



Instruction

Sampling Procedures for Residue Testing

1. Purpose

This document outlines the sampling procedures recommended by the National Organic Program (NOP) for parties conducting residue testing of organically produced agricultural products under the requirements at § 205.670 of the NOP regulations.

2. Scope

This instruction applies to those collecting samples on behalf of certifying agents, State officials representing State organic programs, and representatives of the NOP who are conducting residue testing of organic agricultural products.

3. Policy

Section 205.670 of the NOP regulations specifies the conditions under which responsible parties should conduct testing of agricultural products that will be sold, labeled, or represented as “100 percent organic,” “organic,” or “made with organic (specified ingredients or food group(s)).” To meet this requirement, these parties are responsible for the collection of samples of organically produced agricultural products that will be tested to detect the presence of residues in violation of the NOP regulations as specified under § 205.105 or other applicable laws as provided for at § 205.670(g). To ensure consistency in the sampling approach used by parties conducting residue testing, the NOP is issuing the following instructions for the collection, sample amounts, proper documentation, and chain of custody for samples collected as part of meeting the residue testing requirements under § 205.670 of the NOP regulations. Furthermore, under § 205.504(b)(6), certifiers must have procedures for sampling and residue testing to ensure that proper sampling is routinely followed.

4. Procedures

4.1 When to Collect Samples

Samples should be collected under the following conditions:

- When it is suspected that a prohibited substance has been applied;
- When it is suspected that contamination from genetically modified organisms, antibiotics, or prohibited substances may have occurred;
- When pesticide drift may have occurred;
- To gather evidence as part of an investigation;
- As part of a surveillance sampling program; and



- As part of a certifier’s procedures for risk-based supply chain traceability audits, per § 205.501(b)(7).

4.2 Sample Selection

Sample collectors should collect a sample of a given organic agricultural product, selected from a single location in a field, bin, or pallet. A single sample analyzed for residues using sensitive test procedures should provide enough information to determine if residues are present. A sample of a crop could consist of the raw agricultural commodity (RAC) or processed commodity from the RAC (EPA Residue Chemistry Guidelines, Table 1). Samples may also include the collection and testing of soil, water, waste, seeds, or plant tissue, if appropriate. Sample collectors may choose to select samples which attempt to detect contamination where it is most likely to occur due to risk factors present at a given operation or a location within an operation. A link to recommended methods of sampling for the determination of pesticide residues by The Codex Alimentarius Commission (Codex) is provided in the references section as additional guidance on sample collection.

4.3 Sample Amounts

Sample collectors should obtain sufficient sample to ensure the laboratories will have adequate amounts for processing and reanalysis if necessary (Table 1). The amounts shown are consistent with those instituted as part of the standard operating procedures (SOPs) for the USDA Agricultural Marketing Service (AMS) Pesticide Data Program. If collecting from multiple containers is needed to obtain the suggested amounts, sample collectors should confirm the products being sampled are from the same lot.

Table 1: Suggested Sample Amounts by Commodity Type

Commodity Type	Recommended Sample Amount
Most fresh fruit and vegetables	3-5 pounds (approximately 1.5-2.5 kg); A single large melon or squash exceeding 5 pounds (approximately 2.5 kg) is acceptable.
Blended commodities or those smaller than a strawberry	1 pound (approximately 500 g)
<i>Berries</i>	
<i>Cherries</i>	
<i>Coffee beans</i>	
<i>Dried Commodities</i>	
<i>Flours</i>	
<i>Grains</i>	
<i>Herbs</i>	
<i>Garlic</i>	
<i>Legumes</i>	



<i>Mushrooms (small)</i>	
<i>Nuts</i>	
<i>Teas</i>	
<i>Seeds</i>	
<i>Small jars/packages (i.e. baby food sized)</i>	
<i>Spices</i>	
All liquids and semisolid foods (e.g. juices, oils)	
Canned/jarred foods	

Adapted from USDA AMS Pesticide Data Program SOPs and U.S. EPA Residue Chemistry Guidance (as cited in references below).

For raw commodities, the portion which should be sampled is generally the whole commodity. Adhering soil, decomposed outer leaves, and inedible root and tuber vegetable tops should be excluded from the sample. In addition to the U.S. EPA Residue Chemistry Guidance, Codex has guidance on which portion of the commodity should be sampled and provides recommended sample preparation methods for the determination of residues.

4.4 Sample Documentation

Each sample should be identified by the following information:

- Certified operation name and mailing address (city/state/zip/country);
- Identification of sampling site (may include site maps or field);
- Grower and handler information (both grower and handler should identification be included if the sample is not collected at the farm);
- Sample identification, including commodity information, variety, brand name and lot number (if applicable), or other identification;
- Certifier name;
- Collector's name and signature; and
- Date collected and date shipped.

Note: The certified operation must also receive documentation (i.e., a receipt) when a sample is obtained for analysis.

Upon arrival at the laboratory, the following information should be recorded by the laboratory and included with the sample results:

- Date received;
- Name or initials of person receiving the sample;
- Explanation for what happened to a sample that is not analyzed (e.g., chain of custody breached, rotten sample, sample miscoded); and
- Internal Sample ID: The laboratory should generate an internal Sample ID.



Figure 1 below shows an example of a sample information collection worksheet that could be used or adopted for the purposes of proper sample documentation.

4.5 Maintaining Chain of Custody and Sample Integrity

The chain of custody ensures the chronological possession of samples from the sample collector to the shipping carrier to the laboratory. Each sample shall be packed by the sample collector using precautions to prevent sample contamination from commingling or contact with prohibited substances. Samples of fresh commodities must be taken using gloved hands (latex or clean rubber gloves) and removed from the plant or storage bins using a clean utensil. Sample collectors should avoid including excess dirt and foliage (as appropriate) from field samples. Samples should be placed into a clean plastic bag (or other receptacle required by a given laboratory) and sealed with tape to provide a tamper-proof seal. Samples should be initialed and dated by the sample collector who has bagged the sample. In addition to the initial and date, the outside of each sample bag should be permanently marked with a unique identification code. A shipping label with time and date will be acceptable as evidence of transfer to the carrier and delivery to the laboratory. Sample collectors should ensure that the shipping container is properly sealed, labeled for perishable goods, and ship the container by the appropriate means of transportation. Sample collectors should avoid shipping samples that will arrive during a weekend or holiday when laboratories are not open to receive and process the samples for analysis.

Many samples will require refrigerated temperatures for shipping and should be placed in a pre-cooled, insulated shipping container with an adequate number of frozen cold packs. If samples are transported away from the collection site to be packed at a later time, then the samples must be maintained in a cooled container until they are packed for shipment. Sufficient packing materials (e.g., bubble wrap) should be used to prevent movement of the item during transit. Fresh and frozen samples should be shipped overnight. Processed foods that are normally stored at room temperature (e.g., canned vegetables, peanut butter, oils, etc.) can be shipped at ambient temperature by ground.

There may be cases in which the shipping container will not change hands (i.e., if the sample collector delivers the sample to the laboratory). In these instances, it is not necessary for the packing box to be sealed, but sample collectors must ensure that the product is placed in a pre-cooled insulated shipping container along with a sufficient number of frozen cold packs to ensure refrigerated temperatures during the time they are transporting the sample to the laboratory.

5. References

§ 205.670 Inspection and testing of agricultural products to be sold or labeled as “100 percent organic,” “organic,” or “made with organic (specified ingredients or food group(s)).” 7 CFR, pt. 205. Print.



Allowed and prohibited substances, methods, and ingredients in organic production and handling
7 CFR pt.105. Print.

Recommended methods of sampling for the determination of pesticide residues by The Codex
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Codex Alimentarius Commission guidance on which portion of the commodity to be sampled
and recommended methods of sample preparation for the determination of residues. Web. 18
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Program Standard Operating Procedures: SOP No: PDP SAMP PROC-02*. Revision 7.
Washington, DC: United States Department of Agriculture, 2009. Print.

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Approval

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Figure 1: Sample Information Worksheet

1. Sample ID Number

Certifying agent	State	Year	Month	Day	Commodity	Lab Code

2. Commodity Information

Origin: Domestic, Imported, Unknown

If imported, country of origin:

Commodity:

Claim: 100% Organic, Organic, Made with Organic, Other

3. Collection Site Information

Operation Name and location

Facility Type: Producer/Distribution Center/Warehouse/Packing Shed

Field

Other

Grower Name:

Packing Company:

Distributor/Other:

Lot number or any other identification number on packaging:

4. Shipping Information

Collector's Name:

Signature:

Ship Date:

5. Sample Receipt in Laboratory

Date received: Received by (initials)

Based on condition upon arrival, will sample be analyzed? (Y/N)

If not analyzed, why? Rotten/Misidentified/Other (describe)