Instruction
Responding to Results from Pesticide Residue Testing

1. Purpose

This instruction helps certifying agents interpret and respond to pesticide residue testing results.

2. Scope

This instruction applies to certifying agents who review pesticide residue test results from organically produced agricultural products.

3. Authority

The National Organic Program (NOP) accredits certifying agents under the authority of the Organic Foods Production Act of 1990, as amended (7 U.S.C. 6501 et seq.), as described in Title 7 of the Code of Federal Regulations (CFR), Part 205, National Organic Program. Certifying agents have a responsibility, under 7 CFR 205.501(a)(23), to comply with, implement, and carry out any terms and conditions determined by the Agricultural Marketing Service Administrator to be necessary as a general accreditation requirement.

Certifying agents also have a responsibility to "share [supply chain traceability] audit findings with other certifying agents as needed to determine compliance" (§ 205.501(a)(21)) and "report credible evidence of organic fraud to the Administrator" (§ 205.501(b)(7)). The Strengthening Organic Enforcement Final Rule preamble describes an example of a Supply Chain Traceability (SCT) Audit being used to "trace the source of positive residue testing."

4. Policy

7 CFR 205.670 of the USDA organic 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 analysis of samples from organic agricultural products to detect the presence of residues in violation of the USDA organic regulations as specified under § 205.105 or other applicable laws as provided for at § 205.670. The NOP is issuing this instruction to ensure consistency in the response by certifying agents to prohibited pesticide residue detections per § 205.670 and in the provision for exclusion from organic sale at § 205.671 of the USDA organic regulations.

5. Procedure

5.1 No Detected Residues

If no residues of prohibited pesticides are detected, the certifying agent should:

a. Notify the certified operation of the test results and indicate that the product may be sold as organic.

b. Retain the test results, which must be made available to the public upon request and will be reviewed as part of the next audit.

5.2 Residues Detected at Less than 0.01 ppm

If tests detect residues of prohibited pesticides at less than 0.01 parts per million (ppm), which is the same as 10 parts per billion (ppb):

a. Notify the certified operation of the test results and indicate that the product may be sold as organic.

b. Assess why the residue is present and follow up with operation as appropriate.

c. Retain the test results, which must be made available to the public upon request and will be reviewed as part of the next audit.

5.3 Residues Detected at or above 0.01 ppm

If a test detects a residue of a prohibited pesticide at or above 0.01 ppm, the certifying agent should first determine if U.S. Environmental Protection Agency (EPA) has established a tolerance *for the pesticide for the tested commodity* (e.g., residues of imidacloprid in or on soybeans). Additional information on using EPA tolerances is provided in 5.3.5 below.

Once the certifying agent has identified whether EPA has established a tolerance for a given residue in the tested sample, he/she should use the decision points described below in 5.3.1 (EPA tolerance exists), 5.3.2 (FDA action level, but no EPA tolerance), or 5.3.3 (no EPA tolerance or FDA action level) to determine which reporting and adverse actions are appropriate.

5.3.1 EPA Tolerance is Established

If the EPA has established a tolerance for the detected pesticide in the tested sample, follow the appropriate instructions below based on the level detected (for residues below 0.01 ppm, see 5.2 above):

a. **If residue is detected at or below 5 percent of the EPA tolerance**, the certifying agent should:

1. Notify the certified operation of the test results.
2. Assess why the residue is present.
3. If appropriate, consider a notice of noncompliance for the following violations:
   - *§ 205.202(b)*: application of prohibited substances. The notice should inform the operation that the product is not organic. The certifying agent should consider suspending or revoking the operation's certification.

- *§ 205.202(c)*: inadequate buffer zones to prevent the unintended application of prohibited substances. The notice should require corrective actions to prevent future contamination.
- *§ 205.272*: inadequate measures to prevent commingling or contamination of organic products. The notice should require corrective actions to prevent future contamination.

4. If residues are not a result of the application of prohibited pesticides, the product may be sold as organic.
5. If suspensions, revocations, or civil penalties are appropriate, coordinate adverse actions with the NOP.
6. Retain the test results, which must be made available to the public upon request and will be reviewed as part of the next audit.

b. **If residue is detected above 5 percent of the EPA tolerance level,** but not above the EPA tolerance level, the certifying agent should:

1. *Immediately* notify the certified operation of the test results and indicate that the product may not be sold as organic.
2. Assess why the residue is present.
3. Issue a notice of noncompliance for violation of 7 CFR 205.671, having prohibited substances at levels greater than 5 percent of the EPA tolerance level. Additional violations may include:
   - *§ 205.202(b)*: application of prohibited substances. The notice should propose to suspend or revoke the operation's certification.
   - *§ 205.202(c)*: inadequate buffer zones to prevent the unintended application of prohibited substances. The notice should require corrective actions to prevent future contamination.
   - *§ 205.272*: inadequate measures to prevent commingling or contamination of organic products. The notice should require corrective actions to prevent future contamination.
4. If suspensions, revocations, or civil penalties are appropriate, coordinate adverse actions with the NOP.
5. Retain the test results, which must be made available to the public upon request and will be reviewed as part of the next audit.

c. **If residue is detected above EPA tolerance level**, the certifying agent should:

1. *Immediately* notify the certified operation of the test results and indicate that the product may not be sold as organic.
2. *Immediately* report the violation to the appropriate agency as described in 5.3.4 below.

3. Assess why the residue is present.
4. Issue a notice of noncompliance for violation of 7 CFR 205.671, having prohibited substances at levels greater than 5 percent of the EPA tolerance level. Additional violations may include:
   - *§ 205.202(b):* application of prohibited substances. The notice should propose to suspend or revoke the operation's certification.
   - *§ 205.202(c)*: inadequate buffer zones to prevent the unintended application of prohibited substances. The notice should require corrective actions to prevent future contamination.
   - *§ 205.272*: inadequate measures to prevent commingling or contamination of organic products. The notice should require corrective actions to prevent future contamination.
5. If suspensions, revocations, or civil penalties are appropriate, coordinate adverse actions with the NOP.
6. Retain the test results, which must be made available to the public upon request and will be reviewed as part of the next audit.

5.3.2 No EPA Tolerance, but FDA Action Level Exists

If there is not an established EPA tolerance, the certifying agent should check for a U.S. Food and Drug Administration (FDA) action level. FDA action levels are established for persistent pesticides, such as chlorinated hydrocarbons (e.g., DDT), that are no longer registered by EPA for use in crop or animal production but continue to be detected in crops due to the persistent nature of these chemicals in the environment.

If the detected residue is below 0.01 ppm, see 5.2 above.

If there is no EPA tolerance or an FDA action level for the detected residue in the tested sample, review 5.3.3 below.

a. **If residue is detected below the FDA action level**, the certifying agent should:

1. Notify the certified operation of the test results.
2. Assess why the residue is present.
3. If appropriate, consider a notice of noncompliance for the following violations:
   - *§ 205.202(b)*: application of prohibited substances. The notice should notify operation that product is not organic and results should be reported as described in 5.3.4 below. The certifying agent should consider suspending or revoking the operation's certification.
   - *§ 205.202(c)*: inadequate buffer zones to prevent the unintended application of prohibited substances. The notice should require corrective actions to prevent future contamination.

- *§ 205.272*: inadequate measures to prevent commingling or contamination of organic products. The notice should require corrective actions to prevent future contamination.

4. If residues are not a result of the intentional or direct application of prohibited pesticides, the product may be sold as organic.
5. If suspensions, revocations, or civil penalties are appropriate, coordinate adverse actions with the NOP.
6. Retain the test results, which must be made available to the public upon request and will be reviewed as part of the next audit.

b. **If residue is detected above the FDA action level**, the certifying agent should:

1. *Immediately* notify the certified operation of the test results and that the product may not be sold as organic. The FDA or a foreign equivalent may provide guidance on addressing these products.
2. *Immediately* report the violation to the appropriate agency as described in 5.3.4 below.
3. Assess why the residue is present.
4. If appropriate, consider a notice of noncompliance for the following violations:
   - *§ 205.202(b)*: application of prohibited substances. The notice should propose to suspend or revoke the operation's certification.
   - *§ 205.202(c)*: inadequate buffer zones to prevent the unintended application of prohibited substances. The notice should require corrective actions to prevent future contamination.
   - *§ 205.272*: inadequate measures to prevent commingling or contamination of organic products. The notice should require corrective actions to prevent future contamination.
5. If suspensions, revocations, or civil penalties are appropriate, coordinate adverse actions with the NOP.
6. Retain the test results, which must be made available to the public upon request and will be reviewed as part of the next audit.

5.3.3 No EPA Tolerance or FDA Action Level

Some testing results will indicate pesticide residues for which EPA has not established a tolerance and the FDA has not established an action level.

a. **If testing detects a residue of prohibited pesticides <u>above</u> 0.01 parts per million (ppm)**, the certifying agent should:

1. *Immediately* notify the certified operation of the test results and indicate that the product may not be sold as organic.

2. *Immediately* report the violation to the appropriate agency as described in 5.3.4 below.
3. If appropriate, consider a notice of noncompliance for the following violations:
   - *§ 205.202(b)*: application of prohibited substances. The notice should propose to suspend or revoke the operation's certification.
   - *§ 205.202(c)*: inadequate buffer zones to prevent the unintended application of prohibited substances. The notice should require corrective actions to prevent future contamination.
   - *§ 205.272*: inadequate measures to prevent commingling or contamination of organic products. The notice should require corrective actions to prevent future contamination.
4. If suspensions, revocations, or civil penalties are appropriate, coordinate adverse actions with the NOP.
5. Retain the test results, which must be made available to the public upon request and will be reviewed as part of the next audit.

5.3.4 Reporting Violations

In addition to the compliance and enforcement actions described above, certifying agents are responsible for reporting violations of EPA and/or FDA regulations to the proper authority. Violations include application of a pesticide which is prohibited by EPA (such as a pesticide without an EPA tolerance) or an allowed pesticide at levels exceeding regulatory tolerances. Depending on the operation's location and the results of the certifying agent's assessment, the appropriate authority may include the EPA, FDA, State food safety program, or foreign health agency.

a. Operations within the United States:

   If the violation can be traced back to an application to a field, submit the violation, including its location and time, to the EPA by visiting https://echo.epa.gov/report-environmental-violations. Reporting to EPA is indicated if:

   1. The detected pesticide doesn't have an EPA tolerance established for the tested sample (meaning EPA doesn't permit that pesticide to be applied to organic or non-organic varieties of the crop).
   2. The detected pesticide has an EPA established tolerance for the tested sample, but too much of the pesticide was applied (i.e., exceeding labeled application rates).

   If the violation can't be traced to a direct, intentional application to a field or it is detected in the stream of commerce, submit the violation to the closest FDA district office: https://www.fda.gov/industry/import-program-food-and-drug-administration-fda/fda-import-contacts-and-office-locations.

b. Operations outside of the United States:

If the test results indicate a violation of foreign regulations, these findings should be reported to the appropriate local, State, or Federal foreign officials.

5.3.5 EPA Tolerances

a. About EPA Tolerances

After reviewing field study data, EPA establishes tolerances, or maximum residues, for each allowed pesticide. EPA tolerances generally exist for specific commodities within the following categories:

- Crops (e.g., grapes)
- Feedstuff derived from crops (e.g., hay)
- Certain processed commodities (e.g., raisins)
- Certain products derived from livestock (e.g., milk).

EPA has residue chemistry test guidelines that identify which form of the raw or processed product should be tested. For example, when testing sweet corn, laboratories should remove the husk and analyze the kernels and cob. For almonds, analysis should include both the almond nutmeat and hulls, while the hulls are removed on other nuts.

EPA tolerances are published in the Code of Federal Regulations (40 CFR part 180), which is referenced below.

b. Using EPA Tolerances

In most cases, laboratories should prepare samples according to the residue chemistry test guidelines so that the data can be compared to EPA tolerances. Deviations from the standard sample preparations may be used at the discretion of the certifying agent. For example, if a certifying agent collects a field sample in response to a complaint that a certified operation has applied a prohibited substance, the inedible portion of the crop may be left intact for testing.

Unless field testing demonstrates that the residues increase in the final product, EPA doesn't establish tolerances for processed products. Unless a specific tolerance exists for the processed product, certifying agents should use the tolerance for the raw commodity.

For some pesticides, the EPA establishes tolerances that include the active ingredient and its breakdown products (metabolites). While not standard practice for every pesticide, if laboratories analyze metabolites, the residues of the active ingredient and its metabolites should be combined to determine the total pesticide residue.

The following data are an example of detected aldicarb residue and its metabolites in a sample of sugar beet tops:

- 0.90 ppm Aldicarb *(2-methyl-2-(methylthio)propionaldehyde O -(methylcarbamoyl) oxime)*
- 0.1 ppm Aldicarb sulfoxide *(2-methyl 2-(methylsulfinyl) propionaldehyde O -(methylcarbamoyl) oxime)*
- 0.07 ppm Aldicarb sulfone *(2-methyl-2-(methylsulfonyl) propionaldehyde O-(methylcarbamoyl) oxime)*

According to the tolerance established at 40 CFR 180.269 for aldicarb, these residues should be combined to determine the total residue for the sample. Since the total combined residue is 1.07 ppm, this sample exceeds the 1 ppm tolerance for aldicarb in sugar beet tops and the violation should be reported as described in 5.3.4. This sample is also in violation of the USDA organic regulations and certifying agents should follow the steps outlined in 5.3.1.

6. References

Memo to Certifying Agents: Periodic Residue Testing, February 28, 2013

USDA Organic Regulations
7 CFR 205.105 Allowed and prohibited substances, methods, and ingredients in organic production and handling.

7 CFR 205.670 Inspection and testing of agricultural product to be sold or labeled as "100 percent organic," "organic," or "made with organic (specified ingredients or food group(s))."

7 CFR 205.671 Exclusion from organic sale.

7 CFR 205.501 General requirements for accreditation

Other Laws and Regulations
Environmental Protection Agency. OCSPP Harmonized Test Guidelines Series 8–0 - Residue Chemistry Test Guidelines. United States Environmental Protection Agency, Aug. 1996. Web. 21 Dec. 2010.

U.S. EPA tolerances: CFR Title 40: Protection of Environment Part 180"

"Guidance for Industry: Action Levels for Poisonous or Deleterious Substances in Human Food and Animal Feed." U.S. Food and Drug Administration Home Page. 22 Dec. 2010.

Original Issue Date: March 4, 2013