

CFP Produce Wash Committee White Paper

The white paper was prepared to summarize the findings of the committee and to make it available to food safety professionals by placing it on the CFP website.

Executive Summary

The 2016-2018 CFP Produce Wash Committee was charged with the following:

1. *Review science and public health impact of water treatment options to minimize cross-contamination when using a water bath for washing, rinsing, crisping, processing, and/or other treatments of Raw Agricultural Commodities (RACs) and ready-to-eat (RTE) fruits and vegetables in food establishments;*
2. *Identify conditions of use, including types of RACs and RTE fruits and vegetables, and methods for assuring efficacy of use;*
3. *Review applicable rules and regulations pertaining to the use of water and chemicals for washing, rinsing, crisping, processing, and/or other treatments of RACs and RTE fruits and vegetables as it relates to food establishments to avoid creating conflict.*
4. *Consult with appropriate professional produce trade organizations; and*
5. *Report back with recommendations to the 2018 Biennial Meeting of the Conference for Food Protection.*

The Committee reviewed over 40 published articles, manuscripts and guidance documents; evaluated CDC and other public health data; conducted a survey of food establishments to assess washing and crisping practices; reviewed relevant FDA Food Code sections and related Annexes; reviewed selected Federal and State regulations and requirements; and sought input from a variety of produce and academic experts.

The CFP Committee reached several conclusions that are detailed later in this paper. In general, the Committee found that using an antimicrobial treatment in washing or crisping water in food establishments can reduce the risk of pathogen cross-contamination from water when produce is submerged in water. However, the Committee concluded that the use of antimicrobial treatments should be optional to allow food establishments the opportunity to assess their individual risks and use preventive steps most appropriate for their processes. Such an approach is consistent with other FDA preventive controls (e.g., Food Safety Modernization Act).

Further, the Committee recommends that a guidance document be developed to aide food establishments in assessing their risks and implementing effective procedures for washing and crisping in their operations. It is also recommended by the Committee that the term “crisping” be defined in the Food Code and the term be added to Food Code section 3-302.15(B).

Food Code Sections Reviewed by the Committee

3-302.15 Washing Fruits and Vegetables.

(A) *Except as specified in ¶ (B) of this section and except for whole, raw fruits and vegetables that are intended for washing by the CONSUMER before consumption, raw fruits and vegetables shall be thoroughly washed in water to remove soil and other contaminants before being cut, combined with other ingredients, cooked, served, or offered for human consumption in READY-TO-EAT form.*

(B) *Fruits and vegetables may be washed by using chemicals as specified under § 7-204.12.*

(C) *Devices used for on-site generation of chemicals meeting the requirements specified in 21 CFR 173.315, Chemicals used in the washing or to assist in the peeling of fruits and vegetables, for the washing of raw, whole fruits and vegetables shall be used in accordance with the manufacturer's instructions.* ^{Pf}

7-204.12 Chemicals for Washing, Treatment, Storage and Processing Fruits and Vegetables, Criteria.

(A) Chemicals, including those generated on-site, used to wash or peel raw, whole fruits and vegetables shall:

- (1) Be an approved food additive listed for this intended use in 21 CFR 173, ^P or
- (2) Be generally recognized as safe (GRAS) for this intended use, ^P or
- (3) Be the subject of an effective food contact notification for this intended use (only effective for the manufacturer or supplier identified in the notification), ^P and
- (4) Meet the requirements in 40 CFR 156 Labeling Requirements for Pesticide and Devices.
^P

(B) Ozone as an antimicrobial agent used in the treatment, storage, and processing of fruits and vegetables in a FOOD ESTABLISHMENT shall meet the requirements specified in 21 CFR 173.368 Ozone^P.

Introduction

At the 2016 Conference for Food Protection (CFP) biennial meeting, an Issue was submitted (# 2016-III-026) recommending that whenever fresh produce is submerged in water for either washing or crisping such that microbial cross-contamination via the water could occur, the water *shall* (i.e., must) be treated with an antimicrobial to reduce pathogens in the water. Although such treatments may also reduce pathogens on the produce surface, the intent was to consider measures that could reduce the risk of cross-contamination from the water.

In order to address the questions raised by the 2016 council during deliberations, the PWWC was formed. The materials created by the committee, including this white paper, summarize the PWWC findings and will be presented during the 2018 biennial meeting.

In accordance with the FDA 2013 Food Code section *3-302.15 Washing Fruits and Vegetables* (see above) raw fruits and vegetables shall be thoroughly washed in water to remove soil and

other contaminants before being cut, combined with other ingredients, cooked, served, or offered for human consumption in ready-to-eat form.

Washing may be accomplished either under running water or by submersion in water such as in a sink filled with water. In addition to washing, some types of produce may also be submerged in water to improve quality. This process is commonly known as crisping.

Discussion

Whole or fresh-cut produce may contain pathogenic microorganisms and at times have been associated with foodborne illness and outbreaks. Efforts have been undertaken by the produce industry and regulators (e.g., FSMA and the Produce Safety Rule) to minimize the risk of contamination of fresh produce. However, without a “kill step” a potential risk remains. In the event that contaminated product is received into a food establishment, washing and crisping practices introduce an additional risk. In food establishments, produce is washed before being cut, etc. as per the recommendation of the FDA Food Code, but it should be noted that washing has a limited effect on removing pathogens from the produce surface. When produce items are submerged in water the chance for cross-contamination presents a public health risk. Further, the practice of crisping could introduce an additional risk since contaminated water may internalize pathogens during the crisping process. When other procedures such as washing/sanitizing the sink before use are not followed, food contact surfaces can also contribute to cross-contamination. Taken together, these practices demonstrate the need to consider additional or alternative efforts to reduce the risks associated with fresh produce handling practices at food establishments.

There are various treatments available to treat water used for washing and/or crisping. The antimicrobial efficacy of these treatments varies, with some being little or no different than using water alone while others have a significant impact on the reduction of pathogens in the water. In practice, the differences in treatments are not always understood or well differentiated.

Conclusions

The CFP Committee reached the following conclusions:

- Fresh produce can be a source of foodborne illness and outbreaks.
- The risk associated with fresh produce varies depending on source, type of product, growing conditions and other factors.
- Produce washing practices vary among food establishments and uniform guidance is not available.
- Washing produce by submersion in water can increase the risk of cross-contamination and pathogen internalization.
- Produce crisping practices vary among food establishments and uniform guidance is not available.
- Crisping produce by submersion in water can increase the risk of cross-contamination and pathogen internalization.
- Produce may be washed or crisped by using chemicals as specified in 2013 Food Code, section 7-204.12.
- Chemicals registered by EPA shall be used in accordance with the EPA registered label use instructions.

Recommendations

The Committee believes that food establishments would benefit from guidance on how to assess risk and implement preventive controls when washing and/or crisping produce by submersion in water. A guidance document could include: methods for assessing risks; preventive control strategies; and the use of antimicrobials to prevent cross-contamination.

The CFP Committee proposes two recommendations that should be addressed separately.

Recommendation #1:

That the Produce Wash Committee be re-formed with the charge to develop a Guidance Document for washing and crisping produce in food establishments.

Recommendation #2:

That the FDA add the following definition to Food Code section 1-201.10 Statement of Application and Listing of Terms:

***“Crisping”** means the practice of exposing fresh produce to water for the purpose of improving quality. Crisping can be accomplished by holding fresh produce under running water or by immersion in water for a time sufficient to allow for rehydration. In addition, crisping may include a method for chilling such as submersion in ice water or refrigeration after submersion.*

And that FDA revise the Food Code as follows:

(Recommended additions are underlined; deletions indicated with strikethrough)

3-302.15 Washing and Crisping Fruits and Vegetables.

(A) Except as specified in ¶ (B) of this section and except for whole, raw fruits and vegetables that are intended for washing by the CONSUMER before consumption, raw fruits and vegetables shall be thoroughly washed in water to remove soil and other contaminants before being cut, combined with other ingredients, cooked, served, or offered for human consumption in READY-TO- EAT form.

(B) Fruits and vegetables may be washed or CRISPED by using chemicals as specified under § 7-204.12.

(C) Devices used for on-site generation of chemicals meeting the requirements specified in 21 CFR 173.315, Chemicals used in the washing or CRISPING or to assist in the peeling of fruits and vegetables, for the washing or CRISPING of raw, whole fruits and vegetables shall be used in accordance with the manufacturer’s instructions.