

7. Surveys



7.1 Overview of the Method

Surveys are a cost-effective way of gathering information on FLW quantities or other information (e.g., attitudes, beliefs, self-reported behaviors) from a large number of individuals or entities. One of the defining characteristics of a survey is that questioning is structured—in other words the questions are specified in advance and written down. In the context of quantifying FLW, surveys fall into three distinct categories:

- ▶ Surveys that ask respondents to provide *prior measurements or approximations* of FLW
- ▶ Surveys that ask for *other factual information* that enables the researcher to make an estimate of FLW (e.g., information about the number, size, fullness, and frequency of collection of FLW containers that can be converted into a volume of FLW, or inputs to an inference-based method)
- ▶ Surveys that ask respondents to provide *their perceptions* of the types and amounts of FLW through recall or visual approximation

Ideally the quantification of FLW would be carried out through other means in addition to the survey (e.g., weighing, diaries, or waste composition analysis) and the data from these methods combined with the information collected through the survey. A survey can be especially useful when an entity is seeking to design effective interventions to reduce FLW and is looking to gather insights about the attitudes, values, and behaviors associated with specific amounts and types of FLW.

Surveys require questionnaires, which can either be administered by an interviewer or distributed to respondents to complete themselves.

Survey data consist of individual responses (referred to as cases) and attributes by which the responses vary (referred to as variables). Data from surveys are analyzed using quantitative techniques such as frequency counts and cross-tabulations, the choice of which will depend on the nature of the variables. Qualitative data can also be collected, often in response to “open” as opposed to “closed” questions. In surveys, responses to open questions are often coded to transform them into quantitative data.

ADVANTAGES AND DISADVANTAGES

There are three main advantages of using surveys:

- ▶ **Cost and time.** Surveys are typically cheaper than carrying out measurement-based methods and require less time than other multi-step methods (e.g., waste composition analysis).
- ▶ **Participation.** Respondents may feel more involved in survey-based research than they do in a measurement program, because they are asked for their thoughts and opinions.
- ▶ **Added value information.** Surveys enable easy gathering of useful additional information. For example, data on respondents’ knowledge of FLW can be gathered, and information about their attitudes and claimed behaviors can be combined with FLW data to understand the causes of FLW and devise successful intervention strategies. While approaches other than surveys can also gather views (e.g., through informal discussions during site visits), that information is not systematically recorded and so cannot be readily analyzed.

There are three main disadvantages:

- ▶ **Difficulty of conveying important concepts.** The definition of “food” (i.e., excluding the associated inedible parts) is not commonly understood so simply asking people to recall “food waste” incidents may lead to misleading results. Respondents typically pay little attention to instructions, definitions, and other parts of a survey that they find less interesting, so the risk of misunderstanding and varying interpretations across respondents is high.
- ▶ **Single respondent bias.** A survey relies on a single respondent reporting on behalf of an entire household or business. For household surveys, this assumes that the respondent is aware of, and can recall, the FLW of every household member. A diary-based approach might result in more accurate data if this is the purpose of the survey. In the case of businesses, a survey assumes that the respondent knows about the FLW of the whole business.
- ▶ **Unreliable responses.** A major disadvantage of using surveys (especially those based on recall) for the purpose of quantifying FLW is that, as with all claimed behavior methods, they are prone to error. For example, even where all FLW events are recalled and reported to a researcher, the respondent also needs to accurately approximate the amount of FLW generated. This is not a simple task and can easily introduce errors of estimation.

“Food-wasting” behaviors are not high profile in most people’s lives, whether at home or in a business context, so asking questions about them may result in unreliable responses or no response at all. The routine, habitual nature of food management means FLW often goes into collection containers and gets taken away with very little thought.

When asking about attitudes, individuals’ thoughts and beliefs may not be deeply held or well considered so the responses they give may not reflect reality. For example, the survey might be the first time that the respondent had given FLW any thought at all. Many people do not recognize themselves or their entities as “food-wasters” and will regularly report that they do not generate any FLW at all even where they do.

The respondent may give responses that he or she thinks are required. This may be done to please the surveyor, or out of self-interest, for example, if the respondent believes that some material benefit may be gained, such as a subsidy or assistance in improving postharvest activities.

LEVEL OF EXPERTISE REQUIRED

It takes skill and experience to design and administer a successful questionnaire, which is a core element of any survey. The robustness of the sampling framework is a key determinant of the uncertainty associated with the results and advice should be sought from someone with a good knowledge of statistics. Similarly, data should be analyzed by someone with previous experience. Ideally, experienced researchers should be used to conduct the study; at a minimum, advice should be sought from experts.

COSTS

The cost of a survey is determined by two factors:

- ▶ the mode of administration or means of distribution (i.e., face-to-face, mail/post, online, telephone); and
- ▶ the size of the sample.

Face-to-face surveys are typically the most expensive option and online surveys typically the least expensive. However, the choice has to be balanced against response rate considerations because the higher the response rate the less uncertainty will usually be associated with the results. Face-to-face surveys typically achieve higher response rates than other approaches. The cost of sending reminders to respondents must be factored in because few people will respond to the first request. The associated costs of the various possible approaches (noted in parentheses) include:

- ▶ Travel (face-to-face)
- ▶ Stationery and postage, both outgoing and for respondents to return their questionnaires (by mail/post)
- ▶ Printing of the questionnaire (face-to-face, postal, and possibly telephone if not recorded electronically)
- ▶ Web hosting (online)
- ▶ Email address provision (email)
- ▶ Phone charges (telephone)
- ▶ Electronic scripting development (e.g., computer-assisted personal interviewing (CAPI) and computer-assisted telephone interviewing (CATI), telephone, face-to-face, and online)

7.2 Guidance on Implementing the Method

This section provides guidance on the steps an entity may undertake when carrying out a survey. As discussed in Step 3, design and implementation of surveys requires skill and expertise. The guidance provided in this standard should not be regarded as a substitute for input from an experienced professional.

1. SCOPE THE STUDY

As Chapter 6 of the *FLW Standard* explains, a well-defined scope, aligned with the five accounting principles and an entity's goals, is important for ensuring that an FLW inventory meets an entity's needs. The scope of an entity's inventory—defined by the timeframe, material type, destination, and boundary—will dictate to a large extent the scope of the survey, although additional questions may be incorporated to meet wider goals. Chapter 6 also describes how the scope chosen by an entity for its FLW inventory should be aligned with its underlying goals for addressing FLW.

2. DETERMINE THE APPROACH TO QUANTIFICATION

As discussed in Section 7.1 above, surveys can ask respondents for:

- ▶ Prior measurements (or approximations) of FLW
- ▶ Other factual information that enables the researcher to make an estimate of FLW
- ▶ Perceptions of amounts of FLW, based on recall

The accuracy of the information captured is likely to be highest where prior or simultaneous measurements are provided and lowest where recall alone is used. A good example of a simultaneous measurement would be the implementation by the survey team of a “visual scale” assessment together with a questionnaire. The provision of prior approximations and information that can be used by an entity to make an approximation are likely to be of an intermediate level of accuracy.

Table 7.1 | Comparison of Interviewer-Administered and Self-Completion Surveys

METHOD	USEFUL WHERE ...	NOT USEFUL WHERE ...
Interviewer-administered	<ul style="list-style-type: none"> ▶ The subject is new or difficult for the respondent to comprehend ▶ Literacy levels are low ▶ Questionnaire routing is complex ▶ Rapport is required to elicit reliable responses ▶ Information must be recorded exactly as said by the respondent 	<ul style="list-style-type: none"> ▶ Interviewer presence might adversely influence the results (e.g., subject is sensitive or embarrassing) ▶ Entity cannot afford to employ interviewers ▶ Access to respondents is not possible (e.g., long travel time, limited telephone access)
Self-completion (i.e., questionnaire completed by the respondent without an interviewer present)	<ul style="list-style-type: none"> ▶ Questions are few, short, and easy to understand ▶ Instructions are limited ▶ Questions are “closed” with limited answer options ▶ Money for quantification is limited ▶ An interviewer is not able to conduct an interview (e.g., it is hard to access potential respondents) ▶ The appropriate respondent is known 	<ul style="list-style-type: none"> ▶ Routing between questions (e.g., skipping some questions if a response is given in an earlier question) is required (in paper-based surveys) ▶ There are high levels of illiteracy ▶ Where access to information and communication technology is limited (relevant for online surveys) ▶ Respondents will require explanation of key terms

The decision to use a survey for quantifying FLW will depend on an entity’s judgment about the information that respondents will be able to supply. For example, companies in developed countries may have records from waste management companies of the weight of FLW removed. Obtaining those records through a survey is likely to provide very accurate information. By contrast, some households may not have records and may not be able to provide an approximation, so recall-based survey methods may be the only option if diaries, waste composition analysis, and other more reliable approaches have already been ruled out.

3. DEVELOP A SAMPLING STRATEGY

Because robust sampling is one of the critical determinants of reliability, an entity that does not have expertise in sampling should consult a statistician or an experienced market or social science researcher to help guide the sampling design. Appendix A of the *FLW Standard* provides guidance on sampling.

Sampling for surveys is almost always a tradeoff between the desired level of certainty and the resources available for the study. For example, boosting the sample size typically reduces sampling error, one of the more measurable forms of uncertainty. However, to double confidence in the results, the number of samples must be quadrupled, so reducing uncertainty can quickly become very expensive.

Table 7.2 | Advantages and Disadvantages of the Most Common Ways of Conducting Surveys

MODE OF ADMINISTRATION/ MEANS OF DISTRIBUTION	ADVANTAGES	DISADVANTAGES
Face-to-face	<ul style="list-style-type: none"> ▶ Can use an interviewer-administered questionnaire (see Table 7.1) 	<ul style="list-style-type: none"> ▶ Impractical where sample is very dispersed ▶ Expensive in interviewer time and travel costs
Telephone	<ul style="list-style-type: none"> ▶ Can use an interviewer-administered questionnaire (see Table 7.1) ▶ Low cost, especially where calls are inexpensive or free 	<ul style="list-style-type: none"> ▶ No visual prompts possible ▶ Those without a telephone cannot be sampled, so sample will be biased ▶ Cannot be too lengthy
Mail/post	<ul style="list-style-type: none"> ▶ Relatively low cost, although mailing/postage and printing costs can accumulate 	<ul style="list-style-type: none"> ▶ Impractical where the mail/postal service is infrequent or unreliable ▶ Requires several reminders to achieve an acceptable response rate
Electronic	<ul style="list-style-type: none"> ▶ Low cost ▶ Automated routing overcomes restrictions on question length and complexity 	<ul style="list-style-type: none"> ▶ Those without the technology cannot be sampled, so sample will be biased ▶ Likely low response rate ▶ Requires several reminders to achieve an acceptable response rate

4. SELECT A MODE OF ADMINISTRATION OR MEANS OF DISTRIBUTION FOR THE QUESTIONNAIRE

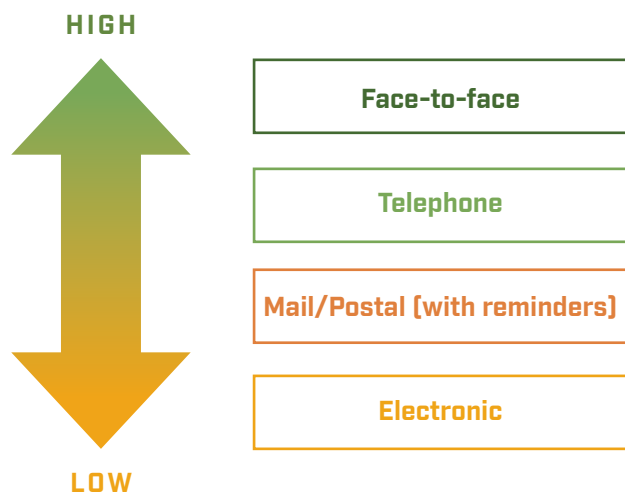
Questionnaires can be administered by an interviewer and carried out either by telephone or face-to-face interview. Or, they can be distributed for respondents to complete themselves, in which case they can be either mailed or sent in some electronic form (e.g., online, email, app-based).

The choice between interviewer administration or self-completion will depend on who is being surveyed and the kinds of answers that are required. For example, where illiteracy is likely to be common, self-administration may be ruled out. Where establishing rapport is likely to be

an important aspect of reliable responses, interviewer administration through a face-to-face approach may be preferred. Where open-ended questions are required to gather qualitative information, interviewer-administered modes are likely to be more effective. Choices might be different for households compared with businesses.

The key advantages and disadvantages of each mode of administration are shown in Table 7.1. Table 7.2 shows that response rates are likely to vary according to the mode of administration or means of distribution. Figure 7.1 illustrates response rates associated with different modes of administration.

Figure 7.1 | Typical Response Rates to Different Methods of Conducting Surveys



One key factor that will influence the choice of how the survey is to be administered is the type of information that is available for the sampling frame. For example, if up-to-date telephone numbers are available, then an entity can undertake a telephone survey. However, if only names are available, a telephone survey will be more difficult because additional steps will be required to obtain telephone numbers.

Many market research companies run omnibus surveys which can be a useful way to reduce costs if an entity has only a couple of questions to ask. Omnibus surveys cover a range of different topics, where multiple parties share the cost of carrying it out. They can be face-to-face, telephone, mail/postal, or electronic. If buying into an omnibus survey, an entity should ensure that the survey will meet its needs in terms of representativeness, that appropriate socio-demographic information is collected, and that a “screener question” can be asked to ensure that only relevant people answer the questions. An entity should also find out what other subjects will be covered in the omnibus to be sure that there are no questions that could influence the results of the FLW survey.

Panel surveys are another way to reduce costs. In a panel survey, a group of respondents (the “panel”) is recruited. This panel may be asked about a wide range of topics over an extended period of time, reducing costs of recruiting survey respondents. Many market research companies and government bodies operate panels. If using a panel survey, an entity should ensure that the panel is representative of its target population, and regularly refreshed to avoid respondent fatigue.

5. DEVELOP AREAS OF QUESTIONING AND SEQUENCING

Rather than jump straight into writing questions, it is good practice to prepare a table that lists the areas of questioning that must be covered in order to answer the research questions of interest. This ensures that the survey stays focused.

Asking the questions in a logical sequence considerably reduces the chances of individual questions being misunderstood. The question sequence must be clear and advance smoothly, meaning that the relation of one question to another should be readily apparent to the respondent. The easiest questions should be asked at the beginning of the survey. The first few questions are particularly important because they are likely to influence the attitude of the respondent. Relatively difficult questions should be left until near the end so that even if the respondent decides not to answer such questions, considerable information will already have been obtained.

It is important to remember that just because a question can be asked, that does not mean it can be answered. Only questions that have a realistic chance of being answered reliably should be included in a questionnaire. For example, it is possible to ask a company as part of a questionnaire how much FLW it generates, but if FLW is not routinely measured the answer will simply be “don’t know” and the survey will generate no useful results.

Piloting (see Step 10 in this section) will also provide important feedback on the validity and usefulness of the questions as written.

6. PREPARE QUESTIONS TO QUANTIFY FLW

The nature of the questions aimed at quantification will differ according to the approach to quantification that has been selected (see Step 2, above, in this Chapter).

Asking for prior measurements or approximations

This approach to quantification assumes that an existing measurement or approximation exists and that the respondent simply has to look it up. This type of survey can therefore ask matter-of-fact questions. They should, however, specify *exactly* what should be provided, defining *precisely* the scope of the information being requested (e.g., the timeframe the data should cover, the material type, the destination(s), and the lifecycle stage). The “questionnaire” in this case is often more akin to a form or information request than a traditional survey questionnaire.

This kind of survey is often carried out by membership organizations asking for information from their members. If considering a survey of this nature, an entity should be realistic about what its members are capable of providing. If prior measurements or approximations are unlikely to exist, this approach to quantification is not appropriate and should not be used. Instead, efforts should be made to encourage members to make use of the guidance in this standard to make measurements or approximations, or the next approach (asking for other factual information) could be considered.

Asking for other factual information that enables the researcher to estimate FLW

This approach to quantification is useful where a respondent is unlikely to have a prior measurement or approximation, but where other information can be sought that will enable an estimate of FLW to be made.

Approximating volume. It may be possible, for example, to ask respondents to state how many containers they use for FLW, what size they are, how often they are collected, and how full they are on collection. This will enable an entity to calculate the volume of FLW generated in a specific time period (see Chapter 3 of this document on assessing volume).

Inference through calculation. Similarly, it may be possible to collect information that enables an entity to infer quantities of FLW, for example, by asking about inputs and outputs to a process to derive FLW amounts via a mass-balance technique (see Chapter 8 of this document on mass balance) or input to a model (see Chapter 9 of this document on models).

Asking for recall

Quantification of FLW through recall is challenging and prone to error, so questions must be designed to maximize the likelihood of receiving accurate information. The uncertainty associated with such data should be clearly explained. Because the accuracy of the data will be lower than that of data obtained through other types of survey, an entity should not use the data for anything more than a general understanding of FLW quantities.

To maximize the chance that useful responses will be received, the food types referred to in the questionnaire must be unambiguous and easy to understand. It is unlikely that respondents will be able to recall quantities on a weight basis. Item counts, handfuls, cupfuls, or binfuls will be easier for the respondents to comprehend. Asking respondents to make an assessment against measures such as “a lot” or “a little” should be avoided because these terms mean different things to different people. Recall is likely to rely on visualization, so using visual prompts within the questionnaire may be one way to help respondents accurately recall quantities of FLW.

7. PREPARE ADDITIONAL QUESTIONS

Writing questions that avoid bias and elicit relevant information is a skill that is acquired with experience. This section provides only a general guide and should not be regarded as a substitute for the recommendations of an experienced professional.

Types of questions

Thinking about the types of questions to be included in a survey is useful because it helps link back to the study's objectives and scope. The types of questions that are useful for an FLW quantification study include:

- ▶ Factual questions about self or own operation
- ▶ Factual questions about others or others' operations
- ▶ Questions about the respondent's attitudes
- ▶ Questions about the respondent's beliefs
- ▶ Questions about the respondent's values and standards
- ▶ Questions about the respondent's knowledge (i.e., to test knowledge)

Questions aimed at quantifying FLW are likely to fall into the "factual" categories whereas questions aimed at understanding contextual information (e.g., about the reasons food leaves the food supply chain) are likely to concern beliefs, values, and attitudes.

Closed or open questions

Questions may be either "closed," (i.e., have a set number of answer options) or "open" (i.e., have blank space for the answer to be written). The advantages of closed questions are that:

- ▶ responses are easy to provide;
- ▶ the answer options help clarify the meaning of the question;
- ▶ consistency is enhanced across respondents; and
- ▶ they do not require coding, unlike open-ended questions that must be coded in order to be analyzed quantitatively.

However, closed questions also have disadvantages. They do not enable respondents to answer spontaneously in their own words so, where such responses are important, an open-ended question is preferable. Open-ended ques-

tions are sometimes used where answer options are not known, although a more effective approach would be to pilot the survey first to determine likely answers.

Answer options for closed questions must be balanced with an equal number of top and bottom options (e.g., "very good, good, fair, poor, very poor" rather than "excellent, very good, quite good, fair, poor").

Commercial research companies will often price their services according to how many closed and open questions they will be expected to ask. An entity should be as explicit as possible about what it expects, including specifying whether the research company will be expected to code open-ended questions and "other" options.

"Don't know" options

It is worth considering whether to include a "don't know" option. This option is important when not all respondents will be able to answer the question, but can be counterproductive in situations when it allows respondents to avoid difficult questions.

Number of questions

It is very easy for questionnaires to become too long, especially where several people have input into their design, so an entity should be disciplined about including only necessary questions. Long, complicated questionnaires will not only be more expensive to conduct but may also result in respondents not taking part, dropping out before the end, or providing poor-quality responses toward the end.

Screening questions

Depending on the nature of the survey, "screening questions" may be required to ensure that only relevant respondents answer the questions. In a survey of households, for example, an entity may want to ensure that the person answering the questions has some responsibility for either household food shopping or food preparation because of the relevance of these activities to the creation and management of FLW. Therefore, an opening question would ask whether or not the respondent is responsible for buying food or cooking food in the household.

Cultural considerations

Questions should be provided in multiple languages in situations or regions where respondents may speak one of several languages. Where specific foods are mentioned in a question, consideration should be given to whether these foods are culturally relevant; for some parts of the population, substitution of food examples may be useful.

Non-leading questions

Every effort needs to be made to ensure that questions do not lead the respondent in the direction of any particular response. This can be aided by shuffling the answer options for every new respondent, ensuring that the most or least desired response is not at the top, or arranging the responses in a logical scale (e.g., in the order of “more,” “the same,” and “less”). In addition, it is necessary to be mindful of the question order within the survey to ensure that the presentation of certain themes (e.g., attitudes toward FLW, knowledge about environmental impact of FLW) does not influence responses to later questions (e.g., FLW quantifications, description of shopping habits).

An entity shall comply with data protection laws in its country and should abide by any codes of conduct from relevant professional organizations. It is particularly important to inform respondents about the intended use of the data, and assure them that information will not be passed to third parties for marketing purposes. If an entity intends to share the raw data it collects with others, for example, with someone who will analyze the data, this intention should be explicitly stated to the survey participants.

Unless a survey is mandatory, participants should always be given the option to opt out, even if they are part of the way through the survey. A question might be asked about whether it is acceptable to re-contact the research participants for a follow-up. Doing so may add depth to the survey by clarifying responses and enable an entity to reuse the sample without having to repeat all the socio-demographic and screening questions.

Box 7.1 provides a list of common flaws to avoid when designing questions.

Box 7.1 | What to Avoid When Designing Questions

- ▶ Ambiguity
- ▶ Jargon and technical terms
- ▶ Lengthy questions
- ▶ Double-barreled questions (e.g., are you motivated to reduce food waste in order to save money or run a more efficient household?)
- ▶ Over-generalized questions (e.g., “do you produce food waste?”)
- ▶ Leading questions, where a respondent is encouraged to respond in a particular way (e.g., “do you agree that producing food waste is ethically abhorrent?”)
- ▶ Questions that can be answered “not applicable”—ask a screening question instead and route the respondent around questions that are not applicable
- ▶ Questions incorporating negatives—they are easy to misunderstand (e.g., “Would you agree that you don't like people who don't recycle?”)
- ▶ Questions that respondents cannot answer because they do not have the necessary knowledge

8. DESIGN THE QUESTIONNAIRE

Creating an attractive visual design for the questionnaire is important for self-completion questionnaires. An entity should also include information about why it is important for a respondent to participate in the survey and the reason for the survey. Creating a logical structure and layout together with easy-to-understand instructions and routing is critical, regardless of the mode of administration or means of distribution.

Instructions

It is important to supply sufficient information in the questions and associated instructions to ensure that all participants are responding in relation to the same scope of FLW. The attitudes of the participant about food and/or inedible parts that leave the food supply chain, and differing perceptions regarding the generation of FLW or the destinations to which it goes (e.g., to compost versus landfill), may also lead to differences in the amount or type of FLW that is reported. It may also be worthwhile to use a less value-laden term than “food waste” (e.g., discarded food, food not eaten) in the hope of minimizing social desirability bias (See Section 6.1 of this document).

Routing

Questionnaires commonly include “routing” (i.e., respondents are directed to skip questions based on their response to previous questions). Some online survey tools are unable to cope with complex routing; therefore, if an entity is planning to put its survey online, it should check whether its software can accommodate it. Modern professional methods of interviewing, such as computer-

assisted personal interviewing (CAPI) and computer-assisted telephone interviewing (CATI), have routing as a standard feature.

Visual design

Box 7.2 lists tips for designing an effective paper-based self-completion questionnaire and Box 7.3 lists tips for designing an effective web-based survey.

Designing for online completion involves special considerations. Time should be devoted to improving the layout and appearance of questions because this will encourage respondents to complete the survey.

9. FORMULATE AND IMPLEMENT STRATEGIES FOR MINIMIZING AND COPING WITH NON-RESPONSE

Response rates to surveys can be very variable. They depend on a wide range of factors including the length of the survey, the topic, where and when it is being carried out, and the type of respondent. Surveys of consumers typically achieve better response rates than surveys of businesses.

Maximizing response rate is important, because higher response rates mean lower levels of uncertainty. Many of the tips given in Boxes 7.2 and 7.3 are related to maximizing response rates (e.g., keeping surveys as short as possible, making them visually appealing).

Approaches to increasing response depend on the mode of administration and type of survey selected. If an interview-based mode of administration is chosen,

Box 7.2 | Tips for Designing an Effective Paper-Based Self-Completion Questionnaire

- ▶ Make the layout attractive
- ▶ Increase the number of pages rather than cram the text
- ▶ Think about whether to show answer options vertically or horizontally
- ▶ Make it very obvious how and where respondents should record their responses
- ▶ Be clear whether more than one answer is acceptable or whether the respondent must choose only one
- ▶ Keep questions and their answer options on the same page

Box 7.3 | Tips for Designing an Effective Web-Based Survey

- ▶ Avoid the need for scrolling up and down by presenting only a few questions on each page
- ▶ Be wary of using unnecessary graphics—they slow systems down
- ▶ Use images carefully because respondents can use them to frame the meaning of questions (e.g., a photograph of decomposing vegetables could encourage the respondent to believe the question relates only to vegetable FLW and not to other types of FLW)
- ▶ Keep questions and their answer options as simple as possible, avoiding too many matrix questions that might not display well on screens (and especially on mobile phones)
- ▶ Think carefully about the format of answers: radio buttons and drop-box options are the most common
- ▶ Make sure that free-text fields contain sufficient characters for the respondents' answers
- ▶ Think carefully about which, if any, answers to make mandatory. If respondents cannot answer a mandatory question, they are likely to provide a made-up answer or abandon the survey
- ▶ Use “error messaging,” but be specific about the cause of the error
- ▶ Show progress, so respondents know how much more they have to complete
- ▶ Allow respondents to save their progress and come back later. This is especially important if factual information is requested, which the respondent may need to look up
- ▶ Make use of the electronic features where relevant (e.g., hyperlinking)
- ▶ Incorporate automatic logic checking where available in the survey software

providing good training on techniques for encouraging participation is important. Sometimes respondents will be recruited for the survey not by interviewers but by a specialist recruitment company; this can be a very effective way of boosting participation.

If a survey is being carried out by an official body, the use of local authority, government, or relevant trade association logos can help boost response. Participation can also be encouraged with well-worded text that explains the reasons for the survey, why it is important for people to take part, and provides assurances about confidentiality.

Another approach to boosting the response rate is to provide an incentive. This can take monetary forms (e.g., cash payment, voucher, or entry into a prize draw for something of value) or non-monetary forms (e.g., public recognition or individual feedback on the results of the survey). The key is finding imaginative ways to provide effective incentives that are in line with cultural norms and involve minimal cost.

For self-completion surveys, consideration should be given to operating a survey helpline. This enables respondents to clarify issues that might otherwise lead them to abandon the survey. It can also provide assurance that the survey is official.

10. PILOT THE SURVEY

It is tempting to start the survey as soon as everything is ready, but piloting the survey will avoid expensive mistakes. A pilot is simply a small-scale test of the survey. It tests the questionnaire itself alongside operational aspects of the survey such as the mode of administration or means of distribution, the way in which responses will be received, and the way in which data will be processed. If a question does not elicit the sort of response intended, it should be revised so that participants can understand it more readily.

11. ADMINISTER OR DISTRIBUTE THE QUESTIONNAIRE

General points

Throughout the survey, it is important to keep track of those who have and have not responded. This will enable effective targeting of non-respondents for reminders and enable an accurate calculation to be made of the response rate at the end of the survey.

Careful thought should be given to the timing of the survey. For example, in some surveys, data collection may need to be staggered across various days of the week (both weekdays and the weekend) to avoid bias arising from potentially different food management behaviors throughout the week. And seasonal variations must be accounted for as well as periods of unusual activities such as festivals and national holidays.

Face-to-face surveys

For face-to-face surveys, it is important that interviewers are well trained and administer the survey consistently and accurately. Interviewers should not show surprise, approval, or disapproval in reaction to a participant's answer. Interviewers will also need to be able to answer any questions the participant may have about the survey.

It is also important to consider when and where the survey will take place. This depends on the nature of the sample.

It may seem obvious that businesses can be surveyed only during working hours. If businesses are highly dispersed, it is a good idea to book the interview in advance to ensure that the right person is present. Even so, it is common for the respondent to forget about the interview or not be available at the pre-arranged time so flexibility needs to be built into the process.

A range of methods is available for interviewing householders, including in-home interviews, doorstep interviews, and interviews conducted in a public place. The choice will be influenced by several factors:

Length of questionnaire. It is unreasonable to expect respondents to answer a survey of more than 15 minutes while standing in a public place or on their doorstep. Lengthy or in-depth surveys should be carried out in-home or in a public building where seating is available. In-home surveys may need to be pre-arranged with the participant.

Privacy. If the survey contains questions that respondents could view as sensitive, shameful, or embarrassing, the survey should be carried out in a private place to maximize the chance that the respondent will be honest with the interviewer.

Likelihood of eligible participants being present.

Working-age people are likely to be out of the home during working hours; relying on surveys conducted only during the day can therefore lead to a biased sample, which contains too many elderly people and stay-at-home parents. Equally, surveying in public areas can under-represent some segments of the population. Careful thought should be given to the specific requirements of the survey and choosing the interview location that is least likely to bias the sample.

Consent. Consent of the premises owner may be required to interview in public. This applies to places that are clearly privately owned, like retail stores, but also to places such as shopping malls and some outdoor areas in towns.

Telephone surveys

Just as in face-to-face surveys, it is important for the interviewer in a telephone survey to be well trained so that the survey results will be as accurate as possible.

Telephone surveys can be more effective if the interview is booked in advance, especially with businesses. Even so, it is common for participants not to be available at the allocated time, so flexibility should be built into the process.

If surveying a business, it is important to build in extra telephone time for identifying an appropriate respondent. Small and large businesses present different challenges in this respect. In small businesses, one person

often deals with many different aspects of the business and is well informed, but it may be difficult to contact and reserve time with such a person. Large businesses, on the other hand, may have staff with more narrowly defined jobs, who are well informed only about their own area.

Mail/Postal surveys

Mail/postal surveys will require several reminders to be sent to participants. An entity should monitor response rates to determine whether additional reminders are necessary.

Electronic surveys

In the case of electronic surveys, it might be tempting to simply release the URL and see who responds. But using a convenient sample (e.g., companies that happen to be local) or snowball sampling (relying on word of mouth through social media to spread the survey link) will result in a biased sample and inaccurate results.

12. PREPARE THE DATA FOR ANALYSIS

Responses need to be standardized and collated before they can be analyzed quantitatively. Electronic systems are now commonplace and this guidance assumes that electronic systems are available, although processing and analysis can of course still be carried out manually.

Where data have been recorded on paper, a process of data entry will need to be undertaken. Professional data entry companies exist in many countries and they may provide a good value option. When entering data, it is good practice to check a proportion (say 10 percent) of entries to ensure accuracy. If significant inaccuracies are found, the data may need to be re-entered.

When entering data, it is important to differentiate between blank responses where no answer was required (e.g., the respondent was instructed to skip it) and blank responses where the respondent should have provided an answer but did not. At the analysis stage, it can be decided whether to report these “missing data” or simply omit them when summarizing responses. It is common practice to report only “valid” responses but, where there are significant levels of missing data, it may start to influence the degree to which survey results are representative.

Where an entity has used open-ended questions, whether as part of paper-based or online surveys, a decision should be made about whether to “code” them or use the responses qualitatively as supportive quotes and insights. Coding is the process by which similar open-ended responses are grouped together and thereafter considered as a group. This process can be time-consuming and therefore costly and is a good reason to think carefully about the extent to which an entity includes open-ended questions (see Steps 4 and 7 in this section).

Data quantifying FLW from survey responses relying on recall are most likely to be in volumetric form. They must therefore be converted to weight using bulk density conversion factors (see Section 3.2 of this document).

13. ANALYZE THE DATA

Data analysis converts raw data from questionnaire interviews into a summary presenting the quantification of FLW and any additional qualitative information such as:

- ▶ Frequency of FLW
- ▶ Reasons for different types of FLW
- ▶ Relationship between FLW and variables (e.g. income, age group, location)
- ▶ Livelihood issues of people affected by FLW
- ▶ Coping strategies used to overcome FLW

Policymakers and planners can use the information from the analysis to make informed decisions regarding intervention strategies to reduce FLW or improve the livelihoods of those affected by FLW.

An experienced professional should analyze survey data whenever possible. The production of summary data (frequency counts and percentages) is the normal starting point followed by more complex techniques such as cross-tabulation and other tests of association.

Guidance on scaling up results from a sample to a population is provided in Appendix A of the *FLW Standard*.