

# **Investigating Opportunities for Enhancing Adoption of Strategically Targeted Prairie Strips in Iowa**

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The research summarized in this report was conducted as part of the STRIPS project. STRIPS stands for Science-based Trials of Rowcrops Integrated with Prairie Strips. Since 2007, the long-term project has been measuring the impacts of strategically planting prairie strips in crop fields at the Neal Smith National Wildlife Refuge in Prairie City, Iowa. Results have shown that small amounts of prairie can yield disproportionate, multi-functional benefits to soils, watersheds, wildlife habitat and biodiversity.

Find more information about the STRIPS project online at [www.prairiestrips.org](http://www.prairiestrips.org).

Learn more about the Neal Smith National Wildlife Refuge at [www.fws.gov/refuge/neal\\_smith](http://www.fws.gov/refuge/neal_smith).

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## Introduction

It is increasingly recognized that agricultural policies and programs should strive to improve the multifunctionality and resiliency of agricultural systems by balancing crop and livestock production with the provision of ecosystem services, including soil protection, water retention and purification, pest control, and habitat (Pretty 2002; Palmer et al. 2004; Boody et al. 2005; Ruhl et al. 2007). Simultaneously, mounting evidence shows that the coordinated and targeted integration of perennial vegetation in row-cropped landscapes can provide both farmland conservation benefits and substantial increases in ecosystem services disproportionate to their spatial extent (Goldman et al. 2007; Secchi et al. 2008; Selman 2008). In July 2007, an interdisciplinary group of researchers established a series of annual-perennial vegetation treatments on 14 watersheds at the Neal Smith National Wildlife Refuge. This project, the Science-based Trials of Rowcrops Integrated with Prairies (STRIPS), has demonstrated that strategic integration of native perennial buffers in intensively farmed landscapes can achieve significant agroecological benefits (e.g., capturing nutrients and sediment, increases in biodiversity) relative to their footprint (Zhou et al. 2010; Liebman et al. 2010). Building on the promising results of the research at Neal Smith, the STRIPS project is broadening its objectives to evaluate the efficacy of prairie strips in real-world application on working farms in diverse agroecological contexts across Iowa, with an emphasis on working toward widespread adoption of the practice to achieving the demonstrated benefits at broad scales.

As part of the STRIPS project's 2011 annual stakeholder meeting, a facilitated group discussion was conducted to identify stakeholder perspectives concerning opportunities and obstacles to transition from a scientific understanding of strategically placed prairie strips to widespread adoption (see Larsen et al. 2011). The 50 individuals who attended the event, representing stakeholders from 18 organizations (including public agencies, industry groups, NGOs) and farmers, proposed a variety of approaches that ranged from pursuing

new research ideas to designing incentive programs, technical tools, and communication and networking approaches; all of which directly or indirectly addressed the need to gain farmer and landowner support of targeted prairie strips. Specific insights included the need to: (1) identify and leverage existing roles and relationships to build the concept of multifunctionality and importance of targeted conservation into current programs and partnerships, and (2) identify available physical and social infrastructure (e.g., Iowa Learning Farms, conservation programs, watershed groups) and communication networks that may be used to promote the adoption of prairie strips.

Following on the recommendations from stakeholders, a research project called "Investigating opportunities for enhancing farmer adoption of strategically targeted prairie strips in Iowa" was proposed and funded by the Leopold Center for Sustainable Agriculture (Grant No. P2012-08). The purpose of the project was to investigate and evaluate these two articulated needs with the goal of developing a more in-depth understanding of stakeholders' perspectives on prairie strips. The three questions that guided the research were:

1. What do key stakeholders believe about the potential for targeted prairie strips to become a widespread conservation practice in Iowa?
2. What are some practical steps that might facilitate the cultivation of broad support for incorporating targeted prairie strips into the Iowa landscape?
3. What ideas do they have regarding potential demonstration sites and other strategies for improving the visibility of prairie strips and building support among the natural resource management and agricultural community?

This report presents data from the research project.

## Project Methods

The research approach consisted primarily of in-depth interviews. Many of the interview participants had been involved with the STRIPS project as members of the "stakeholder group,"

a diverse array of individuals from organizations and agencies such as the Iowa Department of Agriculture and Land Stewardship (IDALS), the Iowa Department of Natural Resources (IDNR), and the Iowa Farm Bureau (IFB), who have attended annual meetings or otherwise been involved in the project. Other participants were selected for interviews based on their knowledge of Iowa's conservation programs and activities and potential role as a supporter of prairie strip adoption and diffusion across the state. Twenty-two individuals from the following organizations were interviewed:

- Conservation Districts of Iowa
- Iowa Corn Growers
- Iowa Department of Agriculture and Land Stewardship
- Iowa Department of Natural Resources
- Iowa Farm Bureau
- Iowa Natural Heritage Foundation
- Iowa Soybean Association
- Natural Resources Conservation Service
- Practical Farmers of Iowa
- The Nature Conservancy

Thirteen in-depth interviews were conducted by phone and in person. These interviews were recorded and transcribed. In other cases, interviews were held with small groups of stakeholders and notes were taken.

### **Interview protocol**

The in-depth interviews were guided by an interview protocol that was developed based on the three research questions stated above. Interview protocols are employed to guide interviews and ensure that all topics of interest are covered during discussions with participants. The interview protocol contained questions designed to elicit participants' perspectives on the following:

- familiarity with the STRIPS research project in terms of level of exposure to and understanding of the STRIPS project research at Neal Smith National Wildlife Refuge;

- value of the prairie strips practice and whether it merits expenditure of resources to foster widespread adoption;
- barriers to the widespread adoption of prairie strips;
- approaches that would be effective for encouraging widespread adoption;
- what agencies and organizations should be involved in helping to promote prairie strips;
- ways that they and the agencies and organizations that they work for might play a role in the process of encouraging widespread adoption; and,
- potential demonstration sites that could improve visibility of the practice.

### **Analysis**

The interviews were transcribed and coded according to the themes that structured the interview protocol. NVivo qualitative data analysis software was employed to facilitate coding.

### **Research Findings**

The findings are presented organized by three main themes: (1) perceived merits of prairie strips as a conservation practice for agricultural lands; (2) barriers to adoption; and, (3) pathways for promotion. Each thematic section provides a brief introduction and a series of illustrative quotes organized by subtheme. Detailed interpretation of data is not provided in this report.

The agency or organizational affiliation of the participants is noted at the end of each quote through a combination of an acronym and a number that was assigned during the interview process. These affiliations are given general descriptors to avoid identification of research participants:

- Nongovernmental organization (NGO),
- Government agency (GA), and
- Farm group (FG).

## Perceived benefits of prairie strips

The first line of inquiry in each interview focused on familiarity with the STRIPS project and perceptions regarding the relative merits of the prairie strips as a conservation practice. Due to the methods used to select interview participants, most had been aware of the project since its early stages. Almost all participants expressed enthusiastic praise of both the project and the practices. Participants appreciated the wide range of conservation benefits observed in the STRIPS project. The benefits mentioned most frequently were reductions in water flow velocity and soil and nutrient loss. Other benefits mentioned were increased habitat and wildlife, increased plant diversity on the landscape, and lower costs and flexibility relative to more expensive structural practices. Most participants commended the practice for the multiple conservation benefits that it can offer. Key quotes:

*I think that this is one of the best research projects that I've seen in quite a long time. I don't see a ton of research projects, but... what I like about it is the targeted approach that it takes. And just taking a small portion of the land and putting it into perennial vegetation and the huge impact that it makes. I know to the farmers it may not seem like a small portion, but if you're saying 5% of the watershed, the micro watershed, or 10% will give you this soil reduction, it's pretty amazing. And I feel like the outcome is definitely worth promoting it. You get the habitat, reduced soil loss, pollinators, all that good stuff. And diversity. (NGO8)*

*You're going even beyond water quality improvement, you're looking at ways to enhance wildlife. (GA1)*

*Sedimentation, of course, is one of our major water quality concerns in Iowa, along with the phosphorous that you're gonna catch with any sediment that you slow. And of course the filtering is going to help with the nitrogen, too. So those are our three big: nitrogen, phosphorous, and sediment. So obviously the filtering is going to help on all three of those. (GA4)*

*I could build an expensive terrace that's going to cost me X amount per foot, or I can put a filter strip out there that's a heck of a lot cheaper than building a structural practice that can offer me the same benefit. (GA2)*

*What I like about it is the targeted approach that it takes. And just taking a small portion of the land and putting it into perennial vegetation and the huge impact that it makes. (NGO8)*

*So something like this—it's a non-structural practice so they don't have to move a lot of dirt and build terraces or move dirt to shape grass waterways—they can kind of fit this to their contour and to the way their row patterns go. It's a little more easier to work around than a terrace or even a grass waterway sometimes. And that aspect may help. But yeah, definitely the weather extremes are when the systems shine. (FG13)*

In summary, nearly all of the stakeholders who were interviewed were positive and enthusiastic about both the STRIPS project and the prairie strips practice. The wide range of potential benefits that were cited—soil erosion abatement, reduction of sediment and nutrient loading, increased in wildlife habitat, cost-effectiveness, disproportionate impacts—underscored the appeal of the practice to a wide range of stakeholders.

## Potential barriers

A central objective of the project was to assess stakeholder perspectives regarding potential barriers to adoption of the prairie strips by Iowa farmers and landowners, and ways that such barriers might be overcome. Participants' cited a number of factors as probable barriers to widespread adoption, with the most common being: (1) the opportunity costs associated with taking land out of crop production; (2) incompatibility of the practice with current farming systems; and, (3) concerns about conservation agency capacity to implement the practice.



## **Impacts on (short-term) profitability: Opportunity costs**

Opportunity costs are the potential benefits that would accrue from actions that are forgone when alternative actions are undertaken. In the case of prairie strips, the opportunity costs would primarily be revenues from row crops that would not be planted in the areas where the strips are planted. Key quotes:

*So at the heart of all this stuff, and it's what's really difficult about the term "conservation" is it has a tendency in anyone but a conservationist's mind to represent taking money out of the pocket. So you can sit down and you can walk most farmers through a concept, they can agree with you a hundred percent, and their question is gonna be "What's it gonna do to my bottom line?" (NGO6)*

*Competition with corn is always gonna be difficult. (NGO5)*

*[Taking] ground out of production is a big deal right now. Because of...ag is riding a pretty big wave right now in terms of commodity prices. And we've talked about in earlier watershed efforts, we've talked about wetlands and putting areas into wetland, and this is back when corn was 2, 3 dollars a bushel. And it was more appealing. Now when I talk about wetlands they all appreciate the idea, but it's a tougher sell. (FG3)*

*We're not going to tell a farmer...because this is where we'd start stepping on toes, about taking productive ground out of production. Our message would be, let's take a systems approach, let's identify those targeted locations that it makes sense to put conservation in. And if STRIPS is one of those, or the concept of this diversified planting mix in a system like that makes sense, then that would be the message. And that would be the message that I would tell any producer: 'Cause, you know, we've had the question about some large-scale wetland projects. Again, we are supportive of wetlands, but again, in the right context. And I think any farmer in Iowa would probably say the same thing. Now you've got some good steward farmers that want to do it just because they*

*want to do it. They know it's the right thing and they want to see wetlands. They want the birds. And if it's in their operation. But again, systems approach, is how is how I would come at that question. (FG3)*

*And so the first reaction of farmers is, "What do you mean we're taking land out of production?" and that's going to be costly and with rents the way they are and so on and so on. (FG11)*

*But I guess I'm more thinking about the price of corn and beans right now, and convincing them not to raise corn and beans is not gonna be easy right now. (GA4)*

## **Incompatibility with dominant practices**

The issue of compatibility with current practices was raised by many participants. Commonly noted potential sources of incompatibility included size and type of equipment, herbicide use, and cultural expectations about aesthetics of farming (weeds, "clean" fields). Key quotes:

*And of course there's all kinds of issues that push conservation practices currently. Commodity prices, size of equipment, does the spacing still fit the type of equipment? Spraying. Can we still apply herbicide on our cropland and not overspray onto grass strips or terraces? (GA2)*

*Anytime you're talking about going from a simple system to a complex system and that means the sprayers would need to be turned off at right place in a field so they're not killing off the perennial plants otherwise you're defeating the purpose. (GA1)*

*I think for a farmer, when they get into a field they want to farm. And the more obstacles they have the more frustrated they get. And if it's a system that fits within their operation, and it's not going to impede their progress, again, it's gonna fit better. (FG3)*

*There'll be all sorts of questions about, "Well, how does this work with no-till? How does it work with equipment of a certain size?" The sorts of issues that you would have discussed with [a farmer] years ago when this started down in Neal Smith because I'm sure he had*

*all the same questions like how will it work with his equipment on that landscape, and depending upon where you are in the state there are various sizes of equipment and types of tillage going on, so this could launch a whole new discussion about does it work as well with no-till as it does with strip tillage, or what type of tillage scenario works best with this and I don't know that there's any best answer to that. It probably depends upon each farmer. (GA1)*

*...some of the barriers for the adoption of the prairie buffer strips. The weeds would be ones that the farmers just couldn't handle looking at. They're so used to having clean fields and stuff like that....I know one of the hurdles with the prairie buffer strips may be that farmers may not be initially happy with them and then will give up on them. Like, "Oh, this yellow flower, it's a weed." And it's really not. So that's one of the hurdles. Or the flowers might not come up initially. Or they think they're weeds when they do come up. (NGO8)*

*The landlords are going to be cranky about weeds. (NGO12)*

### **Concerns about conservation agency capacity to implement**

Several participants voiced concerns about natural resource agency capacity to implement prairie strips. In particular, human resource limitations in NRCS field offices was noted. A second concern about fit with current NRCS practice standards was expressed. See "Cost share" section below for further discussion. Key quotes:

*They want to do a good job and do the right thing. Unfortunately these NRCS offices are so understaffed now that they're overwhelmed with their workload. And you wonder if some of what's being implemented out in the countryside is being hampered by that. I don't know. You got to think it is. (FG3)*

*I don't know enough about how this would translate into a practice. It sounds like it would probably be pretty...it might be labor intensive for NRCS at first to try to adopt this as a practice. Simply because it would require some way of looking at fields in a different*

*way....It does make sense from a land-use standpoint. It's, I think, difficult to administer for NRCS because it's more complicated...the workload issue is a real one though because they've had serious workload issues. For quite a while. And particularly as we're in an area where federal funding is being reduced. On the one hand NRCS would love to see more conservation, but they're also not wanting more work hours. So, that's a real conversation to have with them as well is how to administer something that's complicated like this. (GA1)*

*And a lot of them, it's they walk into the door at the NRCS office and get the information from the guy behind the counter. And if they're not fully versed on the latest research or practices or seeding, it's almost like can we make sure that the education outreach is getting to the right individuals so that then those individuals are making the appropriate recommendations to the farmer. And again, that goes back to the quality of the seed mix, type of buffers that we're looking to maybe try to establish, the targeting component. It's a tough one because every county seems to be a little different. Some push straight switchgrass. And I think some of it comes down to cost, too. A straight mix of switchgrass is pretty cheap. (FG3)*

### **Pathways for promotion**

The interviewers also asked participants to share their thoughts about potential pathways for encouraging widespread adoption of prairie strips. Participants focused on (1) the potential for prairie strips to provide income to the farm operation, (2) a need to develop sources of financial support (cost-share) to help offset the establishment and opportunity costs of the practice, (3) a need to better understand and articulate the long-term benefits (both on-farm and off) of the practice, and (4) the use of demonstration sites to increase awareness and eventual adoption of the practice. The latter item was emphasized by most interview participants: stakeholders want to see prairie strips perform in varied landscapes and real-world applications.

## **Focus on potential for prairie strips as an alternative income source**

*I'd like to see it wrapped up into the enterprise. And it becomes a part of the business...we give 'em an incentive to do it. And that's like helping 'em put the filter strips on the hillside. That they can hay and graze and whatever. And they're going to have an income off of that. They're going to take the hay off which they're going to feed to livestock, and whatever. They're gonna graze it in the fall when they let 'em into the stalks, that's an income return....If we're going to have an impact on the land, we have to, in today's economy, today's business world, we have to help them maintain a viable business. So there has to be some economic value to it. And if we can meld the environmental benefits with the economic value, it becomes a win-win. (GA2)*

*There's so much advancement and improvement going on in the biofuels industry and we're looking at permanent vegetation to be harvested for biofuels use and maybe there's opportunity with planting these native grass strips, maybe they can be harvested once a year and used for biofuel....Now all of a sudden you've added in another income source. Yes, you're taking some corn ground out of production, but you're adding the benefit of having the pollinators, the predators, the natural resource soil erosion control, plus an income or a least a potential income, modest as it may be. If we think about integrating all those systems together, to me that sounds a lot more attractive. (NGO5)*

*So I think approaching it from the standpoint that we need strong soils, we need to build our productive capacity of our soils, we need to go back to the fundamental discussion about erosion and we need to go back to what are we trying to achieve with our conservation design. And that, if we're mitigating lost nutrients that would otherwise be lost. I think farmers are in favor of doing what they can to capture that. Particularly if we can identify other economic uses like maybe haying, or something like that. (FG11)*

*I've asked them the question about, "Okay, well what about biomass and a secondary market if we're looking at perennial grass system?" And they're intrigued by it, but until they have a market that actually puts some incentives out there, I think a lot of 'em are reluctant to do it. (FG3)*

## **Cost-share**

Several participants expressed that promotion of prairie strips might be facilitated by cost-share to help defray the expenses of establishment and maintenance. Key quotes:

*In terms of...the next step that comes to my mind is, alright, are these cost-share approved or not....There's usually somebody in the engineering department or, you know your first contact would be Jon Hubbert, the acting state conservationist. And, alright, who do we go to, Jon, to get this resolved and move this forward as a practice standard. And he would assign it to one of his staff. And I'd do that sooner rather than later. (FG10)*

*I don't know if you could get CRP to do something where they could get a rental payment like buffer strips to kind of offset that cost. (FG13)*

*To do that the state conservationist, of course, has to agree that this is a priority that we need to set aside funds for. And the only reason why he would do such a thing is if he felt like there was something important that we were going to be able to do with those funds. That we aren't doing now. It'd be something that we typically those things would happen through the state technical committee, recommendation for additional new fund code so if that was going to be the case, the next time that the EQIP subcommittee from the state technical committee meets we would need to have some information suggesting that we need to do a new fund code. So we'd need a least somebody to let us know that we'd like you to set some funds aside for this type of a project and here's why we think that we should do that. And then the EQIP either makes a recommendation either to or not to and then when the whole state technical committee meets, then they would of course*



*be presented the recommendation from the EQIP subcommittee and either the whole state technical committee either makes a recommendation to the state conservationist whether we should do that or not. And examples are that most of these other fund codes I talked about the state technical committee has recommended to the state conservationist. We think that you should have funds set aside for this. The hardest part is that we've already got so many different fund codes set up like that, that getting new ones we've really got to have a good reason to do it because there just isn't that much money to go around. (GA4)*

*...and other agencies have also stepped up and put information out about how to manage cover crops, NRCS for example. We're, at least with 319 funding, are funding cover crops in some of our watershed projects because that's now an accepted practice. So, just kind of thinking out loud here maybe that would be...another step would be to develop this as some sort of an approved NRCS practice to have the standards accepted. And most likely in order for it to be adopted there would have to be some sort of a cost share or some sort of a payment similar to how cover crops have started to become adopted more and more when there's a cost share incentive payment to install it. (GA1)*

*...because the ranking systems are set up in such a way so that the projects that were all about soil erosion, I mean, we're not completely all about soil erosion but we lean that way. So the county that I work in, we do a lot of terraces, like [the farmer] said. We cannot build enough terraces down there. We spend a lot of your money building terraces. So those projects rank up higher than if somebody just came in and wanted to put in some buffer strips. (Stakeholder Meeting Participant)*

*Farmers are great about implementing conservation when they have a means for cost share. When it's all on their dime, that's a much harder sell. (NGO5)*

*I'm not sure without the backing of dollars from the government, unless our system changes or unless something in the climate*

*changes, I just don't know that you'd really get a widespread adoption. (NGO6)*

*The NRCS would be a key player in pushing this project forward. I think cost share is going to be one of the big things. To have this be one of those practices that could receive cost share would be pretty neat. And improve the likelihood of this being used...and I mean I grew up on a farm in northwest Iowa and I know if I approached my dad with this idea, the cost share would have to be...part of it for sure. (NGO8)*

*So I hope the word incentive is to give people some money to try it and they'll see a benefit and continue it. And do not look at it as an income stream. Like I said, the guy comes round after five years and comes back and wants 200 more dollars to put it back in. (GA2)*

### **Focus on long-term benefits**

Several participants pointed to the potential long-term benefits of prairie strips as a point of emphasis in promotional efforts. Key quotes:

*Now over time, I think over time you're going to see an improvement in soil health, which will in turn improve your production. But will I see an immediate return of that? I think if you look at the value of land, and somehow making a connection on if I paid \$8,000 an acre for that land, would I want any of it to ever get away? Why would I want to lose \$8,000 acre land? If I put 10,000 bushels of corn in a grain bin, and there was a hole in it, and 10 bushels ran out every day, I'd guarantee you I'd fix the hole so 10 bushels didn't get out. So it's a matter of if they'd lose the land, do they see a loss in value? And I think that's a tough connection for some people to make sometimes. Because I can go out there and use a disk and smooth out the ruts and whatever and then I'll plant back through it and maybe won't realize it and add a little more fertilizer. I think it's a matter of why would we want any of that valuable land to get away? And we have to be able to maintain it to be productive. But you can make it both work. (GA2)*

*You've got to be able to appeal to children and grandchildren and longevity of profitability for a community and really promote the concept of...if I was in your shoes and I had to go make a sales pitch I think I would go to a farmer and I'd say "Listen, this is the most profitable time, probably in the history of farming, where we know more than we ever have before, and you're in a position where if you're willing to make an investment in the future, you can ensure your children and grandchildren have the same opportunities you do," That's an appealing thing to take part in. But we also have guys paying \$10,000 an acre for farm ground. (NGO6)*

*Well, one of the big things that we hear from our board members is sustainability and passing the farm down to the next generation. Most of 'em are all family farmers and most of our board members are at the point where their children are of the age to be...they're either doing a joint operation or getting close. Some board member may be close to retirement, so that's something to emphasize is saving the soil and things of that nature. Another thing would be...they're really afraid of regulation. Especially, you know, water quality and nutrient and things like that, so they're interested in voluntary programs that are science-based, that have results, so this would definitely fit into that. Showed they could implement this. Show that they are trying to keep the nutrients in the field and save 'em for the crops instead of letting that wash away. Those are kind of the two biggest things that I hear from our board members that may help you out, anyways. (FG13)*

*They feel they're under attack, that they have kind of a bad rap...their reputation as being good stewards has gotten worse so they're very concerned about that and they'd like to make things better. (FG13)*

*There's a lot of guys out there that might not be worried about the monetary cost if you could show them the environmental benefit. (FG13)*

## **Demonstration sites**

The potential effectiveness of demonstration sites was emphasized by many participants.

Stakeholders believed strongly that stakeholder groups and potential adopters needed to see prairie strips perform in varied landscapes and real-world applications, and that such demonstrations would be imperative to encourage acceptance of the practice among farmers and landowners and conservation agencies and organizations alike. Key quotes:

*We need to test the practice in additional landscapes, we need to involve more stakeholders. Of course the STRIPS project is a unique situation on wildlife ground so we've got to put it in more of a real-world situation. And we need to have stakeholders evaluate it as an alternative soil conservation practice to terraces and, you know, other things. So I'm a supporter of looking at the next phase of demonstration and would be a proponent of some pilots, perhaps paralleling with some of the other targeted watershed work where we have those resources concerns. I think there needs to be a connection with the science community to make sure that we're evaluating performance in this real world scenario. And I think we need to involve farmers and how can we tinker with the practice a little bit to better optimize its design. (FG11)*

*There are some leading-edge, innovative farmers and if you have the opportunity to kind of advertise for this unique scenario. Like, for instance, I think the folks at White Rock Conservancy might be in a position, because they have a long-term control of the land, they have the kind of landscape that would be conducive to this, they would probably be in favor of an experiment like this because it would add to their programming mission. We're always trying to identify leading-edge farmers and look for those opportunities where we can set up those kinds of design. (FG11)*

*Well, you know farmers oftentimes will make their decisions based on data. Hard data, especially localized data. So if you have research that it's occurred somewhere that's not in their area it's a little bit tougher to sell a program versus one that's more centrally located. If you can provide them with data that shows the benefit of a certain soil reduction strategy, or that sort of thing,*

*they might be more inclined to at least think more about the idea of putting the practice in....From a selling point from a producer, they can visually see where they have issues. Or they know where the poor spots are in their field. To them, that makes sense to do a conservation practice. (FG3)*

*I think what you have to do is you have to find the guys who are sympathetic, the way that you are to the needs of soil quality and water quality and you have to start there and you have to show a successful outcome. There are people, I think, who would be ready and willing to adopt a situation like what you have here....You have to start with those guys and at the end of the day the real question is what you're doing either providing a profitability that you can then go and show or can you show an increased organic matter or decreased water pollution or increased nitrogen fixation. (NGO6)*

*One of the most effective means of putting something together and getting other farmers to take interest in it is definitely demonstration sites. It's one thing to talk about a great idea but when they actually see their neighbors doing something and how it benefits them, to me that's...money well spent. And that's the best advertising is seeing the guy down the road doing it and knowing that he's doing it for the right reason. (NGO5)*

*Peers watch peers. So if you put 'em on your farm, and I'm your neighbor, I'm gonna watch 'em. And I may set back a couple years because I'm undecided, and see how it works for you. Or I may come over and talk to you about, "Hey, what'd you do, and how'd you do that?" And whatever. And then the peers can become our advocates and whatever. (GA2)*

*So, I think there'd be a set of PFI farmers who the STRIPS researchers could depend on to be data collectors and get to the scaled up approach of the research, with what I'm assuming they want to do next? So if you want on-farm sites with farmers who are dependable at setting up things and taking data and being so of their on-farm sites or being able to work with them to do on-farm sites, I think there'd be a set of PFI farmers who would be really good for that. (NGO12)*

*Well, you're aware of the Big Creek project. That kind of project I think is almost a perfect fit for a demonstration or something where you could get some additional cost share to do some of these things. And we've got, like I said, 30 other of those type of projects across the state where I think the coordinator would have a good relationship with, hopefully a good relationship with, the farmers and landowners and know that, hey, there might be Joe Smith in this section that would be interested in exactly this kind of thing because he's really conservation-minded. Looking to try new things, that kind of mentality. So I think those people could really help you guys out. (GA9)*

*...319 is just one of a couple different sources. And I mentioned there was 30-40 watershed projects in Iowa. 319 doesn't fund all of those, but maybe half or so receive 319 funding. And 319 is actually EPA clean water funds that come to the state DNR in this case and then are filtered back out through a competitive grant process. And there's a couple million dollars a year that go out to that, and that's what funds Big Creek to a large extent....I would think it would be tough for you to find a demonstration site if you just looked at a state map and said, "Hey, let's try to find something in Delaware County," and didn't know where to start but we've got watershed projects in Delaware County that you could at least get your foot in the door and try to figure out if someone would maybe be willing to do something, possibly. (GA9)*

*I think those field days and just highlighting those practices I think is about the best way just to get word out. And just have the neighborhood come, not the whole county or four counties around there show up where people don't know each other. I think it's important to get a small community where they know each other to come and just talk about what they're seeing in a friendly setting. Maybe have a meal. Up at Blackhawk lake, we had a strip till field day up there and there was 65 people or so attended that one, and it was just guys sitting around, talking with this one farmer leader in the community that had adopted strip till and was having great success with it and he just wanted to share*



*that experience with those other folks. So I think it's not me coming to a watershed and saying, "Hey, this is a great practice." It's actually having a landowner or a farmer lead something and say, "This is great, here have been the benefits to me, these are the benefits to the lake or stream" I think that's probably the most successful approach that I've experienced, I guess. (GA9)*

*I know the DNR has state lands that they lease out for their habitat lands but they lease 'em out for farming. We might want to look through a lens of the priority watersheds and look where there might be an opportunity to do this on land that's controlled by the state. (FG11)*

*It's one that I've struggled with. I think we should...the lease right now for some of that state land that's leased for ag production is pretty lax. It's pretty much, "Hey, don't fall till and you can do whatever else you want." So it's been kind of a struggle to get even cover crops on some of those lands but yeah, I think that might be a place to start. It's visible. It's an area of land that is oftentimes around a lake or some area that's a priority water body so I think that might be a place to start. (GA9)*

## **Participants' potential organizational contributions**

Research question number three focused on ways that the interview participants and their organizations might participate in the promotion of prairie strips across Iowa. Participants outlined numerous roles that they as individuals and their organizations might fulfill. Key quotes:

*Well, we would be enthused and participating in multiple ways. We can participate, we can lead in some cases, or we could just sit back. So our role could take multiple shapes. I think we've been tracking this for a long time. We're involved in a lot of different places. We would see this as a value-added opportunity and we would embrace the opportunity to collaborate, so you can put us down as a positive there....From [our] perspective how we would promote it would be from a systems perspective. We're not going to tell a farmer... because this is where we'd start stepping on toes, about taking productive ground out*

*of production. Our message would be, let's take a systems approach, let's identify those targeted locations that it makes sense to put conservation in. And if STRIPS is one of those, or the concept of this diversified planting mix in a system like that makes sense, then that would be the message. (FG11)*

*We're getting more and more involved in environmental projects so it's something we'd definitely be open to communicating results of the research to our members through our newsletters or whatever it may be. We have crop fairs during the winter, all across the state where our growers can come in, our members can come and get a free meal and listen to some speakers and we have a wide variety of speakers from environmental stuff to economic stuff to weather and things like that so it's definitely something we can put on that program. Yeah, and demonstrations, I think we're gonna be doing more and more of that. (FG13)*

*...we know that this information's out there and can point 'em in the right direction. Just kind of be like that middle man to say, "Oh, you know you should really check out this research, it's really promising...just takes 10% of your field out of production." I think that'd be the best avenue where we would sit in the project. Just because we do work with so many private landowners each year. (NGO8)*

*A couple things that come to mind, one, I'm willing and able to send information directly to members that have signed up on our website for this kind of information. And I can take a story from you guys, for example, that you're communications department has authored and put it on our website and send it out. It can be either on our member-only website, it can be a public website. So that that's one thing I'm willing and able to do. I can do that today...from time to time there may be other opportunities and what we produce here, for example, is like that "Iowa Minute." On the news many times during the month. And they produce one of those almost once a month. I forget the numbers but they're in most of the television markets now around here. They'll pick something like that and talk about it. There'll be 30 seconds of detail in*

*that minute about that technology and they'll be 30 seconds about the general big picture—farmers are working on these things....And that gets repeated over and over again for a month. And I can sure talk to our staff about doing that. (FG10)*

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## **Other means of raising awareness**

During the interviews, several participants offered other suggestions for raising awareness and promoting prairie strips. Key quotes:

*There's probably a couple other places we can put you on a program to talk about that a little bit more to introduce you to other organizations. Okay, I'm just thinking of one right now. The Watershed Planning Advisory Council. We had the Water Resources Coordinating Council established a few years ago where all the agencies sit around the table and prioritize watersheds and activities like that...they're looking for new things to talk about there and there's another group...called the Watershed Planning and Advisory Council...we kind of look over the shoulder of the Water Resources Coordinating Council.... And we'll meet once a month if we have something to talk about. You can find both those organizations on the DNR website. And ask to be on the agenda....Stand in front of these folks and let 'em know what you're doing. (FG10)*

*I think that this concept would make for a really interesting presentation at the NRCS state technical committee. And they meet, I can't remember if it's quarterly, in Des Moines at the NRCS state office.... They're not technically a decision-making group but they are an advisory group and they represent a number of farm and conservation organizations around the state. So if you wanted to have a conversation about how it would work in Iowa, I think that would be a good way to present it, a good location to present it....So, the state technical committee includes agencies, so DNR and department of agriculture are represented as well as commodity groups like Farm Bureau, Iowa Soybean Association, Corn Growers, conservation groups, like Conservation Districts of Iowa, PF, Trout Unlimited, to environmental groups such as Iowa Environmental Council, and Nature Conservancy, Iowa Natural Heritage Foundation...and at some point in time it would probably be a good presentation at the Conservation Districts of Iowa annual meeting they have in September. Because then the group would be speaking directly to soil and water conservation district commissioners. That's who goes to those meetings. But probably not until NRCS has had a chance to think about how it might fit into an actual practice....Getting it into farm periodicals would...create awareness of it. (GA1)*

*That's probably where I'd spend the bulk of my time would be with conservation organizations. Even PF and Turkeys and White Tail and Ducks Unlimited—those organizations are usually filled with people who are very interested in promoting and lobbying for best practices. (NGO6)*

*So, yeah, I think probably just talking to them and offering to give them information or give a presentation is probably the best knowledge transfer method...if the wildlife groups would also be ones to promote this. Just for habitat and helping our water quality. Like PF/DU, and NWTF and stuff. And even at their state conventions that they have, if, I don't know if you could get on a panel to be a speaker or something. Just a way to integrate habitat and row crops. It'd be pretty neat. (NGO8)*

*When I'm trying to recruit farmers...I always go to somebody who's on the ground in that area. So either an NRCS agent or an Iowa State extension person. (NGO12)*

*Well, I think some of your proactive ag retailers, your co-ops like Heartland would be a good one. I think Farmers' Co-Op would be a good one. I think they're looking for opportunities to be able to bring additional value back their farmer customers on the conservation front. And they are going to know who are the more progressive farmers. (FG11)*

*It might be a good idea to be talking to the Iowa Department of Agriculture and Land Stewardship division of soil conservation about where they have existing projects going on. And maybe selling this to some of those project coordinators as something they should promote. They're already doing water quality projects. (GA4)*

## Additional advice

Participants universally agreed that the prairie strips conservation practice is an outstanding idea, and that resources should be dedicated to advancing the research and promoting it among farmers and landowners. However, many also cautioned that prairie strips should not be viewed as a panacea. Key quotes:

*I wouldn't try to sell it as the silver bullet, but just another tool in the toolbox sort of thing. (FG10)*

*[It's] got to be packaged. It can't be a standalone practice...it's a Band-Aid approach when it's not with...a bundle of practices. (NGO12)*

*[Prairie strips add to the] variety of options for landowners to put in place. Hopefully it'll allow them to pick the right thing for, not only their farm, but for their management capability, for their financial situation, for their interests. And the more successful those are the more likely they are to stay in place long. (NGO5)*

## Conclusions

The project engaged a broad range of stakeholders from numerous agricultural and environmental groups and agencies to assess perspectives regarding the potential for prairie strips to become a widespread conservation practice in the state. It identified perceived barriers to more widespread adoption of the practice, and gained stakeholder feedback on practical steps that might be taken to surmount those barriers and broaden awareness of and support for the technology.

Stakeholders who were interviewed were on the whole exceptionally supportive of the STRIPS research project. The wide range of potential benefits that were cited—soil erosion abatement, reduction of sediment and nutrient loading, increased in wildlife habitat, cost-effectiveness, disproportionate impacts—underscored the broad appeal of the practice to a wide range of stakeholders.

Participants identified a number of potential barriers that should be addressed to facilitate the transition prairie strips from science to widespread practice. As expected, economic barriers were frequently cited, with the opportunity costs of taking land out of row crop production being the most common concern. Incompatibility with dominant practices, especially equipment size and herbicide use, but also cultural norms, was also cited by a number of participants. Finally, several stakeholders articulated concerns about natural resource agency capacity to promote and implement the practice with their clients. Apprehension about field staff workload was common, and concerns about natural resource conservation agency staff knowledge and ability to make prairie strips work within constraints of current institutional frameworks (i.e., practice standards) were also expressed.

The project also identified numerous pathways for promotion. These included the development of strategies that enhance prairie strips' capacity to serve as an income source within farm operations (e.g., winter grazing, biomass for energy), integrating the strips into natural resource professionals' toolkit, with cost-share if possible, promoting the long-term benefits of the practice



to balance short-term opportunity costs, and establishment of demonstration sites. The latter recommendation was the most common one, as stakeholders believe that more research and demonstration across Iowa's varied landscapes will be critical to widespread acceptance of the practice among farmers, landowners, and the natural resource conservation agencies and organizations who provide conservation support. Stakeholders want to see more prairie strips at work, on private land where possible, so farmers, landowners, and agency staff can observe how they function in local agroecosystems. Finally, participants recommended that the STRIPS team work to raise awareness by disseminating information related to the points above through the farm press, commodity groups, watershed groups, conservation NGOs, and other interested groups.

This research project documented the perspectives of group of key stakeholders, and those findings will hopefully be instrumental in moving the STRIPS project forward. However, it also pointed to gaps in our knowledge and opportunities for future research. The project

focused primarily on administrators and staff from key agencies and organizations because understanding their perspectives about prairie strips is critically important to any effort to promote the strips across the state. Nevertheless, it is the field staff from these agencies and organizations who actually work with farmers and landowners. Future research should examine their perspectives on how the prairie strips fit within their existing "toolkit," and how that fit might be improved.

The results of this research will inform the work of the STRIPS research team (<http://www.nrem.iastate.edu/research/STRIPS/>) as they continue their efforts to move prairie strips from science to practice. By documenting stakeholder perceptions of the practice's benefits, barriers to widespread use, and pathways for promotion, the research identified numerous opportunities and leverage points to help in the development of strategies that lead to broader awareness of the prairie strips technology and eventual adoption across Iowa's agricultural landscape.

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