

# **Perception of Conservation Agriculture Practices Among Crop Advisors in Minnesota**

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## Introduction

The following report summarizes the findings from interviews conducted with crop advisors working in Minnesota to get a better sense of where conservation fits into their business model. This project is a collaboration between Minnesota Extension, the Minnesota Office for Soil Health (MOSH), the Water Resources Center, and the Institute on the Environment at the University of Minnesota. It was financed by a mini grant from the Institute on the Environment.

## Methods

A total of 11 interviews were conducted by phone between November 2021 and March 2022. A purposive sampling method was used, in which individuals were selected for this research based on their experience working as a crop advisor in Minnesota and surrounding states, as well as their familiarity with conservation practices. The interviews were semi-structured with an interview guide that was created with input from representatives from Minnesota state agencies and nonprofits. Interviews were conducted by University of Minnesota Extension State Soil Health Specialist Anna Cates.

## Sample

Respondents had worked in agriculture for an average of 15 years and a median of 12 years. Some respondents entered the sector in the past year, whereas others had been working in agriculture for nearly 40 years. Crop advisors interviewed worked as independent consultants, with coops, and with agribusinesses such as input suppliers (See Table 1). Many had been raised on a farm or currently owned and managed a farm in addition to their work as an advisor.

“Oh, my favorite thing I'd have to say is walking on to operations, seeing where operations are at with their animals, and then helping them to go to that next level to achieve that. If it's a building, if it's better manure management, and that satisfaction that the grower gets...helping to continue that, that operation if it's to the next generation, just so the producer can keep on farming.”

**Table 1: Interview Respondents by Employer**

<b>Current Employer</b>	<b>Number of Respondents</b>
Cooperative	4
Crop Consulting Company	3
Agricultural Inputs Company	2
Independent Consultant	2
Total	11

In terms of the geography covered, the majority (8) of respondents worked primarily in Minnesota and together covered all major regions of the state. Two respondents each also worked in parts of Iowa and South Dakota.

When asked about their favorite part of their job, two responses were the most common. First, advisors appreciated being able to help growers (See Table 2). Second, they enjoyed teaching others (growers and their coworkers) new things, including introducing them to new technology. Other frequently mentioned responses included forming connections and the variety offered by the job—people didn't feel like they did the same thing every day at work.

**Table 2: Favorite Part of Crop Advisors' Jobs**

(Note: some respondents gave more than one answer)

<b>Favorite Part of their Job</b>	<b>Frequency</b>
Helping the grower	5
Bringing new technology/teaching	5
Forming connections	3
Variety	3
Visiting farms	2
Independence/Flexibility	1
Learning	1

## Survey Results

**1. Cover cropping and conservation tillage were the two conservation practices crop advisors spent most of their time on.** Nearly all respondents reported that most of their conservation practices involved cover cropping and conservation tillage (see Table 3). Feelings around cover crops were especially mixed. One respondent was explicit that they did not do any cover cropping. Another said that interest in cover cropping was currently on the “back burner,” and that there had been more interest a few years ago when crop prices were down. The advisors who were most engaged in cover cropping appeared to be working with dairy operations. One of these advisors was working with dairy operations on mixed cover cropping, specifically.

**Table 3: Conservation Practices Crop Advisors Spend Most Time On**

<u>Conservation Practice</u>	<u>Frequency</u>
Cover Crop	10
Conservation Tillage	10
Nutrient Management	7
Carbon credits	3
Reduced Pesticides	2
Agronomy advice	2
Other <sup>1</sup>	6

Crop advisors reported using three main methods of conservation tillage: strip till, reduced till, and no till, with no till being the least common of the three methods (See Table 4). Two advisors mentioned multiple tillage methods but specified that strip till was the most common. One of these advisors had even started a separate strip till business three years ago after beginning to strip till on their own farm a little over a decade ago.

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<sup>1</sup> Practices mentioned only once included the following: government program coordination, data management, drainage tiles, diversified crop systems, organic farming, and soil health.

**Table 4: Conservation Tillage Methods Crop Advisors Spend Most Time On**

<b>Method</b>	<b>Frequency</b>
Strip till	7
Reduced till	7
No till	4

The next most common response was nutrient management (7 respondents). A couple of these advisors were also involved in chemical free nutrient management that utilized manure. Others utilized nutrient management techniques such as variable rate, split apply, and more.

Three respondents were working on Carbon Credit programs, typically in partnership with Truterra. The crop advisors (or their colleagues, in some cases) were involved in identifying growers that would be eligible for the carbon credit program, signing them up, and ensuring requirements were met. A major portion of this work involved proper recording and management of meticulous data.

**2. Most crop advisors with conservation expertise are found through a grower’s**

**referral** (See Table 5). Crop advisors appreciated these word-of-mouth recommendations and often referenced the importance of the relationship between advisor and grower.

“Word of mouth is the best. For farmers that you can get that actual reference from another farmer that’s going to get you on another farmer’s bin site or on their piece of ground. So that, that definitely takes the prize when you can get that, but you gotta earn that too.”

The second most common methods for finding new growers were through a government agency or certification list, or through an online presence and marketing. Advisors appreciated relationships they had built with institutions like their local Soil and Water Conservation Districts, and how these relationships could turn into referrals later down the line. Some advisors even had prior experience working for these offices. Other advisors noted how, as certified Technical Service Providers (TSPs) their name appeared on a government list of TSPs for their area. Through luck of the draw, this meant that sometimes they would be contacted from this list.

A few advisors also talked about recent efforts to improve their online presence. These improvements usually involved website updates, but also involved other efforts, such as launching social media accounts, sharing articles featuring their work, and more. One advisor shared how they had started a podcast where they discussed conservation practices.

In contrast, three advisors noted how their companies were well established with significant name recognition. (Some of these companies had been founded nearly 100 years ago.) Thus, they were not necessarily spending lots of time on marketing.

**Table 5: How Advisors are Found by Producers**

<b>How do producers find you?</b>	<b>Frequency</b>
Word-of-Mouth (grower referral)	7
Govt Agency or Certification List (NRCS, Soil Office, TSP list)	4
Marketing/Web Presence	4
Well established	3
Scouting (sales calls)	2
Growers meetings	2
Internal Referrals	1

**3. Nearly all crop advisors said that growers picked them for their experience in conservation methods, yet a sizeable portion still saw discussions about conservation with growers as a two-way street.** All advisors who were asked about being chosen for their expertise in conservation (10 of the 11 respondents) said that yes, growers came to them because of their expertise in conversation practices. However, when it came to the source of ideas about conservation, it appears that the discussions become more fluid. Of the nine advisors who responded to this question, roughly half (4 respondents) said that the conversation was more of a back and forth, as advisor and farmers shared ideas and engaged in discussion (See Table 6). One advisor shared:

“You know, these farmers get bombarded from every direction, whether it's farm journals, or the ... Linder Farm Network at Noon, or going to meetings, or whatever, on different practices, different products, different everything. So we do get asked a ton of questions on stuff. And some of it we've heard of, and we know about, some of it we don't, but we try to ... weed through some of that and bring value and new innovative ideas to our growers.”

An additional four advisors shared that they saw themselves as mainly bringing ideas to the growers. However, even with this response, some advisors were quick to point out that they saw their recommendations and advice as responsive to the farmer’s situation, rather than simply coming in to implement cut and dry conservation practices. Finally, only one advisor stated that they saw ideas about conservation originating primarily with the growers.

**Table 6: Exchange of Conservation Ideas Between Crop Advisor and Growers**

<b>Exchange of Conservation Ideas</b>	<b>Number of Respondents</b>
Back and forth	4
Bringing more to the grower	4
From the growers	1

**4. Even when crop advisors are known for their expertise in conservation practices, the majority of the producers they work with are not implementing these practices.** When asked about the portion of their clients implementing their most common conservation practices, most crop advisors estimate that roughly 10% of their client base are implementing these practices. Exceptions to this norm came almost exclusively from businesses primarily focused on conservation farming practices. For example, one respondent working for a cooperative focused on sustainability practices and working with a high concentration of dairy farms reported that 40-50% of their clients used cover crops and nearly all used nutrient management practices. Additionally, an independent consultant who focused exclusively on organic and conservation farming methods said that all of their growers used conservation methods, but only about half of these clients were doing so because they thought it was important, rather than out of obligation to meet certain criteria. Another inputs company estimated that approximately 35% of their clients were using variable rate nitrogen, and 60-70% were using a solid nitrogen product. Some advisors noted that, contrary to popular belief, variable rate fertilizing often resulted in growers purchasing just as much, if not more fertilizer for their fields, even with application varying across their fields.

In larger companies not primarily focused on conservation practices, several advisors noted that interest in conservation was being driven by key leaders in the

“And hopefully, that sustainable plot will help a little bit, but we need more data locally, that shows growers the potential for conservation practices.”

organization with a passion for the topic. These leaders would push to hire new roles dedicated to conservation practices or begin to encourage staff to take on conservation work across a variety of teams and specialties.

- 5. Most crop advisors said that general services were the most profitable part of their business, followed by fertilizer and seed, data analysis, and chemicals** (see Table 7). Specific services crop advisors noted as being profitable included TSP, whole farm consulting, scouting, nutrient management, and soil sampling. Six of the ten advisors (who responded to the question) reported that their companies sold ag-related products such as seed, fertilizer, and pesticides.

**Table 7: Most Profitable Products and Services**

<b>Products and Services</b>	<b>Frequency</b>
Services (TSP, whole farm consulting, scouting, nutrient management, soil sampling, etc.)	6
Fertilizer	4
Seed	3
Data Capture & Analysis	3
Chemical	2

Companies costed services using two main approaches. The first approach was typical for many of the cooperatives and agricultural inputs companies, who sold product did not charge for general consulting services, including consulting on conservation services. Instead, costs for these services were included in the price of products purchased from the company (e.g., seeds, fertilizer, pesticides). Although this meant that these companies were charging higher rates for products than their competitors, they generally found that growers thought the advising was worthwhile. Some respondents from companies using this costing approach were dubious as to

“I’m not always the cheapest, but I feel I’m worth something to him. So if somebody wants to go down cheaper, the neighbors want to sell at a cost, then go buy from them. Because I’m not gonna bust my butt when I’m on the guy’s yard trying to figure things out and come up with new ideas to release the nutrients that are tied up in the soil—different ideas, where the competition is not bringing in the different ideas. So I’m not going to be cheap. So I’ll be higher than the competition. But I’m gonna be fair, so you either do that or you don’t.”

whether growers would pay for these services separately based on their experiences working with growers.

In contrast, a second, distinct approach was taken by consulting companies and independent consultants. These consultants did not sell any product were only charging for their advisory services. Many of these crop advisors felt quite

strongly about the need to separate agricultural services from product sales. They felt that an advisor working for an inputs company would always be beholden to the bottom line of product sales, even when it was not in the best interest of the grower or their farm. This was particularly the case for incorporating conservation practices. When one independent consultant was asked about the recent trend of larger companies hiring conservation agronomists, the consultant went so far as to state that these larger companies were “greenwashing.”

In terms of product, advisors from a variety of companies noted that they generally saw the profit margins for products such as seed, chemical, and fertilizer shrinking. This was causing many companies to rethink their business model and primary product and service offerings. This will be discussed in the later section on business opportunities.

Data analysis was another important profitable service mentioned by three advisors. These services were seen as a unique value-add that often played a critical role in growers’ decision-making process around conservation practices. For example, some advisors worked for companies with test plots where conservation methods were being compared year over year to conventional farming practices to offer farmers localized, multi-year data to drive their decision-making. Other advisors used mapping of individual farms to offer customized data on cost per bushel and yield analysis. Finally, a number of advisers worked on the data capture and analysis required by carbon credit programs.

**6. Almost unanimously, crop advisors believe there is room for businesses to expand their offering of conservation practices to farmers and noted specific areas where they see both barriers and opportunities for growth.** Ten of the eleven crop advisors interviewed see room for growing conservation agriculture practices as part of their business offerings. A handful of advisors also noted the important role of partnerships, particularly private-public partnerships, in the continued uptake of conservation practices.

The primary barrier for organizations wanting to expand their conservation practices was staffing (see Table 8). Advisors noted factors such as the cost to hire more conservation-focused staff and high turnover/knowledge loss as two issues. One advisor noted that his employer

“There's a lot more synergy and cohesiveness between crop duration and agronomy than people really want to realize if you do nutrient management correctly, or precision ag correctly. It's going to be most profitable for the farmer, but it's also going to have the biggest environmental impact versus just broadcast application of fertilizer. So, they really do go hand in hand if done correctly.”

was hesitant to begin offering a new conservation service/product until they felt as though there was sufficient demand from their clients. Another advisor said their employer had implemented a pilot program where they partnered with another company to lease strip till equipment. Unfortunately, the program had underwhelming result and was cancelled, leading to greater hesitancy now when considering future conservation programming.

**Table 8: Business Barriers to Expanding Conservation-side of Business**

<b>Business Barriers</b>	<b>Frequency</b>
<b>Staffing (all)</b>	<b>5</b>
Staffing (general)	2
Age of staff	1
High turnover, knowledge loss	1
Cost to hire more staff	1
Limited success w/ attempted projects	1
Lack of time	1
Grower resistance to change	1
Sufficient farmer interest	1

“If they come out with a good idea of how to do it, or if they know that they can be able to get it in the spring and still plant and have the soils warm up to get tillage and planting done, at a timely fashion? I think they would all do [conservation tillage]. They wouldn't have a problem with it at all. But they're scared that they're not going to be able to do it.”

Advisors also noted the specific barriers to implementing conservation practices faced by growers. The two primary barriers mentioned were the high cost of equipment for conservation tillage and the Minnesota climate (See Table 9). Conservation tillage equipment

is distinct from traditional tilling equipment and requires a large upfront cost. And in Minnesota, particularly up north, growers face a narrow growing timeframe that can be more challenging for cover cropping and conservation tillage practices for Minnesotan farmers than for farmers in more temperate climates further south.

**Table 9: Grower Barriers to Expanding Implementation of Conservation Practices**

<b>Barrier</b>	<b>Frequency</b>
Cost of equipment	3
Equipment compatibility	1
Minnesota climate	3
Availability of local data for decision making	1
Coordinating various pieces of the conservation puzzle	1

Another barrier noted was lack of localized data for farmers. This included quantitative data on yields and profitability from test plots and other farms, as well as stories of success reported by other growers. Finally, one respondent noted the challenge growers face in fitting together the “puzzle” that is conservation farming practices. Growers must navigate a variety of government programs and subsidies and a variety of service and product offerings—all while continuing to consider the profitability of their farm. Another crop advisor referred to this as the “hurry up and wait,” challenge, noting how growers must “hurry up” to sign up for certain programs or subsidies, only to be forced to “wait” until they reach critical mass or become actionable. As a result, growers interested in conservation practices may be kept waiting for a number of growing cycles before they can actually begin to implement these practices.

“It’s kind of a ‘hurry up and wait’ game. ...everything that is driven with a government subsidy or research base, or anything like that, I mean ... there’s a ton of buzz in the industry. But right now, we can’t substantiate it to the point of ‘this is a good thing,’ or ‘it’s a bad thing,’ and ‘what’s the science behind it telling us and so on so far?’ ... if we do have a good idea, or a producer that’s really wanting to try something, even something as simple as going through the EQIP process might be a two year wait for them. ... being able to make that decision and get it implemented, you know, within that next growing season is a hurdle for some of these guys. And I mean, we can argue if they’re doing it for the right reasons, if it’s solely based on a government payment, or are they truly trying to adopt it? If they really want to do it, they’ll do it out of their own pocket, but it does take that little bit of a nudge sometimes for guys to feel safe with it.”

In the near-, mid-, and long-term future, crop advisors noted a range of trends and possibilities on the horizon for their work, specifically, and the conservation agriculture section more broadly (see Table 10). To address the barrier of the high cost for conservation tillage equipment, two advisors mentioned the possibility of programs to lease equipment or hire a service for conservation tilling. (Two other advisors mentioned experiences with similar programs during their interview, although only one was successful.)

Two advisors also mentioned the

current trend of farms being handed off to younger generations. With this handoff, many advisors were optimistic that younger growers would be more open to conservation practices, particularly if these changes allowed for time savings that meant more quality time with family members. Advisors also noted that they were optimistic about continued expansion of carbon credit programs, and the possibility of a future with expansion into other credit programs for water, phosphate, nitrogen, and more.

“Even after this tornado in December, I think people are getting a more realistic idea of climate change. And then now with carbon markets, and there’s different things that could be coming, like water credit, water credits, they’re talking about nitrogen credits, phosphate credits, things like that. I think there is going to be a bigger business for conservation.”

**Table 10: Opportunities for Future Conservation Practices**

<b>Conservation Practice</b>	<b>Frequency</b>
Conservation tillage equipment (lease, for hire)	2
Farm turnover to younger generations	2
Carbon credits	1
Other credits (water, phosphate, nitrogen)	1
Nitrate sampling	1
Variable rate manure	1
Certified sustainable crops	1
Data services	1
Lab services	1
Weed control	1

As noted earlier, advisors saw data and laboratory services as playing an increasingly important role in the conservation agriculture space. Services such as these equipping growers with more localized data to make informed decisions were seen as playing a crucial role in the pipeline of encouraging growers to implement conservation practices for themselves. Additionally, with profit margins narrowing on products, many businesses saw data services as a strategic area to expand their businesses. For advisors moving away from chemical fertilizers all together, some have already begun or see in the future the possibility of variable rate manure application.

Finally, as the industry created standards around organic certified crops, one advisor noted the possibility future certification of sustainable crops, for which additional costs could be passed on to the consumer, similar to organic products.

## **Conclusion**

The following interviews with 11 crop advisors working in and around Minnesota indicate that while conservation agriculture practices are underway, there remains considerable room for continued expansion. The primary observations from these interviews were, as follows:

1. Cover cropping and conservation tillage were the two conservation practices crop advisors spent most of their time on.

2. Most crop advisors with conservation expertise are found through a grower referral.
3. Nearly all crop advisors said that growers picked them for their experience in conservation methods, yet a sizeable portion still saw discussions about conservation with growers as a two-way street.
4. Even when crop advisors are known for their expertise in conservation practices, the majority of the producers they work with are not implementing these practices.
5. Most crop advisors said that general services were the most profitable part of their business, followed by fertilizer and seed, data analysis, and chemicals.
6. Almost unanimously, crop advisors believe there is room for businesses to expand their offering of conservation practices to farmers and noted specific areas where they see both barriers and opportunities for growth.