational decision-makers. To avoid the negative experience of changing beliefs or behaviors, people will often either seek information that simply confirms our pre-existing beliefs (a concept known as confirmation bias) or interpret information with a predetermined conclusion in mind (known as motivated reasoning). To allow people, including farmers, to become open to considering information that can challenge their positive self-views, presenters must

provide audience members with ego protection that provides an external reason for adopting soil health practices. Often this can be simply achieved by noting that information and knowledge are constantly evolving on the topic, and soil health approaches represent the most current knowledge of best practices.

4. Solve Problems

A major distinction in decision-making processes between innovators/early adopters and middle/late adopters is defining what fills the role of primary motivation. For innovators and early adopters, achieving new benefits often fills that role. They get easily motivated by the pull of better outcomes or conditions. Middle and late adopters, however, are strongly motivated by risk avoidance, especially the push to deal with existing problems (from weeds to soil structure to nutrient retention). While this may seem like a narrow distinction, it is quite significant in decision-making for different farmers. To better conform soil health practices to the mental model of middle adopters, information should be presented within the context of solving specific existing or current problems. For middle and late adopters, long term benefits in the future simply do not have the same pull or motivation as solving immediate problems.

5. Contextualize the Risks

A frequent characteristic of cover crop and soil health outreach includes a complete consideration of all components; both the benefits and the drawbacks. While



Cover crops interseeded with corn. Credit: SWCS Media Library.

this provides a complete education and a balanced presentation of the facts on soil health practices, an in-depth discussion of drawbacks or challenges can be unfairly perceived as too risky, especially by middle adopters. Two common features of the human mind lead us to avoid new behaviors. First, we overinflate risks associated with new practices. Specifically because they are new, we often have a higher concern about the unknown risk imposed. Secondly, we often discount the risks of existing practices because they are not new. Existing practices may be more risky, but we have simply figured out solutions to them or become comfortable and accepting of the consequences and costs. Due to this reality, efforts to convince farmers to adopt cover crops and soil health are at an inherent disadvantage. To negate that common human tendency, any discussion of benefits and risks of soil health practices must be put in context of the benefits and risks of existing practices. Reminding middle adopters of the history of change in

agriculture moves the discussion of cover crops from the realm of “doing something new” to the realm of “the next new thing to do.”

6. Goals!

Language is a reflection of underlying thought processes. Message recipients often respond more to how an innovation is discussed than the specific characteristics of that innovation, creating a potential barrier in how the information is received. Because of their different mental models, innovators/early adopters will often use different language than middle and late adopters when discussing practices. For example, innovators are process-oriented; they enjoy experimenting with new approaches, discussing details of planning and implementation, and facing and overcoming challenges. Innovators will often discuss “trial and error” and experience a “learning curve” to implement “innovative” practices. While these terms make sense for innovator/

Message recipients often respond more to how an innovation is discussed than the specific characteristics of that innovation, creating a potential barrier in how the information is received.

Effective message frames are simple, easy to understand, use positive language and empower users, encouraging them to assume personal responsibility and control, and convey a sense of urgency.

early adopter mindsets, they can also cause middle and late adopters to respond negatively to the practice. Middle adopters prefer practices when presented in ways that fit their motivations, which tend to focus less on process and more on outcomes or goals. “Easy steps” to “a key weed management strategy” with “widespread popularity” looks much different from that described by an innovator.

7. Find the Right Frame

Framing is a key concept in communications that refers to the words, images, metaphors, comparisons, and presentation styles used to communicate an issue. Think of framing as the mental box that we use to bracket the message we are trying to get across. Common frames in communicating with farmers include values and attitudes, economics, benefits/gains, and risks/losses. Different mental models reflect different frames, or the story lines that make an issue relevant to a particular audience and motivate them to take action. Framing does not change the basic facts about the product or practice being promoted; rather, it is putting a particular emphasis (a frame) on particular facts or details to highlight the reasons that are most compelling to your target audience. Effective framing can alter someone’s opinion by reorienting how information is perceived and prioritized. Effective frames can use images that draw the audience in and help them better understand more complex information and appreciate the story you are trying to communicate. Effective message frames are

simple, easy to understand, use positive language and empower users, encouraging them to assume personal responsibility and control, and convey a sense of urgency. A frame is only as good as it is memorable and nudges your target audience to view something from your point of view. Metaphors can often provide effective and memorable framing devices, making abstract concepts more concrete.

8. Outline the Steps to Change

Often the innovators and early adopters providing the outreach have years of experience with cover crops and other soil health practices. That experience makes them credible and trusted. Yet, that experience can often get in the way of effectively communicating the information middle adopters need at the early stages of adoption. Besides the common problem of innovators and early adopters using language that fits their mental models (and which can become red flags for middle adopters), those with years of experience often forget just how much information they have learned over the years and will expect those with little or no experience to have the same knowledge level. Innovators and early adopters must provide a clear and simple description of implementation steps to avoid talking past the knowledge level of middle adopters. Messengers must keep action steps clear and simple, taking extra effort to describe every step to remove doubt and uncertainty for middle adopters who often have limited or no knowledge or experience in the agricultural practice.

Getting Attention with the Right Messenger

Before these messaging strategies can get implemented, we must first get the attention of middle adopters. Similar to the need to refine our messaging content to more effectively engage and activate middle adopters, we must refine our outreach strategies to more effectively capture the attention of middle adopters. The immediate goal in this approach is to open their mindset to the possibility of change rather than expecting a quick adoption of a new practice. A key part of this mindset shift is to get them to commit to further time learning more about the practices by attending field days, reading materials, and talking to others, well before eventually implementing soil health practices on their farm. Using a metaphor of a car radio in which we want to get the best sound so everyone can hear the song, turning up the volume may not do any good if the frequency is out of tune, producing only static or noise for our target audience.

All of the previous messaging strategies hinge upon using the right messenger.^{27,40,42} It is common for people to prejudge a message based on the messenger. The most important characteristic for effective communication is trustworthiness. Messengers establish trust through a variety of ways, including shared occupation, shared community, absence of a conflict

Box 4. Farmer Learning Networks

Farmer learning networks, which provide opportunities for farmers to learn and build innovative capacity through interactions with peers at on-farm demonstrations, are also a valuable tool for reaching new audiences. Farmers are attracted to these networks for their ability to deliver cross-cutting and multi-topic knowledge and information of importance to local farmers. Farmers within these networks tend to have shared values, generating a sense of trust and increased value in the information others provide ². Participation in these networks is free and voluntary. Participating farmers are often willing to spend time and travel resources because their participation allows them to acquire relevant information and learn from the experience and knowledge of others in the network ⁷. A key emotional component to farmer networks is the exclusivity; the sense of unique opportunity and status tied to participation. These peer-to-peer networks have been used effectively to support innovators and early adopters of practices, who often benefit from sharing details of successes and failures of new practices. While such a system is less valuable for propagating soil health practices to the majority of farmers (exclusivity and status decline as more farmers participate), it is nonetheless a useful strategy for initiating early interest, organizing a network of innovators and early adopters, increasing the social status of that network and the practices, and gaining the attention of middle and late adopters.

of interest, and shared values/beliefs. In addition, messengers must maintain honesty and clarity when communicating in order to maintain and build that trust. From that foundation of trust, messengers, when equipped with the right messaging strategies, may maximize their communication capacity to reach middle adopters.



Cover crops interseeded with corn. Credit: SWCS Media Library.

Moreover, the use of regret can have a powerful emotional push for guiding others to take action to avoid having to experience such a strong negative feeling.

Incorporating additional, often surprising voices to the messaging not only provides an opportunity to address another concern held by middle adopters, but can add to the sense of acceptability of the practice to fit normative values. One example is to have a retired farmer discuss the opportunities for farmers today with soil health practices and his or her regret for not implementing them during their time on the farm. By virtue of being a conventional farmer, middle adopters often have higher levels of trust for this retired farmer than for innovator farmers whom many middle adopters perceive as “having an axe to grind” toward conventional practices. This “surprising” source can increase persuasiveness for many middle adopters. Moreover, the use of regret can have a powerful emotional push for guiding others to take action to avoid having to experience such a strong negative feeling.

Structuring Outreach Events to Maximize Attention

Don’t just focus on information: Increasing our chance of success in reaching middle adopters on soil health practices requires more than simply finding and equipping trusted messengers; it is imperative to structure outreach and interaction opportunities to get middle adopters interested in attending events in the first place, as well as investing the time and commitment to learn about and implementing new practices. Most outreach events are structured with the assumption that the big barrier for farmers is simply a lack of information. Innovator farmers tasked with speaking

at field days and events are more than happy to get highly technical, as they often enjoy the process and details of these practices. While this approach can meet the needs of innovators and early adopters, it is not enough to trigger adoption among the middle majority of farmers. Not only does the information-as-the-only-barrier approach fail to meet the decision-making needs of middle adopters, they often find such detailed level of conversation to be a waste of time as they do not understand the need for change in the first place.

Incorporate field-based events: The structure of events can dissuade middle adopters from attending in the first place. Recent evidence shows the importance of field days and demonstration sites for uptake of agricultural conservation practices.⁴³ Without attending field days to learn the practice, most farmers remain limited in their adoption. Outreach events must be structured to best fit specific learning needs of the target audience and not the needs or convenience of researchers or host farmers. One easy step is to keep events limited to two or three hours in duration. Farmers still on the fence about cover crops will have little interest in investing a lot of time for initial learning. Additionally, time of day and time of year matter; avoid the common busy times, such as planting or harvest periods. Finally, localizing information as much as possible is important. A recent study of Iowa farmers demonstrated that providing local soil loss information in a survey generated more engagement by farmers compared with state-level data.

Box 5. Demonstration Farms

University and extension research sites are a great value for testing and demonstrating new and innovative practices. Some farmers (middle adopters in particular) may find a strict research focus to be intimidating however, or of limited value for their operation. Demonstration farms are a base for field comparisons and tests carried out by researchers and private companies guided by the goals of a board comprised of local or regional farmers. These farms have been shown to improve the effectiveness of knowledge generation for end-users by passing knowledge directly to farmers without the need for mediators and appear to be very promising regarding the dissemination of innovations. Demonstration farms allow farmers to observe research results on working farms, increasing observability and promoting faster adoption. An example of this approach is the Wisconsin Discovery Farms, which provide on-farm examples of conservation practices in action.

Providing local information allows farmers to connect it more strongly to their own situation, rather than giving general information that can be more easily dismissed.

Use demonstration farms: Getting the timing right helps, but there are additional steps to reduce the intimidation factor and increase the applicability and perceived value of the event. Preferably, locate the event at a working farm instead of a university research site (see Box 5 for more information). Providing a comfortable learning and sharing environment is also important. Including food, either a snack or a meal, makes the entire event more inviting and less formal. Personal invitations from other farmers invokes social cues that the event is valuable

Personal invitations from other farmers invokes social cues that the event is valuable and worthy of the time investment and also defines socially acceptable or preferred behavior.

and worthy of the time investment and also defines socially acceptable or preferred behavior. For many people, knowledge is a socially defined and moderated process. Information may be presented, but for it to become accepted, it must be processed socially. That often requires discussion about the new information with others and how well it fits or improves upon their existing beliefs.

Encourage social interaction: Structure events to encourage and guide the process in which farmers incorporate new or challenging information. Instead of conventional lecture-style seating in which all the chairs are positioned to face one speaker, set up chairs around tables to allow people to form small groups. The table groupings create natural discussion around the information being presented. Be sure to allow time for this discussion to occur. Meals and small breaks are not simply “down-time,” but instead are critical opportunities to process the information in a social setting. Additionally, such discussion creates opportunity for innovators and early adopters to make connections with middle and late adopters. These social connections can be fostered if the event is designed and advertised as a social gathering. These personal connections create opportunities for middle adopters to ask questions they otherwise would not ask in a larger group setting, such as during the question and answer period in a lecture-style format. During the knowledge socialization process, it is important to explicitly connect the new information with existing commonly held values,

Box 6. IDEA Farm Network

An example of a farmer network from Illinois is the recently developed IDEA Farm Network. The mission of the Network is to catalyze ideas and approaches that balance farm productivity, profitability and environmental health. The Network is a community that creates a safe, lively space for farmers, scientists, advocates and consumers to share diverse experiences, information and views that advance regenerative agriculture. The Network was initiated by a USDA Agricultural Research Service agroecologist at the University of Illinois in partnership with an east-central Illinois crop advisor and innovative organic farmer and a coalition seeking to advance regenerative agriculture practices across the state. The casual network connects farmers through a Google group where they can ask questions of others in the network and share their experiences with cover cropping, no till practices, and diverse crop rotations. Monthly shed meetings provide opportunities for Network members to gather and learn from invited researchers and experts and to share insights on topics prioritized by Network participants. Network members offer ad hoc tailgate meetings on their farms to demonstrate various practices and equipment. The network model works to overcome social isolation among farmers who are interested in learning about effective implementation of regenerative practices. In less than a year, the network attracted over 170 farmers largely by word of mouth, with many joining from across the region and several from Canada.



Corn stubble in a no-till field. Credit: SWCS Media Library.

including efficiency, profitability, or responsibility; do not just assume the connection exists for your audience. To maximize the acceptance of any information presented by various experts or farmers, remind the audience that the information is not simply a one-way process, but rather knowledge can be best built when many people contribute. Box 6 describes an example of how social networks can be used to further support farmer engagement in conservation efforts.

Don't stop with events: It is also important to note that outreach efforts should not end with your event. Changing behavior requires effort and time. After the event, many people will need time to process new information, so it is important to provide easily accessible resources to address any questions that arise after the event ends. The post-event window is also an important period in which to socially reinforce your key messages. Have early adopters follow up with field day attendees to see if they have questions. Another option is for early adopters to invite individual farmers to their farm to have follow-up conversations.

Focus on specific topics or problems facing your audience: To maximize the reach of your events, try focusing them on a particular topic or issue relevant to the target population, particularly a specific problem they are facing. Topics will depend on the timing, context, and needs of audience but could include weed or pest management, soil moisture management, field access, or nutrient management. Reframe field days

from focusing on a practice to either solving a problem or exploring a range of related subjects. While it may seem counter-intuitive to reduce the amount of time spent covering soil health practices, it increases the interest of middle adopters in attending while breaking down the barrier to participating, which is the most important factor to increasing farmer attendance and participation at soil health events. When it comes to effective outreach, it is not the quantity of information, it is quality and comfort to receive information that counts.

A recent study conducted by the University of Maryland explored the reasons why farmers decide to attend conservation events or not. By surveying and interviewing farmers who had attended events, including farmers who had already adopted conservation practices to a large extent and others who had largely not adopted practices, these researchers developed a better picture of the differences in decision making of early and late adopters. Among the biggest lessons from this research is the importance of “practicality” for middle and late-adopters. When deciding whether to attend an event, these farmers most often value events that are production-oriented, use a simple message frame, and are easy to access (including local events that do not include a fee or RSVP requirement). These events may focus on the role of soil health practices, but middle adopters are more likely to attend when the frame for the event is something of central importance to farm production.

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The “Grow More” Approach: Improving Outreach by Leveraging Social Science

The central goal of this effort is to more directly ground conservation outreach in the best understanding of decision-making and behavior change science.

Based on these experiences, NWF has developed the Grow More training approach. The central goal of this effort is to more directly ground conservation outreach in the best understanding of decision-making and behavior change science. By basing outreach strategies in proven methods that influence conservation decisions, and the myriad factors that influence these behaviors, we aim to increase the impact of outreach efforts across the country. Put simply, the aim is to grow more: more cover crops, more conservation practices, a more diverse array of crops and livestock, and the conservation leaders that promote these approaches. Box 7 includes more detail about how this program was developed.

This flexible training approach is targeted at professionals and leading farmers who seek to increase the impact of their conservation outreach. The training is structured as a workshop, where trainees come together to learn from NWF staff, as well as each other. The program includes both content provided by NWF as well as significant time for application, reflection, and feedback. The primary goal of this training approach is to empower outreach professionals and leading farmers

with the knowledge, skills, and tools to expand the reach of their efforts.

The core training is broken down into easily digestible modules. These training lessons build on each other, beginning with basic social science principles, then progressing through more specific examples, and ending with participants being able to reflect and apply the lessons in their own outreach needs. Key lessons include:

1. Basics of Behavior Change

This lesson introduces basic principles of decision-making from current social science, including the role of beliefs, attitudes, and personality and how they influence different mental models of farming.

2. Culture and Social Norms

Humans are highly social creatures, so appreciating the role of culture and norms is critically important for understanding how people make decisions. In this module, we introduce key concepts for how to appeal to shared values, attitudes, and norms, while also understanding how to speak to different audiences.

3. Outreach Messaging

Building on the foundation of the previous lessons, this module begins to introduce the role of the outreach professional in conservation promotion, including specific examples of successful outreach approaches that participants can apply to their own setting.

4. Framing Your Outreach

Message framing is a central concept for successful outreach and this module focuses on communication strategies that can expand the reach of conservation efforts.

5. Outreach Planning and Preparing Speakers

This nuts and bolts session focuses on how to design, promote, and run outreach events that reach new audiences, including how to leverage the influence of other speakers at events.

6. Planning and Evaluation Tools

Successful outreach often hinges on the ability to plan, manage, and evaluate an outreach program. This module introduces participants to planning tools they can use to more effectively build and manage an outreach strategy designed to reach new audiences and evaluation tools to assess the effectiveness of these efforts.

Box 7. Pilot Testing the Grow More Approach

Partner organizations collaborated with the National Wildlife Federation to design and conduct measurements of the effectiveness of their outreach events on soil health practices, specifically no-till and cover crops in 2017. Given the small sample of individual events (three) and attendees (less than ten in each case) a quantitative data analysis was not planned but rather the pre- and post-surveys conducted at and following the events serve to establish baselines for future measurements. The qualitative evaluations provided valuable insights.

The main learning for the conservation outreach partners focused on taking the time to learn and apply key social science insights to outreach efforts. A basic understanding of the principles underlying behavior change and decision making helped structure conservation messages, provide guidance on planning events, and prepare for future outreach strategies. Additionally, key concepts were incorporated into pre-event preparations, including working with trusted messengers, fine tuning presentations, paying more attention to event logistics, testing ways of involving middle versus early adopters, and follow-up tracking.

The activity of designing and conducting more detailed evaluation surveys was a new and challenging task. In one of the partners' words: "Asking questions that measure the amount of information/knowledge, common challenges, comfort and confidence of farmers is not something that is easy or taken lightly". It made apparent that developing ways to measure effectiveness need refinement and testing and long term data collection.⁶

A final insight was that no single approach is a silver bullet. Due to the wide variety of farmer mental models, there is no one message that will convince all farmers to use soil health approaches. The effort to study the barriers to adoption of the target audience, particularly informed by the diffusion of innovations curve, will most likely result in combinations of multiple approaches at various stages of outreach within the local cultural and agronomic context.



Summary Insights

Much has been made in the literature and policy arenas of voluntary conservation uptake by American farmers.⁴⁴ While there are a multitude of reasons for the lag presented, there are a few areas of improvement in effectiveness that partners in the conservation outreach and agricultural extension sectors can concentrate on. Social science has demonstrated that people fall along a spectrum in their approach to new technologies, practices, and ideas. One useful way to characterize these differences is through understanding how innovations or new practices move through a population. The diffusion of innovations theory characterizes people as either innovators, early adopters, middle adopters, or resisters of these new practices. By segmenting the farming population along this diffusion of innovation adoption curve, this report seeks to outline strategies for the largest group- the

middle adopters, who have not adopted many key soil health practices and are often not engaged by many outreach methods. We provide valuable insights into the barriers to adoption and strategies to best address these barriers.

By understanding how individual producers may differ in their approach to new practices, we can better craft outreach strategies to meet them where they are. Rather than trying to convince them to think like innovators, we propose multiple strategies to address the concerns and motivations of this middle majority of farmers who have not yet embraced soil health practices. In particular, this guide highlights the importance of addressing social barriers for middle adopters and minimizing the perceived risk of changing practices. Building social support and momentum toward soil health practices is a key for overcoming these barriers. Outreach strategies and communications approaches play a critical role in this effort. Only by changing our approach to outreach to better target this audience can we hope to see the landscape and industry level changes toward a sustainable future. This guide serves as an outline for this approach and provides examples of successful strategies. For further support in developing new outreach strategies, NWF Sustainable Agriculture staff are ready and willing to assist. If you or your organization are interested in NWF's Grow More program or other outreach supports, do not hesitate to contact us. More details and contact information are available on our website: <https://growingoutreach.nwf.org/>



Credit: SWCS Media Library.



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National Wildlife Federation
1200 G Street, NW, Suite 900
Washington, D.C. 20005
www.nwf.org