

# Conference for Food Protection - Committee FINAL Report

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**COMMITTEE NAME: Produce Wash Water Committee (PWWC)**

**DATE OF FINAL REPORT:** 11/30/2017

**COMMITTEE ASSIGNMENT:**  Council I  Council II  Council III  Executive Board

**REPORT SUBMITTED BY:** Anna Starobin and Karl Mathews

## COMMITTEE CHARGE(S):

### **Issue # 2016-III-026 Chemical treatment of water used to wash or crisp raw fruits and vegetables**

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.

## COMMITTEE WORK PLAN AND TIMELINE:

1. Create 2 sub-committees

- a. Group 1 addressed Charge #1 - completed
- b. Group 2 addressed Charge #3 - completed

Charge #2: Create and distribute a survey to gather information from retail/restaurants - completed

Charge #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.- completed

Charge #4: Contact Produce Manufacturing Association (PMA) and United Fresh for feedback; reach out to academic experts - completed

2. Periodic reports submitted to Council Chair by July 1, 2017.

- a. Summarize all documents, surveys, references and input. Completed September 1, 2017.
- b. Write draft report. Completed September 1, 2017.
- c. Develop recommendations based on findings. Completed by September 1, 2017.
- d. Wrote final report and submitted to Council Chair by November 1, 2017.

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### COMMITTEE ACTIVITIES:

#### 1. Dates of committee meetings or conference calls:

Full Committee	8/31/16	9/29/16	10/27/16	1/26/17	2/23/17	3/23/17	4/27/17	5/25/17	7/27/17	10/26/17
Literature review sub-committee	9/27/16	10/12/16	11/9/16	1/11/17	2/8/17	6/19/17	9/12/17			
Regulatory review sub-committee	9/21/16	10/19/16								

#### 2. Overview of committee activities:

- a. White paper summarizing the outcome of the work done by the committee with recommendations drafted.  
 The first draft was prepared by the assigned small working group (Karl Mathews, Jill Hollingsworth Reed, and Anna Starobin) and reviewed by the voting members. Provided feedback was incorporated into the document and was discussed further during the call on July 17th. When the majority of the voting members approve the document, it was sent to the committee at large for additional comments.
  - Charge #1 - literature review subcommittee calls. Created a document-sharing mechanism (using FoodShield) to share and review scientific publications.
  - 40 publications have been reviewed (Reference list III-26) and critiqued against a set of developed questionnaire with criteria for relevance to the charge.
  - Evaluated Center for Disease Control (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 (Dr. Suslov, Dr. Ryser, Dr. Matthews, Dr. Gorny, Dr. McEntire, Dan Dahlman, Kris Zetterlund). A list of the materials reviewed by the Committee, the industry survey and the presentations are available as attachments to this report.
- b. Charge #2 - The development of the survey was a part of literature review sub-team, since the group felt that the literature search criteria could be affected by the results of the survey. Initiated discussion of survey at October 12, 2016 meeting of Group 1 and during full committee meeting October 26, 2016.
  - Developed and distributed a survey to retailers and restaurants. The survey was sent to the committee members and was distributed to the membership of Food Marketing Institute (FMI), National Restaurant Association (NRA) and National Grocery Association (NGA). As of 6/12/2017 received 3,910 responses.
- c. Charge #3 - regulatory subcommittee calls (9/21/16; 10/19/16).
  - Completed review and comparison of various state regulations and FDA Food Code.
  - Developed a chart of terminology & definitions as a reference document.
  - Summarized current Food Code chapters addressing produce related regulations.

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- Reviewed a chart showing FDA and EPA areas of responsibilities, and decision tree for produce antimicrobials.
- d. Charge #4: Contacted PMA and United Fresh for feedback; reached out to academic experts.
  - Obtained feedback and comments from several experts (example: University of California, Davis, Michigan State University) and arranged several presentations:
    - Dr. Matthews, Rutgers University, “Sanitizers efficacy in preventing cross-contamination of heads of lettuce during retail crisping” 3/23/17
    - Kris Zetterlund, Darden Restaurants, shared with the group on the produce washing practices used by Darden - 4/27/17
    - Dr. McEntire, United Fresh e “Produce Crisping Risks and Mitigations” - 5/25/17
    - Dan Dahlman, Ecolab “Common regulatory questions/concerns related to produce washes & treatments” -5/25/17
    - Dr. Gorny, PMA “Safe washing & crisping of produce” 5/25/17
- e. Charge #5: Report back with recommendations to the 2018 Biennial Meeting of the Conference for Food Protection

### 3. Charges **COMPLETED** and the rationale for each specific recommendation:

A.a. Charge #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;

#### *Findings and Recommendation Rationale:*

*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. A list of the materials reviewed by the Committee, the industry survey and the presentations are available as attachments to this report (Reference list III-26).*

*The Committee, based on the review of the literature, 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. The Committee found that scientific data supports the hypothesis that adding an antimicrobial treatment to the washing or crisping water in food establishments can reduce and, in some cases, prevent the risk of pathogen cross-contamination from water when produce is submerged in water. The scientific review also showed that using an antimicrobial treatment can reduce pathogens on the surface of produce although this impact varies based on several factors such as type of chemical treatment, type of produce, size of batch, etc. A multiple-step approach from farm to consumer has the greatest risk-reduction potential and public health impact since there is no “kill step” for fresh produce.*

*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 (i.e., Food Safety Modernization Act - FSMA).*

*The Committee concluded that food establishments would benefit from guidance on how to assess risk and implement preventive controls to address washing, crisping and the use of antimicrobial water treatments in food establishments, and recommends a CFP Committee be charged with developing a Produce Guidance Document for this purpose (PWWC 4 - Re-Creat – Produce Wash Water Committee).*

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- A.b. Charge #2. Identify conditions of use, including types of RACs and RTE fruits and vegetables, and methods for assuring efficacy of use;

### Findings and Recommendation Rationale:

A survey created by the committee and distributed to and completed by food establishment representatives (3,895 participants) suggests that a majority of food establishments wash, crisp, or perform both practices on produce. A variety of RACs and RTE fruits and vegetables (leafy greens, tomatoes, cantaloupes, cucumbers, etc.) are subjected to these practices. Typically only one type of produce is washed at a time, but some of the operators mix the produce items, whether under running water or submerging. A quarter of the responders reported that they store produce in water. When chemicals are added to process waters a third of the operators do not monitor concentration as a means of assuring efficacy; 17% out of 1,767 responded to this question do not have a designated sink for produce washing and 16% of 1,766 operations responded to this question, do not always sanitize the sink prior to washing the produce. Standard operating practices were not used by all establishments. Due to the variety of produce handling practices used by the food establishments while washing or crisping produce it would be beneficial to develop a guidance document covering produce washing best practices. Detailed information of the survey results with the numbers of responders to individual questions could be found in the content documents attached (CFP Produce Committee survey).

The Committee recommends developing a Produce Guidance Document to address washing, crisping and the use of antimicrobial water treatments in food establishments.

- c. Charge #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.

### Findings and Recommendation Rationale:

FDA and Environmental Protection Agency (EPA) are the agencies regulating the use of water and chemicals for washing, rinsing, crisping, processing, and/or other treatments of RACs and RTE fruits and vegetables. These regulations are complicated and difficult to interpret by the FDA Food Code users. There are some discrepancies in terminology and definitions used by the agencies. Crisping, a common practice used in food establishments, is not defined in the Food Code. This Committee addressed some of the challenges mentioned by reviewing various regulations and creating the following documents:

- Completed review and comparison of various state regulations and FDA Food Code.
- Developed a chart of terminology, jurisdictions, & definitions as a reference document.
- Summarized current Food Code provisions addressing produce related regulations.
- Reviewed chart showing FDA and EPA areas of responsibilities, and decision tree for produce antimicrobials

The Committee recommends that a letter be sent to the FDA requesting the Food Code be amended by including the definition for "crisping" to section 1-201.10 and to amend the section 3-302.15 as follows (using underlining for language additions and strikethrough for language to be deleted):

### Crisping definition for section 1-201.10:

"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.

### 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.

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(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.

d. Charge #4: Consult with appropriate professional produce trade organizations

Findings and Recommendation Rationale:

Contacted Produce Marketing Association (PMA) and United Fresh for feedback; reached out to academic experts and obtained feedback and comments (example: University of California, Davis, Michigan State University). Arranged and had several presentations during full committee conference calls (see supporting documents attached). Information obtained included in the white paper and has influenced the recommendations provided.

e. Charge #5: Report back with recommendations to the 2018 Biennial Meeting of the Conference for Food Protection.

#### 4. Charges INCOMPLETE and to be continued to next biennium:

None

#### COMMITTEE REQUESTED ACTION FOR EXECUTIVE BOARD:

**No requested Executive Board action at this time; all committee requests and recommendations are included as an Issue submittal.**

#### LISTING OF CFP ISSUES TO BE SUBMITTED BY COMMITTEE:

1. Issue #1: PWWC 1-Acknowledgement of the 2016-2018 Produce Wash Water Committee report and thanking the committee for the effort the members put forth in working on the charges.
  - a. Content Documents
    - a.1. Committee final report
    - a.2. Committee roster
    - a.3. Produce Wash Committee White Paper
    - a.4. CFP Produce Committee Survey
    - a.5. Comparison of state regulations with 2013 FDA Food Code
    - a.6. Terminology, jurisdictions & definitions chart
    - a.7. Summary of current FDA Food Code provisions addressing produce washing
  - b. Supporting Documents
    - b.1. Meeting Notes. All meeting notes were approved by the majority of the voting members via e-mail responses.
    - b.2. Power point presentations
      - Sanitizers efficacy in preventing cross-contamination of heads of lettuce during retail crisping, Dr. Matthews, Rutgers University
      - Produce Crisping Risks and Mitigations, Dr. McEntire, United Fresh
      - Common regulatory questions/concerns related to produce washes & treatments, Dan Dahlman, Ecolab
      - Safe washing & crisping of produce, Dr. Gorny, Produce Manufacturing Association (PMA)
- 3 Documents' Reference List

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2. *Issue #2: PWWC 2 - Amend Food Code to add the definition for "crisping".*
3. *Issue #3: PWWC 3 - Post the document created by the committee on CFP website.*
4. *Issue #4: PWWC 4 - Re-create - Produce Wash Water Committee with the charge to develop a Produce Guidance Document to address washing, crisping and the use of antimicrobial water treatments in food establishments.*