

Questions and Answers Regarding Channels of Trade Policy for Human Food Commodities with Chlorpyrifos Residues: Guidance for Industry

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**U.S. Department of Health and Human Services
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Questions and Answers Regarding Channels of Trade Policy for Human Food Commodities with Chlorpyrifos Residues: Guidance for Industry¹

This guidance document represents the current thinking of the Food and Drug Administration (FDA or we) on this topic. It does not establish any rights for any person and is not binding on FDA or the public. You can use an alternative approach if it satisfies the requirements of the applicable statutes and regulations. To discuss an alternative approach, contact the FDA staff responsible for this guidance document at the phone number listed on the title page.

I. Introduction

The purpose of this guidance document is to assist firms in the food production and processing industries that handle foods that may contain residues of the pesticide chemical chlorpyrifos.² On August 30, 2021, the Environmental Protection Agency (EPA) issued a final rule³ to revoke all tolerances for chlorpyrifos residues in foods. That final rule set an expiration date for all chlorpyrifos tolerances of February 28, 2022.⁴ This guidance explains our planned enforcement policy on foods containing chlorpyrifos residues after the tolerances expire. This guidance also will help you understand the types of showing (documentation) under the channels of trade provision of the Federal Food, Drug, and Cosmetic Act (FD&C Act) that we recommend, and provides relevant showing dates.

This guidance document follows the policies explained in our guidance document entitled [“Guidance for Industry: Channels of Trade Policy for Commodities With Residues of Pesticide Chemicals for Which Tolerances Have Been Revoked, Suspended, or Modified by the Environmental Protection Agency Pursuant to Dietary Risk Considerations”](#)⁵ (the [2005 channels of trade guidance](#)). The [2005 channels of trade guidance](#) explained our general policies on our planned enforcement approach for foods containing residues of certain pesticide chemicals, for which tolerances have been revoked, suspended, or

¹ This guidance has been prepared by the Office of Food Safety in the Center for Food Safety and Applied Nutrition (CFSAN) at the Food and Drug Administration.

² “We,” “us,” and “our” refer to FDA. “You” refers to the responsible person (e.g., grower, food processor, manufacturer, or importer) who is responsible for the food and submits such information to FDA.

³ Chlorpyrifos; Tolerance Revocations. Final Rule. 86 FR 48315, August 30, 2021.

⁴ FDA recognizes that EPA has authority to stay the final rule under section 408(g)(1) of the FD&C Act, 21 U.S.C. 346a(g)(1). For the purposes of this guidance, FDA presumes that the tolerances will expire on February 28, 2022, which was the date set in the final rule, and that February 27, 2022, is the last lawful application date.

⁵ See <https://www.fda.gov/regulatory-information/search-fda-guidance-documents/guidance-industry-channels-trade-policy-commodities-residues-pesticide-chemicals-which-tolerances>.

modified by EPA under the provisions of the FD&C Act, as amended by the Food Quality and Protection Act (Pub. L. 140-170) (1996). In the [2005 channels of trade guidance](#), we stated our intention to issue further Level 2 guidance for specific pesticide chemicals that are to be the subject of an EPA tolerance revocation, suspension, or modification.

This guidance document does not apply to food regulated by the United States Department of Agriculture (USDA) under the Poultry Products Inspection Act, the Federal Meat Inspection Act, and the Egg Products Inspection Act. Any matter that might arise involving the potential application of the channels of trade provision to these USDA-regulated foods would be handled by USDA.⁶ This guidance document also does not apply to animal food regulated by FDA. Any matter that might arise involving the potential application of the channels of trade provision to animal food would be handled by FDA's Center for Veterinary Medicine (CVM).⁷

The contents of this guidance document do not have the force and effect of law and are not meant to bind the public in any way, unless specifically incorporated into a contract. This guidance document is intended only to provide clarity to the public regarding existing requirements under the law. FDA guidance documents, including this guidance, should be viewed only as recommendations, unless specific regulatory or statutory requirements are cited. The use of the word should in FDA guidance documents means that something is suggested or recommended, but not required.

II. Questions and Answers

A. What is chlorpyrifos?

Chlorpyrifos is an organophosphate insecticide, acaricide, and miticide.

B. How is chlorpyrifos used?

Chlorpyrifos is used primarily to control foliage and soil-borne insect pests on a variety of crops.

C. What chlorpyrifos tolerances for residues were established before EPA's revocation?

Tolerances for chlorpyrifos residues were established by EPA in 40 CFR 180.342 for a variety of human foods, including corn; soybean seed; wheat; nuts; certain fats and oils; some fruits, vegetables and meats; milk; eggs; and a variety of animal foods, including forage of alfalfa, wheat, and sorghum, ranging from 0.1 to 15 parts per million (ppm).

⁶ Questions regarding USDA-regulated products can be sent to USDA through [askFSIS](#) (<https://www.fsis.usda.gov/contact-us/askfsis>). When submitting a question about the potential application of the channels of trade provision on USDA-regulated products, complete the [web form](#) and select Residue Case Information as the Inquiry Type.

⁷ Questions to CVM can be sent to AskCVM@fda.hhs.gov.

Furthermore, a 0.1 ppm tolerance was established for residues of chlorpyrifos, per se, in or on food commodities (other than those already covered by a higher tolerance as a result of use on growing crops) in food service establishments where food and food products are prepared and served, as a result of the application of chlorpyrifos in microencapsulated form (see 40 CFR 180.342(a)(3)). Currently, there is no registered food service establishment use for chlorpyrifos under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). Therefore, this guidance document does not address the 0.1 ppm food service establishment tolerance.

D. After the tolerances expire, is food containing residues of chlorpyrifos considered adulterated under the FD&C Act?

The tolerances for chlorpyrifos in food are set to expire on February 28, 2022. In general, without a tolerance or exemption from a tolerance, food containing a pesticide chemical residue is considered adulterated under section 402(a)(2)(B) of the FD&C Act and must not be introduced or delivered for introduction into interstate commerce (which includes importation into the U.S.). We would normally deem such food to be in violation of the law by virtue of it bearing an unsafe pesticide chemical residue.⁸ However, the “channels of trade provision” of section 408(l)(5) of the FD&C Act provides an exception to such a finding by us if certain criteria are met.

E. What is the channels of trade provision of the FD&C Act and how does it relate to chlorpyrifos?

Section 408(l)(5) of the FD&C Act (the channels of trade provision) addresses the circumstances under which a food is not unsafe solely due to the presence of a residue from a pesticide chemical for which the tolerance has been revoked, suspended, or modified by EPA. Under the channels of trade provision, any residues of such pesticide in or on such food shall not render the food adulterated as long as it is shown to the satisfaction of FDA that: (1) The residue is present as the result of an application or use of the pesticide at a time and in a manner that was lawful under FIFRA; and (2) the residue does not exceed the level that was authorized at the time of the application or use to be present on the food under a tolerance or an exemption from a tolerance that was in effect at the time of the application. We interpret this provision to mean that food that contains chlorpyrifos residues will not be adulterated (and is permitted to be sold in interstate commerce) as long as the chlorpyrifos is applied lawfully (i.e., in compliance with the label directions under the FIFRA registration) and before the tolerances expire, and the residue does not exceed the level permitted by the tolerance that was in place at the time of the application.

⁸ Section 408(a)(1) of the FD&C Act states that except as provided in paragraph (2) or (3), any pesticide chemical residue in or on a food shall be deemed unsafe for purposes of section 402(a)(2)(B) of the FD&C Act unless: (1) a tolerance for such pesticide residue in or on such food is in effect under this section and the quality of the residue is within the limits of the tolerance or (2) an exemption from the requirement of a tolerance is in effect under this section for the pesticide chemical residue.

F. FDA’s [2005 channels of trade guidance](#) addressed situations where EPA cancelled pesticide registrations under FIFRA. Does the 2005 guidance still apply when EPA has not cancelled registrations?

Our [2005 channels of trade guidance](#) addressed our general policy under section 408(l)(5) of the FD&C Act when EPA revokes tolerances after cancelling the corresponding registration as described in section 408(l)(2) of the FD&C Act.

While EPA has not cancelled the chlorpyrifos registrations under FIFRA as of February 7, 2022, EPA has determined that “[w]hen the chlorpyrifos tolerances expire and are revoked (which the Final Rule set for February 28, 2022), chlorpyrifos residues in food must have resulted from lawful application as provided under 21 U.S.C. 346(a)(l)(5) [section 408(l)(5) of the FD&C Act] (also referred to as the ‘channels of trade provision’) in order for the food to be legally distributed in interstate commerce.” See EPA’s [Frequent Questions about the Chlorpyrifos 2021 Final Rule, Question #5](#). Therefore, our general policy addressed in the [2005 channels of trade guidance](#) also applies here.

Based on EPA’s determination, we use the last lawful application date of February 27, 2022, to apply the channels of trade policy, consistent with the examples provided in our [2005 channels of trade guidance](#).

G. What is the last application date for chlorpyrifos residues to be covered under the channels of trade provision?

For chlorpyrifos residues in food to be covered by the channels of trade provision, the residues cannot exceed the level authorized at the time of the application and the tolerance must be in place at the time of the application. Therefore, the last lawful application date for chlorpyrifos residues in food must be before the expiration date (which is set to occur on February 28, 2022) of the chlorpyrifos tolerances.

H. What is FDA’s planned enforcement approach on findings of chlorpyrifos residues in human foods after February 27, 2022?

There are two stages to our enforcement approach after February 27, 2022: (1) in Stage 1, we generally intend to exercise enforcement discretion by not requesting showing documentation for a time period ranging from approximately 6 to 24 months, depending on the specific commodity (see showing dates in Table 1); and (2) in Stage 2, we will accept showing documentation to demonstrate that lawful application occurred before February 28, 2022. Except as provided under our enforcement discretion in Stage 1, if the responsible party does not provide documentation to show applicability of the channels of trade provision, food with chlorpyrifos residues may be subject to regulatory action.

This planned enforcement approach applies to both raw agricultural commodities

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(RACs)⁹ and processed foods made from RACs. Stage 1 applies to both RACs and processed foods made from RACs. Stage 2 applies primarily to processed foods made from RACs because we do not anticipate that RACs lawfully treated with chlorpyrifos will remain in the channels of trade as RACs after the showing dates.

Stage 1: For a certain period of time following EPA’s revocation of chlorpyrifos tolerances, we intend to consider that a residue of chlorpyrifos found in either a RAC or processed food made from RACs, that is within the former tolerance, is the result of lawful application before the expiration date for the tolerances for chlorpyrifos on February 28, 2022. This approach takes into account that chlorpyrifos can be lawfully applied in the U.S. to certain crops through February 27, 2022, and that residues from lawful application may persist through crop harvest and during time in the channels of trade (i.e., during storage, distribution, and sale). Because of differences in growing and storage time, this time period, which ends at the “showing dates” identified in Table 1, varies for different RACs.

During Stage 1, we do not intend to ask firms to make a showing to demonstrate that chlorpyrifos residues are present as a result of lawful application, and we do not intend to take regulatory action against the food on the basis of the presence of chlorpyrifos residues, with certain exceptions addressed in Questions N, O, and P below.

Stage 2: After the showing dates, we need additional information before we can conclude that the residues were present as the result of lawful application or use of chlorpyrifos (see section 408(l)(5) of the FD&C Act). For processed food, we generally intend to consider information that a RAC with chlorpyrifos residues was received for processing on or by the showing date for that RAC (e.g., purchase records). A firm could alternatively provide information to demonstrate that chlorpyrifos residues in the RAC ingredient in the processed food are the result of lawful application before February 28, 2022 (e.g., spraying records). With respect to RACs, a firm would also have the opportunity to show that a RAC with chlorpyrifos residues was lawfully treated with chlorpyrifos before February 28, 2022; however, our assumption is that RACs lawfully treated with chlorpyrifos would be harvested and sold to consumers or processors by the showing dates.

The end of the anticipated showing period is August 28, 2026, which is the last date that we anticipate that food made from lawfully treated commodities will remain in the channels of trade. This date is based on an average growing time for crops of 6 months and 4 years from the time the treated crop is harvested for the processed food to no longer

⁹ For purposes of this guidance document, we are using the definition of raw agricultural commodities as defined in 40 CFR 180.1(d): Raw agricultural commodities include, among other things, fresh fruits, whether or not they have been washed and colored or otherwise treated in their unpeeled natural form; vegetables in their raw or natural state, whether or not they have been stripped of their outer leaves, waxed, prepared into fresh green salads, etc.; grains, nuts, eggs, raw milk, meats, and similar agricultural produce. They do not include foods that have been processed, fabricated, or manufactured by cooking, freezing, dehydrating, or milling.

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be in the channels of trade¹⁰ – a total of 4.5 years from the last day of lawful application. After August 28, 2026, you may still make a showing that the residue is present as a result of a lawful application or use of chlorpyrifos within the channels of trade provision. However, based on the information available to us, we do not expect that most firms would be able to make such a showing after 4.5 years (for more information, see our [2005 channels of trade guidance](#)).

Table 1. Showing dates for chlorpyrifos residues in various RACs*

Commodities	Showing Date
Asparagus	September 1, 2022 ¹¹
Banana	September 1, 2022 ¹⁰
Cherry, sweet	September 1, 2022 ¹⁰
Cherry, tart	September 1, 2022 ¹⁰
Corn, sweet, kernel plus cob with husk removed	September 1, 2022 ¹⁰
Cranberry	September 1, 2022 ¹⁰
Cucumber	September 1, 2022 ¹⁰
Egg	September 1, 2022 ¹⁰
Fig	September 1, 2022 ¹⁰
Grape	September 1, 2022 ¹⁰
Nectarine	September 1, 2022 ¹⁰
Peach	September 1, 2022 ¹⁰
Pepper	September 1, 2022 ¹⁰
Peppermint, tops	September 1, 2022 ¹⁰
Plum, prune, fresh	September 1, 2022 ¹⁰
Pumpkin	September 1, 2022 ¹⁰
Radish	September 1, 2022 ¹⁰
Spearmint, tops	September 1, 2022 ¹⁰
Strawberry	September 1, 2022 ¹⁰
Turnip, tops	September 1, 2022 ¹⁰
Vegetable, brassica, leafy, group 5	September 1, 2022 ¹⁰
Vegetable, legume, group 6, except soybean [succulent legumes]	September 1, 2022 ¹⁰
Whole Milk**	September 1, 2022 ¹⁰
Beet, sugar, roots	March 1, 2023 ¹²
Fruit, citrus, group 10	March 1, 2023 ¹¹
Kiwi	March 1, 2023 ¹¹
Onion, bulb	March 1, 2023 ¹¹
Rutabaga	March 1, 2023 ¹¹

¹⁰ Based upon information referenced in the guidance document entitled “[Channels of Trade Policy for Commodities with Methyl Parathion Residues](#),” the availability of which was announced in the *Federal Register* on January 5, 2001 (66 FR 1247), certain processed foods (frozen, dried, and canned) could remain in the channels of trade for up to 4 years after the crop is harvested.

¹¹ Approximately 6 months after tolerances expire.

¹² Approximately 12 months after tolerances expire.

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Commodities	Showing Date
Sweet potato, roots	March 1, 2023 ¹¹
Turnip, roots	March 1, 2023 ¹¹
Apple	September 1, 2023 ¹³
Pear	September 1, 2023 ¹²
Almond	March 1, 2024 ¹⁴
Corn, field, grain	March 1, 2024 ¹³
Hazelnut	March 1, 2024 ¹³
Peanut	March 1, 2024 ¹³
Pecan	March 1, 2024 ¹³
Sorghum, grain, grain	March 1, 2024 ¹³
Soybean, seed	March 1, 2024 ¹³
Sunflower, seed	March 1, 2024 ¹³
Vegetable, legume, group 6, except soybean [dried legumes]	March 1, 2024 ¹³
Walnut	March 1, 2024 ¹³
Wheat, grain	March 1, 2024 ¹³

*See References 2-10. For all commodities with group numbers (i.e., group 5, 6, and 10), please see Crop group tables in 40 CFR 180.41.

** Tolerance was expressed as 0.25 ppm in milk, fat (Reflecting 0.01 ppm in whole milk). Whole milk listed in Table 1 is specific to raw milk, a RAC (see [40 CFR 180.1\(d\)](#)).

*** Table 1 does not include RACs intended for animal food use, such as cotton, undelinted seeds; beet, sugar, tops; or commodities under the jurisdiction of USDA, such as meat.

I. How do the showing dates apply to processed foods made from RACs?

If chlorpyrifos residues are found in a processed food and are within applicable tolerances, during Stage 1 (i.e., before the showing date for the relevant RAC), we would generally assume that the residue is the result of lawful application. During Stage 2, one way that food processors could make a showing would be to demonstrate that a RAC used in a processed food was received for processing on or by the showing date for the RAC. (See our [2005 channels of trade guidance](#) for more information on processed foods.)

J. Why does Table 1 not list showing dates for processed foods with chlorpyrifos tolerances specifically listed in 40 CFR 180.342 before February 28, 2022?

Certain processed foods, including “apple, wet pomace”; “beet, sugar, molasses”; “citrus, oil”; “corn, field, refined oil”; “peanut, refined oil”; “peppermint, oil”; and “spearmint, oil,” had chlorpyrifos tolerances specifically listed in 40 CFR 180.342 before February

¹³ Approximately 18 months after tolerances expire.

¹⁴ Approximately 24 months after tolerances expire.

28, 2022. Table 1 does not include showing dates for these processed foods because showing dates are for RACs and are based on the time required for RAC production and postharvest storage, distribution, and sale. For all processed foods, food processors have the opportunity to make a showing to demonstrate that a RAC used in a processed food was received for processing on or by the showing date for the RAC or that chlorpyrifos residues in the RAC ingredient are the result of lawful application before February 28, 2022.

K. As an example, how would FDA respond to rutabagas with chlorpyrifos residues before and after the showing date?

The previously established tolerance for chlorpyrifos in rutabagas is 0.5 ppm. We may take regulatory action at any time if we find chlorpyrifos residues in rutabagas exceeding the tolerance of 0.5 ppm.

Between February 28, 2022 (tolerance expiration date) and March 1, 2023 (showing date for rutabaga, Table 1), if we find chlorpyrifos residues in rutabagas at or below 0.5 ppm, we generally do not intend to request a showing to demonstrate that the residues in the rutabaga were a result of lawful application. After March 1, 2023, if we find chlorpyrifos residues in rutabagas, we would need additional information before making a decision about whether the chlorpyrifos residues resulted from lawful application. The firm responsible for the rutabagas would have the opportunity to show that the residues resulted from lawful application before February 28, 2022.

L. As an example, how would FDA respond to canned rutabagas with chlorpyrifos residues before and after the showing date?

The previously established tolerance for chlorpyrifos in rutabagas is 0.5 ppm. We may take regulatory action at any time if we find chlorpyrifos residues in canned rutabagas exceeding the tolerance of 0.5 ppm.

Between February 28, 2022 and March 1, 2023, if we find chlorpyrifos residues in canned rutabagas at levels at or below 0.5 ppm, we generally would not request a showing to demonstrate that the residues in the canned rutabagas are a result of lawful application. After March 1, 2023, if we find chlorpyrifos residues in canned rutabagas, the firm responsible for the canned rutabagas would have the opportunity to make a showing to demonstrate that the residues resulted from lawful application before February 28, 2022. One way to do this is to show that the rutabagas used in the canned rutabagas were received for processing by the showing date, March 1, 2023.

Starting from August 28, 2026, we do not expect that the responsible firm would be able to make such a showing for canned rutabagas.

M. Are the dates in Table 1 legally binding?

No. The dates listed in Table 1 are estimates. If you have data indicating that it will take

longer for the RACs lawfully treated with chlorpyrifos before February 28, 2022, to clear the channels of trade, you may include in showings such information as the time period that a RAC remains in commerce, the last chlorpyrifos application date, etc. We will evaluate the information presented by the firm on its own merit, and will not deem the food to be adulterated if the showing of the firm meets the requirements of the channels of trade provision in section 408(l)(5) of the FD&C Act, even if such showing does not match the dates listed in Table 1.

N. Can food produced from crops treated after the expiration date (February 28, 2022) for chlorpyrifos tolerances meet the requirements of the channels of trade provision?

No, the chlorpyrifos tolerances are set to expire on February 28, 2022, which means they will not be in effect on that date. As a result, food produced from any crop that is treated after February 27, 2022, cannot meet the requirements of the channels of trade provision.

O. Can a food containing chlorpyrifos residues meet the requirements of the channels of trade provision if there was no previous chlorpyrifos tolerance for that food or if the levels of chlorpyrifos residues exceed the previous tolerance for that food?

No, a food containing chlorpyrifos residues cannot meet the requirements of the channels of trade provision if there was no previous chlorpyrifos tolerance for that food or if the levels of chlorpyrifos residues exceed the previous tolerance for that food.

P. Would FDA request showing documentation during Stage 1 if FDA has information indicating that the application or use of chlorpyrifos may have occurred after February 27, 2022?

Yes. If we have information indicating that the RAC or the processed food contains chlorpyrifos residues that may be from the application or use of chlorpyrifos after February 27, 2022, we would request showing documentation, including during Stage 1. Specifically, we would ask the party responsible to provide documentation demonstrating that the food complies with the channels of trade provision.

Q. How did FDA calculate the showing dates in Table 1?

The showing dates are based on information on the time period required for RAC production and the time period required for the RAC to reach consumers and food processors, including time for postharvest storage, distribution, and sale. Some commodities were grouped together based on similar growing and distribution patterns (Ref. 8).

R. What information did FDA consider in developing its enforcement approach for chlorpyrifos residues in processed food?

EPA provided the following information to us on chlorpyrifos stability (Ref. 1):

- Chlorpyrifos is stable in frozen foods for up to, and possibly longer than, 4 years of frozen storage.
- Because of the lack of data demonstrating that chlorpyrifos residues decline at ambient (room) temperature and under refrigeration, it should be assumed that any chlorpyrifos residues present on foods stored under these conditions will not decline over time.
- USDA Pesticide Data Program monitoring data indicate there is a potential for chlorpyrifos residues on foods to persist after harvest and that residues may be present on fresh foods that have entered the channels of trade.
- Heat processing (boiling, baking, and canning) of RACs may result in the reduction, but not necessarily the complete elimination, of chlorpyrifos residues in some processed foods.

Based on EPA's residue dissipation estimates, we determined that chlorpyrifos residues resulting from lawful application of this pesticide may be expected to remain in foods stored under ambient, refrigerated, and frozen conditions for as long as they remain in channels of trade.

Information provided previously to us by food industry associations indicates that certain processed foods (frozen, dried, and canned) may remain in channels of trade for up to 4 years after a product is harvested (see footnote 7). Considering this 4-year time period when residues are expected to remain in foods, and considering the average growing time for crops of 6 months, we do not expect that most firms would be able to make such a showing after 4.5 years from the last day of lawful application.

S. Does this guidance apply to imported food?

Yes. For food containing chlorpyrifos residues that is offered for importation before the showing dates (see Table 1), during Stage 1, we generally intend to consider residues within the tolerance to be subject to the channels of trade provision. After Stage 1, we intend to inform the responsible party (e.g., the importer) that the food appears to be in violation of the FD&C Act and provide an opportunity for the party to respond and provide documentation to show that the residues in food resulted from lawful application to RACs before February 28, 2022. For example, food processors could make a showing to demonstrate that a RAC used in processed food was received for processing on or by the showing date.

T. What is acceptable documentation to show applicability of the channels of trade provision?

We encourage you to maintain appropriate documentation to demonstrate that the food was handled during acceptable timeframes. Examples of documentation that we anticipate will serve this purpose consist of documentation associated with packing codes, batch records, and inventory records showing that the RAC used in the processed

product was purchased by the showing date. These are types of documents that many food processors routinely generate as part of their basic food production operations. If firms believe the showing dates are not applicable to their products, other types of documentation that may be useful to demonstrate that application occurred before February 28, 2022, would be pesticide spray records. Please see the section entitled “Examples of Documentation that May be Useful to Show Applicability of the Channels of Trade Provision” in our [2005 channels of trade guidance](#) for additional information.

III. Paperwork Reduction Act of 1995

This guidance document refers to previously approved collections of information found in FDA regulations. The collections of information in this guidance have been approved under OMB Control No. 0910-0562.

IV. References

The following references marked with an asterisk (*) are on display at the Dockets Management Staff, (HFA-305), Food and Drug Administration, 5630 Fishers Lane, Rm. 1061, Rockville, MD 20852, 240-402-7500, and are available for viewing by interested persons between 9 a.m. and 4 p.m., Monday through Friday; they also are available electronically at <https://www.regulations.gov>. References without asterisks are not on public display at <https://www.regulations.gov> because they have copyright restriction. Some may be available at the website address, if listed. References without asterisks are available for viewing only at the Dockets Management Staff. FDA has verified the website addresses, as of the date this document becomes available on FDA’s website, but websites are subject to change over time.

1. EPA memorandum dated January 12, 2017, entitled “Chlorpyrifos, Stability of Chlorpyrifos Residues on Foods.”*
2. USDA National Agricultural Statistics Service, Agricultural Handbook Number 628. Field Crops Usual Planting and Harvesting Dates, October 2010.*
<https://downloads.usda.library.cornell.edu/usda-esmis/files/vm40xr56k/dv13zw65p/w9505297d/planting-10-29-2010.pdf>
3. USDA National Agricultural Statistics Service, Agriculture Handbook Number 507. Vegetables Usual Planting and Harvesting Dates, May 2007.*
<https://downloads.usda.library.cornell.edu/usda-esmis/files/v118rd53f/4j03d2382/hm50tv78g/UsuPlant-05-31-2007.pdf>
4. USDA National Agricultural Statistics Services, Agriculture Handbook Number 729. Fruits and Tree Nuts: Blooming, Harvesting, and Marketing Dates, December 2006.*
<https://downloads.usda.library.cornell.edu/usda-esmis/files/qr46r081g/8g84mq05f/6w924f466/FrTrNuDates-12-01-2006.pdf>

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5. USDA Agricultural Research Service, Agriculture Handbook Number 66. The Commercial Storage of Fruits, Vegetables and Florist and Nursery Stocks, Revised February 2016.*
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