MSU & USDA Corn and Soybean Grower Survey: Cognitive Interviews

Introduction

In this information collection, we conducted qualitative cognitive interviews with corn-soy growers to support the development of a survey that aims to understand the scenarios under which farmers adopt cover crops. The target population for these interviews was corn-soy growers in Midwestern states who use or may use cover crops. We used a convenience sample of farmers recruited through Natural Resources Conservation Service (NRCS) officials and academic partners.

The main focus of the cognitive interviews was to understand respondents' perceptions of alternate cover crop contract scenarios. Interviews also assessed respondents' understanding of other questions about farm management, cover crop practices, environmental attitudes and values, and demographics, and identified any difficulties associated with them in order to reduce cognitive burden of the final survey instrument.

In total, we conducted 16 interviews representing different climate and soil types in seven states and across three ERS Farm Resources Regions:

- 5 interviews in the **Northern Crescent** (Michigan)
- 7 interviews in the **Heartland** (Iowa, Indiana, Illinois, and Missouri)
- 4 interviews in the **Prairie Gateway** (Kansas and Oklahoma)

Time taken on the surveys ranged from 20-35 minutes, with an average time of 28 minutes. Each respondent took some breaks for questions and discussion while taking the survey. We estimate that for the full survey, a median response time will be roughly 25 minutes. The primary goal of these interviews was to ensure that farmers could understand and answer survey questions, particularly the more complex enrollment questions (survey question CE.1), and as a whole, we found that our interviewees did not have any difficulties with the questions.

Question 1 asked about general perceptions of the survey as a whole.

Respondents generally thought that our survey asked relevant questions typical of other academic and Federal surveys about farming. Some noted that the cover crop enrollment questions (Survey Question CE.1, Versions 1 and 2) were engaging, and one said they were expecting more straightforward questions about crop history, but that the enrollment questions were about contracts that might exist in the future.

Questions 2-15 refer to two alternate formats of a cover crop contract enrollment decision (Survey Questions CE.1, Versions 1 and 2).

Question 2 asked for general comments on the cover crop enrollment question.

During the interviews, rather than asking for general comments, we typically conducted more in-depth discussions about their thought process while making a decision on the enrollment question rather than asking for general comments. By doing so, we minimized the number of repetitive questions and reduced burden on interviewees.

Question 3 asked respondents to talk through their thought process for how they answered the enrollment question.

In the survey, we will test how different features of cover crop contracts influence enrollment decisions in cover crop contracts. The features include:

- Cover crop seed mix
- Contract length and flexibility
- Timing of cover crop termination and cash crop planting
- Application time and location
- Professional advice before and after planting
- Contract processing time
- Payment provider
- Per acre payment
- Signing bonus

In general, respondents were able to understand the choice task extremely well. Typically, they had no problems understanding the features of cover crop contracts that we tested and clearly explained what influenced their decisions. Some respondents asked about aspects of contracts that were not one of the features (e.g., penalties if they could not meet contract requirements, seeding rate requirements). However, when probed, these respondents could clearly state what their assumption would be in lieu of further information on the survey.

Most respondents felt that per-acre payment and contract flexibility were most important to them when making a decision. Other administrative aspects of the contracts they were shown might matter to some but were generally less important than the per-acre payment, seed mix, and termination requirements. None of the respondents felt that signing bonus influenced their decision. We will not include signing bonus as an attribute in the full survey.

Question 4 sought to ensure that respondents understand the contract attributes in the enrollment question in the way the survey intended.

Throughout the interviews we found that respondents were very familiar with making the kinds of decisions presented to them in the enrollment question. They had no problems explaining the different contract attributes in their own words.

Question 5 asked about what benefits the respondents thought the proposed contract in the enrollment question might provide to them.

The main benefit that was mentioned was the per-acre payment, though some also mentioned soil and moisture benefits.

Question 6 asked respondents to describe differences they noticed between the two contract alternatives in the enrollment question.

Respondents were able to clearly describe whether the different contract alternatives would fit into their management systems based on their respective requirements and weigh the potential benefits or costs of accepting a contract.

Question 7 asked whether the proposed contracts would change the way they were farming on that field.

The primary goal of this question was to investigate whether respondents were thinking through requirements when they answered. If respondents accepted a contract, they were able to describe why the features of that contract worked with their management system, if any changes were needed, and if any of the requirements were potentially challenging. The changes required were unique to both the scenarios posed in the survey and farmers' specific circumstances, including aspects of their operation, the field they identified, equipment available to them, and typical weather conditions in their region. These responses indicated that farmers had a good understanding of their management system and what was feasible on their fields.

Question 8 is an alternate way of ensuring that respondents understood the contract attributes (similar to Question 4).

Respondents had no difficulties understanding the different features of the contracts presented to them.

Question 9 asked what respondents would do if they chose not to enroll in a contract.

Respondents walked us through their current management systems and described why the contract they were presented with would or would not work for that field. Some respondents use cover crops with or without financial support and would continue even if they chose not to enroll in the contract. Other farmers had features of their production that inconvenience using cover crops under the range of payments being offered. These included interactions between their crop rotations and the climate in their area leading to difficulties planting and establishing a cover crop, lack of equipment, risk of lower yields on their cash crop, and others. In the final survey we will ask about barriers to planting cover crops that may be influencing these decisions in survey question B.27.

Question 10 asked whether respondents thought their field was eligible for the contract in the survey. Its purpose was to gauge whether respondents made any assumptions related to their eligibility in programs.

Respondents assessed contracts as if their fields were eligible.

Question 11 asked for thoughts about an alternate version of the enrollment question. Format A presented two contracts side by side, and respondents chose whether they would

enroll in one of the two contracts or neither of them. Format B showed a single contract, and respondents chose whether or not they would enroll in that contract. We varied which format each respondent saw first.

Nearly all respondents preferred Format A (two contracts side by side) because they liked being able to think through the differences in each contract and consider management strategies that would make contracts work for their operation.

One respondent noted that decisions on Format B seemed more final because the responses were a simple yes or no, rather than a choice of the best alternative. No other respondent said that one format was more "real" than another, though some noted that format A was more difficult. However, even this respondent was able to make an enrollment decision and explain their choice.

The purpose of Question 11 was to test whether more complex question formats which are preferred for statistical reasons (such as Format A) would be confusing or difficult for respondents compared to the format with a binary choice (Format B) which has some theoretical advantages. Based on responses during interviews, there are positive aspects to both formats, and the research team will consider splitting the sample so that some surveys use Format A and others use Format B.

Question 12 offered another possible probe to spur discussion of the second choice enrollment format, asking respondents what they thought a Yes or a No to the enrollment question meant.

Respondents all seemed to understand the response options and the implications of a yes or no response, especially since the questions were well understood and familiar to the farmers.

Question 13 asked whether respondents thought their responses would impact the types of programs offered to them.

Generally, respondents felt their responses would influence the types of programs that might be available in the future which indicates that the respondents treated the questions seriously and felt they were consequential.

Question 14 asked whether respondents would want any of the contracts presented in the survey to be available to them.

Respondents who were shown a contract with a combination of high payment levels, high flexibility, and short processing time did want such options offered through existing programs. The final survey will include contract scenarios with different combinations of attributes determined by an experimental design. By observing farmers' decisions over a range of different contract scenarios, we will be able to estimate statistical models of farmer preference for contract features.

Question 15 asked whether respondents were sensitive to field selection for the enrollment question.

In section B of the survey and for the enrollment questions, we asked respondents to select a specific field to answer for. We tested two methods of field selection: (1) largest field in corn or soybeans; or (2) largest field in corn or soybeans *that had been enrolled in an NRCS contract before* (if applicable).

Most respondents did not have a field that had been enrolled in an NRCS contract before, therefore, nearly all respondents selected their largest field planted to corn or soybeans in the last year.

Some respondents had very little variation in field size, soil type, slope, or erosion concerns, and typically managed all their fields in the same way. For those respondents, the choice of field did not make a difference to any responses on the enrollment question. Other respondents managed operations with fields of varying sizes or management considerations and made enrollment decisions that were field-specific. For example, one respondent noted that their answers for a field was very large would be different than for one of their smaller fields due to the financial and labor costs of seeding cover crops.

Both versions will be used going forward since we plan to stratify the sample so that some respondents will have no prior NRCS contracts and use Version 1, and others will have prior NRCS contracts and use Version 2.

Question 16 assessed the cognitive burden of farm and field management questions.

Respondents easily and quickly answered all survey questions on past farm and field management. Record gathering was not necessary.

Questions 17 and 18 aimed to better understand respondents' perception of their field. Question 17 asked what benefits respondents would see from using cover crops on their selected field, and Question 18 asked what problems they see from using cover crops on that field.

Many respondents discussed the perceived risks or costs of using cover crops under certain weather conditions. For example, some discussed that it is more difficult to terminate the cover crop and plant a cash crop under wet conditions and it may be harder to establish a cover crop under dry conditions. We plan to adjust wording in survey question B.26 to clarify which risks are related to weather.

Question 19 asked whether respondents felt the survey was repetitive with other Federally administered USDA surveys and their overall perception of the survey.

Respondents overall had a positive perception of the survey and its potential benefit to the public.

Question 20 was an opportunity for final thoughts from the respondent on the survey, suggestions for better wording of survey questions, or other comments before concluding the interview.

Throughout the interviews we identified areas where question wording or images could be improved for better understanding. However, respondents typically reacted positively to the survey.

Discussions of the yield impact questions (B.28 and B.29).

Most respondents had no difficulty answering these questions. However, a few interpreted "favorable conditions" as conditions under which cover crops improved yields the most (which in some cases could be years with bad weather for the cash crop). We will include examples of favorable and unfavorable conditions in the full survey so that all respondents interpret "favorable conditions" to be those under which there is easy growth and termination of cover crops.

Some respondents noted that the yield impacts of cover crops during unfavorable conditions could be much greater than 5% decreases in yields. Therefore, during the full survey we will increase the range of these answer categories so that the lowest category is "Over 10% lower" and the highest category is "Over 10% higher".