

Brief Information about Sampling of Organic Products

1. Introduction

Sampling and laboratory testing are essential tools for assessing compliance of operators with the respective standards. Testing often addresses pesticide residues, but can also include aspects like plant nutrient concentration (soil, fertilisers, plant tissues...), GMO, isotopes for identification of geographical origin or plant species identification, nitrogen isotopes for tracking organic vs. synthetic N fertiliser, etc.

Conventional agriculture allows the use of chemicals for agricultural management (pesticides, etc.). Sampling and testing in conventional agriculture is therefore not used to find out about the application of chemicals, but mainly to check whether the used chemicals do not exceed maximum residue levels.

In contrast, in organic farming the **use of chemicals in agricultural management is prohibited**. The main purpose of sampling and testing in the context of organic certification is to check if operators really comply with this rule. Hence, sampling does not focus on the final product after harvest (when many residues have already degraded), but **mainly on the leaves or water and soil** at the times of high risk of potential pesticide/fertilizer use. Of course, apart from verifying possible chemical use on farms, sampling can also be used to identify other possible non-compliances (e.g. post-harvest commingling with conventional products). In such cases, samples of final products can also be taken. At CERES, planification of sampling and testing is done by competent and experienced personnel.

Field sampling for pesticide residue testing is not considered by any official guide because pesticide testing in conventional agriculture is usually performed for harvested crops. For postharvest sampling CERES follows the instructions for sample size etc. laid down in the Regulation (EC) 2002/63, Reg (EU) 2018/848 and its delegated and implementing acts, CERES Equivalent Standard to Reg. (EC) 834/07. For field sampling, CERES has detailed work instructions, elaborated by specialists with long experience in the field of organic inspections and approved by the accreditation bodies.

2. What organic standards say about sampling

The **European Regulation** on Organic Production (EC) 889/2008, Reg (EU) 2018/848 and its delegated and implementing acts, CERES Equivalent Standard to Reg. (EC) 834/07, including their annexes for Third Countries and The US National Organic Program (**NOP**) require certifiers to take samples from a **minimum of 5%** of their clients every year and **based on identified risks**. Based on the risk assessment, this percentage and the sampling frequency can be increased. This can change on a yearly basis depending on the number and severity of residue cases or fraud cases that occurred in a specific country.

Moreover, in concrete cases of doubt or suspicion during the inspection or due to complaint cases, samples should be taken.

For the interpretation of the residues found please refer to our brief info on residues (3-2-38) you can find on our website.

3. What are the basic procedures for sampling?

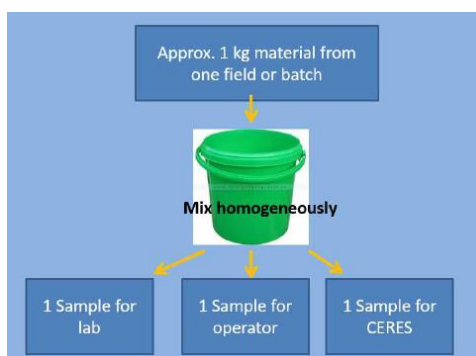
CERES follows strict work instructions for sampling based on the above-mentioned standards. Some essential principles of correct sampling include:

- a. Detailed sample identification
- b. Ensure sample traceability from field to laboratory
- c. Avoid mixing and confusion
- d. Avoid contamination
- e. The inspector and the client must sign the sampling document, where a clear identification of the samples bag is described

- f. The purpose of sampling must be clear (suspicion, risk management, random selection) and what substances will be analysed (pesticides, N-isotopes, GMO, etc.)

Basic Procedure:

To avoid contamination, the tools used for sampling need to be washed thoroughly before and after each sampling or several tools used if water is not available. The quantity per sample should be at least 600g; ideally 1kg. After sampling the material will be mixed thoroughly and divided into three equal parts. One part will be sent to the laboratory for analysis, one part will be kept with the operator and one part will be kept at the CERES office. These are so-called **counter samples** and can be analyzed if the operator doubts the first test result from the laboratory or the samples arrived spoiled at the lab. See also chapter 6 for further details.



4. How should samples be stored?

- Samples must be stored in a safe place, without access of unauthorised persons
- The risks of labels or identifications to be removed or deleted or otherwise becoming illegible should be avoided
- Samples in PE bags should be kept cool whenever possible (refrigerator in the hotel room or office).
- Samples in paper bags to be kept at room temperature and preferably at dry places. The room shall not be exposed to contamination, especially from household insecticides etc.
- Fruit samples, or fresh leaf samples in PE bags must be frozen, if they are to be stored for more than a few days.
- Please do not put paper bags inside plastic bags during storage! If necessary, they should be put into plastic bags only once samples are dry, and only immediately before shipping them to the laboratory.
- Direct contact between samples in paper bags must be avoided at any time.

5. What type of material will be sampled?

The type of material sampled depends on the materials, substances and the reason for sampling. Below you find a list of possible samples that can be taken by the inspector. He follows detailed instructions per type of sample:

Field samples: (crops/leaves) are usually taken to verify possible pesticide use or drift contamination in a crop. In this case the inspector will make sure that a representative number of plots planted with the same crop will be sampled or take samples on plots with risk of drift. The inspector will follow respective procedures to obtain a representative sample depending on the situation on the ground.

Soil sampling: Many pesticides have a longer half-life in soil, as compared to plants. On the other side,

the surface / weight ratio is much higher for leaves, as compared to soil, therefore soil samples are in most cases not the best option for detecting pesticide use, but are a good tool to check if pesticides with a short half -life on plant matrix might have been used in the past.

Sampling of spraying equipment: Taking a water sample from a spraying equipment can be very helpful for detecting, if the sprayer has been used for chemical pesticides

Post-harvest sampling: For products sampled after harvesting, normally several samples need to be taken in a randomised scheme from all over the batch (based on Reg. EU 691/2013), Reg (EU) 2018/848 and its delegated and implementing acts, CERES Equivalent Standard to Reg. (EC) 834/07 and EC 889/08 including their annexes for Third Countries.

Sampling for N isotope testing: Any kind of plant material can be used for this purpose to verify if synthetic fertilizers have been used which are not allowed in organic agriculture. However, fruits and seeds yield better results. Therefore, sampling harvested products is often better for this purpose.

Sampling of bee products for varroacide, adulteration and antibiotic tests: CERES mostly analyses bee products for possible use of synthetical varroacides and adulteration of beeswax with paraffin or fatty acids. Honey analysis is usually done to verify possible use of antibiotics.

6. What are counter-samples and when are they used?

If the analysis of a sample, taken by CERES during an inspection of an operator, reveals prohibited substances, each operator has the right to request, at his/her own cost, **the analysis of the counter sample** in a CERES-approved and qualified laboratory. Note that samples can only be sent after CERES has provided the necessary **instructions for shipment and approved laboratories**.

The **deadline** for requesting such analysis is normally **one week after receiving the notification of the test results from CERES**.

The following procedures need to be followed when sending the counter samples.

- a. Normally, the counter sample **kept with CERES will be used**. The reason is that in this case the storing condition of the sample is well documented.
- b. If the client's counter sample is used, the client must:
 - take pictures of all sides of the bags and seal and labels and sent it to CERES.
 - take pictures of where the samples were stored before shipment and sent them to CERES.
 - Put every sample in a separate Zip-lock bag to ensure that no contamination can happen during shipment
 - Take pictures of each Zip-Lock bag before shipment and sent them to CERES
- c. **CERES decides before shipment which lab will be used for analysis**. Normally the same laboratory will be used as for the first analysis. If the client insists in using a different laboratory, **it must be on the list of the approved CERES laboratories**. CERES has to be given the shipment reference number. The samples should not be sent directly to the laboratory but first to the CERES local office in order to check if the sampling bag and its seal is intact.

7. How are counter-samples used for the interpretation of the findings?

- a. If the counter sample provides the same or similar results as the first sample the case will be followed up accordingly.
- b. In case the first 2 samples show contradictory results, the second counter-analysis is tested and CERES accepts the result confirmed by the majority of the tests.
- c. In case there is no second counter-sample available (due to loss, manipulation, spoilage of the sample etc.) the sampling procedure will be repeated. Please also see the document Invoicing rules, 3.3.0 and your CERES contract for more information.

8. CERES procedures in investigation cases

Investigations at CERES are handled by the specialists of the residue department with competence in interpretation of analytical results and follow-up in cases of irregularity. **The purpose of these investigations is to determine the cause of the residues** and possible non-conformities on the part of the certified operator. Based on this, the measures to be taken are defined (i.e. request corrective actions, decertification of lots, crops or operators).

Investigation methods, used by control bodies, include data collection, traceability checks, communication with other certifiers/experts, investigation letters to the certified operator, follow-up inspections, sample taking.

9. Costs for investigation

Follow-up investigations are often costly. CERES must **invoice the respective costs and working hours to the clients** in whose products the residues were found. Analysis of counter-samples are fully invoiced to the client. Please also see the document Invoicing rules, 3.3.0 and your CERES contract for more information.