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Adoption of Conservation Practices and Farm Goals

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August 1, 2025

***farmdoc daily* (15): 140**

Recommended citation format: Langemeier, M. and A. Balchhaudi. "Adoption of Conservation Practices and Farm Goals." *farmdoc daily* (15): 140, Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign, August 1, 2025.

Permalink: https://farmdocdaily.illinois.edu/2025/08/adoption-of-conservation-practices-and-farm-goals.html

Conservation practices such as the utilization of a no-till crop system, crop diversification, or cover crops can be implemented to improve soil health, reduce soil loss, mitigate net greenhouse gas (GHG) emissions, and promote long-run agricultural sustainability. When making long-run decisions involving conservation, it is important to examine the tradeoff between important goals such as profit maximization, risk reduction, and improving soil health (Langemeier, 2023). A recent survey of 400 U.S. producers was conducted in late February 2025 to assess individual farm goals, producer sentiment, farm growth, succession plans, sustainability and risk preferences, resilience, and adoption of conservation practices. A previous article focused on farm goals and their tradeoffs (Langemeier, 2025). This article focuses on the relationship between farm goals and the adoption of conservation practices.

Survey Results Pertaining to Conservation Practices

As noted in Langemeier (2025), survey respondents that chose conservation as their most important goal represented 10% of the total respondents. Besides conservation, other goals included stable income, profit maximation, farm transfer, and reduction in debt. Results for the entire sample of farms and for those that chose conservation as their most important goal are presented in this section. Given the relative size of the two groups (i.e., aggregate sample and conservation goal group), detailed responses to the survey questions will focus on the entire sample.

Conservation questions included the following topics: introduction of a new crop; adoption of no-till; cover crop use; and changes made in response to long-term changes in weather patterns. Table 1 shows the results corresponding to the key questions related to the introduction of a new crop, adoption of no-till, and cover crop use. There are two columns in Table 1. The first column represents survey response averages for the entire sample of farms. The second column represents the average of responses for the 40 farms that chose conservation as their most important goal.

In the question pertaining to the introduction of new crops, respondents were asked whether they had incorporated a crop outside their usual cropping pattern within the last five years to enhance long-run sustainability. On average, 37% of all respondents and 52% of the conservation group indicated that they introduced a new crop to improve long-run sustainability. The no-till question inquired about the percentage of acreage used for no-till practices rather than whether a farm used no-till practices.

Approximately 50% of all respondents used no-till practices on more than one-half of their acreage. For the conservation group, this percentage increased to 62%.

Table 1. Adoption of Conservation Practices

Conservation Question	Aggregate Sample	Conservation Goal
In the last five years, have you introduced a new crop beyond your usual cropping pattern to improve long-run sustainability?		
No	63.0%	47.5%
Yes	37.0%	52.5%
On average, what percent of your crop acreage uses no-till practices?		
0 to 50%	49.7%	37.5%
51 to 100%	50.3%	62.5%
Have you ever planted a cover crop on your operation?		
No	27.0%	27.5%
Yes, in the past	17.8%	15.0%
Yes, currently	55.2%	57.5%
How many years have you planted cover crops (only addressed to those that currently plant cover crops)?		
1 to 5 years	35.7%	43.5%
6 or more years	64.3%	56.5%
Annually, on what proportion of your farm did you plant cover crops (only addressed to those that currently plant cover crops)?		
Less than 50%	78.7%	87.0%
50% or more	21.3%	13.0%

Source: Survey of U.S. Producers, February 2025 farmdocDAILY

The survey contained seven questions related to cover crops. Average responses to the first three questions can be found in Table 1. The first cover crop question in Table 1 asked respondents whether they have ever planted cover crops. Approximately 27% of all respondents and of those in the conservation group answered “no” to this question. Approximately 18% of all respondents used cover crops in the past but are not currently using them. Disadoption of practices such as the use of cover crops is not that uncommon. Plastina and Sawadgo (2021) indicated that 11% of the counties in Iowa, Illinois, and Indiana disadopted cover crops between 2012 and 2017. The second cover crop question in table 1 asked those that currently use cover crops the number of years they had planted cover crops. The average number of years for the entire sample was 12.3 years. Approximately 64% of respondents have used cover crops for more than 6 years. For the conservation group, approximately 56% have used cover crops for more than 6 years. The third cover crop question in Table 1 asked those that currently use cover crops the proportion of their farm that utilizes cover crops. The average percentage for the entire sample was approximately 39%. Approximately 21% (13%) of the entire sample (conservation group) used cover crops on more than 50% of their acreage.

Additional cover crop questions addressed reasons, motivation, and experience associated with cover crop use (Table 2). One of the questions was targeted to those respondents who have never used cover crops. The question aimed to identify the primary reason for not adopting cover crops. Approximately 30% of the respondents indicated that cover crops were not profitable while 18% cited lack of resources or expertise as their primary reason. In the case of the conservation group, 36% stated that lack of profitability was their primary barrier while none of the respondents identified limited resources or

expertise as a major constraint. The second question in Table 2 was directed at respondents who had used cover crops in the past but later discontinued their use. In this question, we were particularly interested in finding reasons for discontinuing cover crop use. Approximately 20% of respondents indicated that the primary reason for discontinuing cover crops was lack of resources and expertise. The third question in Table 2 was targeted at those that currently use cover crops and aimed to assess their primary motivation for the use of cover crops. Approximately 41% of respondents identified soil health improvement as their primary motivation for adopting cover crops, whereas 34% indicated erosion control as their main reason for adoption. In the last cover crop question, we asked respondents to best describe their past experiences with cover crops. Approximately 71% of the respondents indicated that cover crops improve soil health and crop yields. Approximately 19% of the respondents indicated that cover crops improve soil health but hurt crop yields.

Table 2. Reasons, Motivations, and Experience Associated with Cover Crop Use

Conservation Question	Aggregate Sample	Conservation Goal
What is your primary reason for not using cover crops?		
Not profitable	29.6%	36.4%
Hurt yields of cash crops	9.3%	9.1%
Insufficient soil benefits	9.3%	9.1%
Lack of resources and/or expertise	17.6%	0.0%
Other	34.2%	45.4%
What was the primary reason for discontinuing cover crops?		
Not profitable	16.9%	16.7%
Hurt yields of cash crops	16.9%	0.0%
Insufficient soil benefits	11.3%	0.0%
Lack of resources and/or expertise	19.7%	16.7%
Other	35.2%	66.6%
What are your primary motivations for planting cover crops?		
Improve soil health	41.3%	42.8%
Improve erosion control	34.4%	34.3%
Improve water quality	8.0%	8.6%
Comply with carbon sequestration contract	3.4%	5.7%
Suppress weed and pest infestations	12.9%	8.6%
Which statement best describes your past *experience* with cover crops?		
Improves soil health and improves yields of cash crops	71.5%	60.9%
Improves soil health, but hurts yields of cash crops	19.0%	30.4%
Does not improve soil health, but improves yields of cash	5.9%	4.4%
Does not improve soil health and hurts yields of cash cro	3.6%	4.4%

Source: Survey of U.S. Producers, February 2025

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Respondents were also asked if they had made changes to their farming operation in response to long-term changes in weather patterns (Table 3). Approximately 27% of the entire sample and of the conservation group answered this question affirmatively. In terms of climate change adaptation,

respondents were given the following choices: installed tile drainage, installed irrigation, planted cover crops, changed crop mix, adopted no-till, changed crop varieties, and changed planting dates. The three most common adaptations, in order, were changed planting dates, installed tile drainage, and changed crop varieties. In contrast, among the conservation group, the top three adaptations were adjusting planting dates, planting cover crops, and changing crop varieties.

Table 3. Changes Made in Response to Long-Term Weather Patterns

Conservation Question	Aggregate Sample	Conservation Goal
Have you made any changes in your farming operation in response to long-term changes in weather patterns in your area?		
No	70.5%	65.0%
Uncertain	2.2%	7.5%
Yes	27.3%	27.5%
What are the biggest changes you have made?		
Installed tile drainage	17.2%	10.0%
Installed irrigation	11.2%	5.0%
Planted cover crops	8.9%	20.0%
Changed mix of crops planted	11.2%	10.0%
Adopted no-till	16.6%	10.0%
Changed crop maturities or varieties planted in response	16.6%	15.0%
Changed planting dates to adjust for weather variation	18.3%	30.0%

Source: Survey of U.S. Producers, February 2025 farmdocDAILY

Though not shown in this article, the individual conservation practices were significant and positively correlated with each other. This implies that a farm that adopts an individual conservation practice tends to also adopt the other conservation practices. The largest correlations were between the introduction of a new crop and the adoption of cover crops.

Relationship between Conservation and Farm Characteristics

For the conservation goal question, as with the other goal questions, respondents were asked on a Likert scale from 1 to 5, where 1 is not important and 5 is very important, how they would rate the goal. The answer to the conservation goal question for each respondent was then correlated with answers for other questions in the survey. The correlations between the conservation goal scale and selected farm characteristics are reported in Table 4.

Table 4. Correlation between Conservation Goal and Farm Characteristics

Question	Conservation Goal
Producer Sentiment (ag economy barometer)	-0.014
Farm Growth	0.005
Add Additional Family Member in Next 5 Years	-0.015
Priortization of Long-Run Sustainability Goals	0.129***
Risk Preferences (lower index value; stronger risk aversion)	0.078*
Regret (lower index value; less tendency to second quess decisions)	0.081*
Have a strong balance sheet	0.046
Regularly assess advantages and disadvantages	0.053
Introduction of new crop	-0.012
Adoption of no-till practices	0.122***
Adoption of cover crops	0.020
Adaptation to changing weather patterns	0.033
Farm size (total acres operated)	0.015
Education level	0.018
Operator age	-0.006
Farm Goal: Stable Income	0.212***
Farm Goal: Profit Maximization	0.281***
Farm Goal: Sucession	0.198***
Farm Goal: Reduce Debt	0.181***

Note: Significance levels: p < .01 '***'; p < .05 '**'; p < 0.1 '*'

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The conservation goal was significant and positively correlated with responses for the following questions: prioritization of long-term sustainability goals, risk preference (the conservation group was less risk averse), regret, and the adoption of no-till practices. It was not surprising to find a significant and positive correlation between the conservation goal and sustainability and between the conservation goal and the adoption of no-till practices.

The conservation goal was also significant and positively correlated to the other four goals examined in this study: stable income, profit maximization, succession, and reduction in debt. As noted by Langemeier (2025), farm goals are not uni-dimensional. Those that identified a particular goal as being important (e.g., conservation goal) tended to think that one or more of the other goals was also important.

Conclusions

This article presents results from a recent survey pertaining to farm goals, and discusses the relationships between farm goals and the adoption of conservation practices. Approximately 10% of a sample of U.S. farms indicated that conservation was their most important farm goal. There was a significant and

positive correlation between the relative importance of the conservation goal and both sustainability and the adoption of no-till practices. Of those that chose conservation as their most important goal, approximately 52% introduced a new crop into their crop rotation in the last 5 years, 62% used no-till on at least one-half of their acreage, 57% currently utilize cover crops on at least a portion of their acreage, and 27% have made changes to their farm operation in response to long-term changes in weather patterns.

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