5. Records

5.1 Overview of the Method

Records are individual pieces of data that have been written down or saved. They are often routinely collected (e.g., waste transfer receipts or warehouse record books) and, while often created for reasons other than quantifying FLW, they can also be used for this purpose.

ADVANTAGES AND DISADVANTAGES

Using records to generate the data for an FLW inventory often costs less than undertaking a new study to measure or approximate FLW. If records are based on actual measurements, the data may also be more accurate than data collected through a new study that relies on a number of calculations and assumptions.

One disadvantage of using existing data from records is that the method used to generate the data may not be clear. An entity should understand how the records were created because some methods result in more accurate quantification than others. For example, if the records are based on weighing, they are likely to be very accurate, whereas if they are based on an approximation of volume they may be less accurate.

LEVEL OF EXPERTISE REQUIRED

Although care and attention to detail are required, no particular expertise is needed to use records.

COSTS

The cost of using records to quantify FLW is principally associated with the time spent to obtain and analyze the records. Where data are available and already in a standard unit of measurement, the process can be very quick and inexpensive. The time requirements and cost increase if data must be converted from one set of units to another.

5.2 Guidance on Obtaining and Using Records

Using records is more straightforward for an entity that has ownership of the FLW. The process typically involves finding, collating, and analyzing the records. If records are in paper form, the data should ideally be entered into a spreadsheet or database. If the quantities are in volume form (or other units), they should be converted to weight (see Chapter 3 in this document). Once the data have been collated in this way, they can be analyzed to generate data for the FLW inventory. For example, if an entity's FLW is collected by a waste management company and that company provides invoices with a record of the weight of each load, then the entity can collate the invoices for the time period and site in question, enter the weights into a spreadsheet, and simply sum them. However, this will be possible only if the FLW was separated from the other material.

An entity that does not have ownership of the FLW (e.g., a national government) may also use records to develop an FLW inventory. The process for obtaining records from others will vary depending on the number of entities from which records are to be collected and the likelihood of these entities providing the information.

The series of steps below provides guidance on using records to develop an FLW inventory, with Step 3 focused on entities that need to obtain records from others.

1. CONFIRM RELEVANCE OF SCOPE

It is important that an entity review whether the records it proposes to use are in line with the scope of its FLW inventory (i.e., in line with the timeframe, material types, destinations, and boundary).

2. DETERMINE WHETHER THE RECORDS ARE SUFFICIENTLY ACCURATE

An entity should also assess the likely accuracy of the records. This includes considering the reliability of:

- the method used to compile the records (e.g., direct weighing, assessing volume, counting);
- the measurement device(s), if relevant;
- the transcription of the measurement or approximation into the record; and
- any assumptions or conversion factors used (e.g., to convert volume to weight).

It is likely that a series of tradeoffs will need to be made. Using records is often a less resource-intensive way of obtaining data for the inventory than carrying out a study using measurement or approximation. However, sources of uncertainty and error may be more significant.

If records are used, users of the *FLW Standard* are required to identify the source of the records and their scope. Where information is available about the quantification methods used to create the records, this should also be described. This aligns with the general requirements in Chapter 7 of the *FLW Standard* for reporting on how FLW was quantified.

3. OBTAIN RECORDS

If the entity creating the FLW inventory does not have direct access to the records, there are various ways to obtain them. The approach selected will depend on whether the entity can require that records be provided or can only request that they be provided on a voluntary basis, and whether the entity is prepared to collect and combine the records itself or can ask the "record holder" to do so.

Requesting records

If the entity preparing an inventory is in a position to require that records be provided, it may simply go ahead and do so. If the entity is likely to request records on a regular basis, it should consider establishing rules, processes, and guidance for the record holders to ensure a consistent approach to collecting records over time. It should also devise and implement a quality assurance process.

If the entity preparing an inventory is relying on the voluntary co-operation of record holders, a different approach will likely be more effective. The percentage of record holders that actually provide records is known as the "response rate." The greater the response rate, the more reliable the data generated from the records will be (see Chapter 9 of the *FLW Standard*). An entity can try to ensure an adequate response rate in the following ways:

- Explain how the records will be used and the societal benefits that will result from their use
- Make arrangements for assurance of confidentiality, taking into account local data protection laws
- Offer an incentive to respond (e.g., vouchers, a prize draw for an item of value, some other kind of recognition)
- Offer financial compensation for the work required to find and deliver the records, and/or
- Make it as easy as possible for the record holder to respond, by being clear about which records are needed and providing a simple way for them to be delivered (e.g., a prepaid envelope if hard copy records are being sent by mail)

If an entity is gathering records from many record holders, it is good practice to set up a tracking system to monitor responses. It is especially important to track responses if a sample of record holders has been taken. It is essential if a quota sampling approach is used and a certain number of responses per "quota" is required. Guidance on using a quota sampling approach is provided in Appendix A of the *FLW Standard*.

When requesting records, it is important to give a realistic deadline. At least two reminders will probably be required to get a reasonable level of response and should be factored into the timeframe. To avoid annoyance, reminders should be sent only to those who have not replied, which underscores the importance of tracking responses.

Collecting and combining records

One way to improve the response rate is to ensure that it is as easy as possible for the record holder to provide its records. From the record holders' point of view, the simplest option is for the entity preparing the inventory to accept records in whatever form they are available. This means, however, that the entity must devote time to extracting the required information and putting it into a standard format.

Another option is to provide a standardized form and request that the record holder enter the data from its records. The standardized request might be a form or a data table, and could be provided online (e.g., a data entry portal), electronically (e.g., attached to an email), or in hard copy (e.g., mailed or hand delivered). This requires some effort on the part of the record holder.

If asking the record holder to fill out a form, the entity requesting the records should undertake simple validation checks (e.g., checking that numbers sum as expected). An entity should, if possible, follow up with the record holder if there are missing or invalid data to check whether this was an oversight and to determine whether the correct data are available. It is a good idea, therefore, to request contact details and permission to re-contact at the time of the initial request.

The entity preparing the inventory could also ask for the data from record holders by means of an interview, by telephone, or a face-to-face visit. Additional guidance on conducting interviews is provided in Chapter 7 of this document.

The most appropriate and effective option for a particular entity is determined by a number of factors, including:

- resources available, to both the entity preparing the inventory and the record holder;
- likely extent of cooperation from the record holder without added incentives;
- required response rate (if the rate is high then minimizing the effort required by the record holder is important);
- expected quality and comprehensiveness of the records;
- access to technology (e.g., internet and email); and
- literacy and numeracy levels of the record holder.

4. PROCESS THE RECORDS

An entity should enter data in consistent units of quantification. Spreadsheets and databases are excellent at converting from one unit to another, and the best approach is to allow data to be entered in the units in which they were provided (e.g., using different columns for different units and then creating calculation formulas to convert them to the desired unit). This approach involves less risk of error when future adjustments or corrections need to be made.

An entity should take care to enter data consistently against the scope. For example, if one record holder's records relate to the summer and another's to the winter, the data entry system must be designed to take account of this. Once the data have been extracted from the records, it will be much harder to identify inconsistencies such as this that may affect the results.

Planning the data analysis in advance will help to ensure that the structure of the database is appropriate. For example, if the records are in volume, the entity should include the bulk density conversion factors in the relevant spreadsheet or database so the volume can be converted to weight. This allows data to be entered in volumetric units while enabling automatic conversion to weight.

Guidance on scaling the data, if required, is provided in Appendix A of the *FLW Standard*.