

Mental Models Study of Farmers' Understanding and Implementation of Good Agricultural Practices

Draft Mental Models Interview Protocol

Solicitation

Hello, this is <name> with Decision Partners. We are working with agricultural experts from the FDA to better understand how to communicate effectively with produce growers about microbial food safety hazards of fresh and fresh-cut fruits and vegetables. As part of this project, we're contacting growers like yourself to see if you would be interested in participating in this project. If you are interested, we would conduct an interview over the phone at a time that is convenient to you. The conversation will be confidential and would take about 45 minutes. Would you be willing to participate in a research interview?

Interviewer makes arrangements to call at the scheduled time.

Introduction

Hi, this is <name> with Decision Partners. As I explained when I set up this interview, we working with agricultural experts from the FDA to talk to growers about their understanding and awareness of the food safety hazards of fresh and fresh-cut produce and the things that growers might do to minimize these risks. This research will help be used to improve communication and education activities.

I have a list of questions to help guide our discussion, but please feel free to raise anything that comes to mind as we go along and to skip over any questions you do not wish to answer.. In this kind of an interview, there are no right or wrong answers. All of your comments add value to the research. I also want to assure you that we will not identify you as the specific source of any comments in our report. Instead, the report will consolidate the responses of everyone we interview.

Before we start, in order to ensure that my notes of our conversation are accurate and complete, I'd like to ask your permission to record our conversation, but I would like to stress again that your responses will be kept confidential. The recording will only be used to create better notes and will be destroyed at the conclusion of the project. No personally identifying information will be passed along to the FDA or any other government agencies. May we proceed on that basis?

Opening

Our discussion will have four main parts. First we'll talk generally about your farming practices. Next, we'll talk about your thoughts on produce contamination. Then we'll discuss communications on food safety hazards. And finally, we'll finish up with any final thoughts you might have and some questions about you.

Notes to interviewers:

- Growers may mention other types of contamination (e.g., chemicals, pesticides). Reiterate that we're focusing here on microbial contamination.
- Follow the "if not mentioned" instructions and either skip questions they've already mentioned or, when appropriate, acknowledge that they've already mentioned something and move straight to the follow-ups.

Part 1: Farming Activities

First, let's begin by talking generally about the kinds of farming that you do. So, to start off,

1. Please tell me about your farming operations.

If not mentioned:

- What crops do you produce? (*If it's a large number of crops: What are your primary crops?*)
- How many acres do you farm?
- About how many workers do you have on your farm?
- How many years have you been farming?
- Are you "organic" or "certified naturally grown"?
- Where do you sell your produce? Is any of your produce sold fresh?

2. How would you describe your most important roles on the farm – that is, what duties are you personally responsible for?

3. In general, what are your goals or objectives for the farm? How would you define success?

If they mention contamination issues here, note, but don't go into too much detail, and say:

- We're going to get into more detail on the issue of contamination and goals for contamination in just a moment. For now, are there any other, non-contamination goals?

4. What are the most significant challenges or obstacles that you face in trying to achieve your goals for the farm?

Part 2: Thoughts on Contamination Hazards, Prevention & Response

Now I am interested in hearing from you about safety hazards on the farm that affect fresh produce. I will begin by asking you to think about contamination in general, how it relates to activities on your farm, and what you might do if a source of contamination was discovered on your farm.

Hazards

[Interviewer note: Here we ask in terms of "types of contamination" (e coli, salmonella, etc.). They may respond in terms of sources of contamination (contaminated water, manure from wildlife, sick workers, etc.). Allow them to answer in the way they perceive contamination – in terms of the type or the source. However, be sure to probe for both if only one is supplied. Also, we are concerned with hazards on the farm and not down the line in the supply or delivery chain.]

5. First, thinking about the crops you grow, what types of contamination do you face? Anything else?

If not mentioned, for each:

- What is the type of contamination you're talking about, the microbe (or bug) that is coming from this source?
- What is the source of this contamination?

If they have leafy green crops (e.g. cilantro, parsley, lettuce, spinach, etc.) and not already mentioned:

5a. Are there any contamination hazards that specifically affect your leafy green crops?

If they have melon crops and not already mentioned:

5b. Are there any contamination hazards that specifically affect your melon crops?

If they have tomato crops and not already mentioned:

5c. Are there any contamination hazards that specifically affect your tomato crops?

6. Are there any other sources of contamination?

If not mentioned, for each:

- What is the type of contamination you're talking about? What is the microbe (or bug) that is coming from this source?

If not mentioned:

6a. What about water used for irrigation or washing? *[If they have already mentioned one of these, only prompt for the other.]*

- What kind of irrigation system do you use?

Note to interviewers, here are types of systems they may mention:

Sources

- surface water (ponds-labile to contamination from wildlife, geese, etc.)
- ground water (wells)

Distribution systems

- overhead (sprinklers)
- drip (a tube on the ground by the plant's roots)

If not mentioned:

6b. What about manure, either as a fertilizer or droppings from livestock or wildlife? *[If they have already mentioned one of these, only prompt for the others: fertilizer, livestock or wildlife. If they are talking about droppings be sure to understand whether it is from livestock or wildlife.]*

If not mentioned:

6c. What about contamination from unsanitary farm equipment?

If already mentioned, acknowledge, but still ask:

7. How might contamination of produce be caused by people?

For workers:

- What is their role on the farm?
- What are they doing that causes the contamination?

If not mentioned:

7a. How might contamination be caused by people who visit your farm?

- Why are they on the farm?
- What are they doing that causes the contamination?

8. You've mentioned *[list the contamination types they've mentioned]*. Of these potential types of contamination, which are you most concerned about?

- Why do you say that?

Prevention

Now I'd like to ask you about how contamination can be prevented.

9. What would you say are your goals for reducing the risk of contamination on your farm?

- Why are these goals important?
- Anything else?

9a. How much influence would you say government regulations have on your goals for preventing contamination? Would you say Very, Somewhat, or Not at all Influential?

9b. What about the influence of your wholesale buyers? Very, Somewhat, or Not at all Influential?

9c. What about the influence of your *other* customers? Very, Somewhat, or Not at all Influential?

If they mention preventive actions earlier in the interview, note here and move straight to follow-up: You already mentioned [list prevention activities (e.g., personal hygiene, the use of compost for fertilization instead of manure)] are there other prevention activities that you take?

10. What actions do you take to prevent contamination?

- Why do you do this as opposed to something else?
- Are there any other prevention activities that you take?

Now I'm going to ask you about a number of specific areas of prevention activities, some of which you may have touched on already.

10a. First, what prevention activities, if any, do you do related to water contamination?

- Why do you do this as opposed to something else?
- Anything else?
- *if nothing:* Why don't you do anything in this area?

10b. Next, what prevention activities, if any, do you do related to contamination from manure?

- Why do you do this as opposed to something else?
- Anything else?
- If nothing: Why don't you do anything in this area?

10c. Next, what prevention activities, if any, do you do related to contamination from wildlife droppings?

- Why do you do this as opposed to something else?
- Anything else?
- If nothing: Why don't you do anything in this area?

10d. Next, what prevention activities, if any, do you do related to contamination from farm equipment?

- Why do you do this as opposed to something else?
- Anything else?
- If nothing: Why don't you do anything in this area?

10e. Next, what prevention activities, if any, do you do related to contamination from people?

- Why do you do this as opposed to something else?
- Anything else?
- If nothing: Why don't you do anything in this area?

10f. We've discussed preventive actions related to water quality, manure contamination, equipment sanitization, and worker hygiene. Which of these would you say is most effective at preventing the contamination of produce? Why?

11. Some organizations such as the FDA or university extensions suggest a formalized set of farm practices with record-keeping requirements. These are designed to reduce the likelihood of contamination and may be known as "Good Agricultural Practices" or GAPs, Are your prevention activities based on one or any of these programs?

If yes:

- Which organization's GAPs program do you follow? Why them? How did you find out about them?
- Which prevention areas above do you employ GAPs?

12. What barriers make it difficult for you to adopt contamination prevention measures?

If not mentioned:

12a. What about access to technology or specialized equipment, would that be a barrier? Why? [e.g., special testing or cleaning equipment]

Response

Now I'd like to talk about how you would respond to a contamination incident on your farm.

13. First, how would you know if you had contamination on your farm?

14. What steps would you take if you discovered contamination on your farm?

- Why would you do this as opposed to something else?
- Anything else?

15. How prepared would you say you currently are to deal with produce contamination if it occurs? Would you say Very; Somewhat; or Not at all Prepared?

- Why do you say that?

16. Are there other people, not part of your farm operations, who would help you deal with contamination if it was discovered on your farm? Anyone else?

If not mentioned:

- Who are they?
- How would they help you? What is their role?

For 16 a, b, c, if they've already mentioned role, just ask rating...

16a. What would be the role of government agencies in dealing with a contamination incident?

- How effective would government agencies, such as USDA and FDA, be in helping you to deal with a contamination incident? Very, Somewhat, or Not at all Effective? Why do you say that?

16b. What would be the role of University Extension in dealing with a contamination incident?

- How effective would University Extension be in helping you to deal with a contamination incident? Very, Somewhat, or Not at all Effective? Why do you say that?

16c. What would be the role of commodity groups in dealing with a contamination incident?

- How effective would commodity groups be in helping you to deal with a contamination incident? Very, Somewhat, or Not at all Effective?

If they don't mention...

16d. What is the role of your suppliers? (people who sell them seeds, chemicals, fertilizers, etc., other inputs)

16e. What role, if any is there for your wholesale buyers?

17. How significantly would a contamination incident at your farm affect your operations?

If not mentioned:

- How would it affect you from a customer relationship standpoint?
- How would it affect you financially?

18. How significantly would a contamination incident at another farm that produces the same crop as you affect your operations?

19. How would a contamination incident affect consumers or society in general?

Part 3: Risk Communication

Finally, I'd like to ask your thoughts on sources of information and the role of communications in running your farm.

20. Where do you go for general information, not specific to contamination, about ways to improve how you run your farm? Why do you go there?

21. If you wanted to learn more about the safety of fresh and fresh-cut produce and the ways to prevent contamination, where or to whom would you go for information? Why?

21a. Right now, are there any particular contamination risks or prevention activities that you would like more information on?

21b. How would you like to receive that information (e.g., written materials, training classes, in-person visits)?

21c. Would you look for or consider specific GAPS training program? Why or why not? *If yes, From where?*

Now I'm going to mention a number of sources that growers might use for information on produce safety and ask you to rate each one.

22. First, University Extension. In the past 2 years, have you approached University Extension to learn about produce safety and contamination?

- How would you rate University Extension on their outreach and communications to growers? Would you say it is Very good, Satisfactory or Poor? Why?

23. Next, government sources. In the past 2 years, have you approached any government agencies or departments to learn about produce safety and contamination?

- *If so, which government sources?*
- How would you rate government sources on their outreach and communications to growers? Would you say they are Very good, Satisfactory or Poor? Why?

24. And commodity groups like the Ohio Produce Growers and United Fresh. In the past 2 years, have you approached commodity groups to learn about produce safety and contamination?

- How would you rate commodity groups on their outreach and communications to growers? Would you say they are Very good, Satisfactory or Poor? Why?

25. How about farm advocacy groups like the American Farm Bureau? In the past 2 years, have you approached farm advocacy groups to learn about produce safety and contamination?

- How would you rate farm advocacy groups on their outreach and communications to growers? Would you say they are Very good, Satisfactory or Poor? Why?

26. How about farm your buyers? In the past 2 years, have you approached your buyers to learn about produce safety and contamination?

- How would you rate buyers on their outreach and communications to growers? Would you say they are Very good, Satisfactory or Poor? Why?

27. And third-party farm auditors, such as university farm analysis [or in Ohio, CIFT, Center for Innovative Food Technology. In the past 2 years, have you approached farm auditors to learn about produce safety and contamination?

- How would you rate third-party farm auditors on their outreach and communications to growers? Would you say they are Very good, Satisfactory or Poor? Why?

28. How about, private consultants? In the past 2 years, have you approached private consultants to learn about produce safety and contamination?

- How would you rate private consultants on their outreach and communications to growers? Would you say they are Very good, Satisfactory or Poor? Why?

29 Finally, how about other farmers? In the past 2 years, have you talked to other farmers to learn about produce safety and contamination?

- How would you rate other farmers on their knowledge or helpfulness? Would you say they are Very good, Satisfactory or Poor?

30. Are there any other information sources I haven't mentioned that you have approached in the past 2 years to learn about produce safety and contamination?

- *If so, which sources?*
- How would you rate this source on their outreach and communications to growers? Would you say they are Very good, Satisfactory or Poor? Why?

31. Of all the information sources that we've discussed, which would you say is the most useful to you when it comes to produce safety and contamination? Why?

32. Do you participate in any continuous learning programs or training activities to learn about produce safety?

If so:

- Which programs or activities?
- How would you rate these programs or activities? Would you say they are Very good, Satisfactory or Poor? Why?

Closing

You've been very helpful and I appreciate the time you've taken to speak with me today. Before we finish,

33. Is there anything else that came to mind while we were talking that you would like me to include in our research?

34. If you could offer one piece of advice to the FDA regarding the safety of fresh and fresh-cut produce, what would that be?

35. Demographic Questions

35a. What is your approximate age? Are you in your 20s, 30s, 40, 50s, or 60 and above?

35b. What is approximate range of revenue that you generate from your crops annually?

- up to \$50,000 (micro)
- up to \$100,000 (small)
- up to \$250,000 (small medium)
- Over \$250,000 (medium large)

35c. May I ask what is the highest level of education that you have completed? Below high school, high school graduate, some college or university, college or university graduate, post-graduate education.

35d. Record gender.

I'd like to thank you once again for the time you've taken to share your knowledge and expertise on this issue. Your thoughts and ideas will be very valuable to our team in learning about the safety of fresh and fresh-cut produce and the best ways to communicate with growers.

If you have any questions about this research or about Decision Partners, you can get in touch with Sarah Thorne or Gordon Butte through Decision Partners' office at (877) 588-9106 (or take their number and say that we will have someone contact them).