

JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX COMMITTEE ON FOOD HYGIENE

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Comments on the

PROPOSED DRAFT ANNEX ON BERRIES TO THE *CODE OF HYGIENIC PRACTICE FOR FRESH FRUITS AND VEGETABLES* (CAC/RCP 53-2003) (At Step 3)

Comments submitted by: Costa Rica, Cuba, Egypt, Japan, Malaysia, Mexico, United States of America and Uruguay

COSTA RICA

In response to the inquiry made to the competent authorities, Costa Rica has no comments on the document.

CUBA

Cuba agrees with the document.

EGYPT

The Draft "CX/FH 12/44/9 Annex on berries to the Code of Hygienic Practice for fresh fruits and vegetables (CAC/RCP 53-2003)" is very supportive, therefore: Egypt greatly appreciates the efforts made by the drafting teams, Electronic Working Group (e-WG) and the comments submitted by different countries. Egypt also accepts all the revised parts, added definitions, statements and texts done in the main document, with the following comments:

1. Page 4 - Section 3 at the end of the paragraph, please add "with or without treatment".
2. Page 4 - Clause 3.1.1 paragraph 3, our comment is that: growers should not harvest berries overripe; instead they should calculate the proper harvesting time that does not allow leakage of juice and reduce the risk of contamination of pathogens.
3. Page 4 - Clause 3.1.1 paragraph 4: delete line five unless adequate measures can be taken to mitigate the risks because the risk will be quite high.
4. Page 5 - Clause 3.2.1.1 paragraph 2 starting from assessing to corrective action should be taken, please add: "to prevent contamination of pathogens, since the nature of berries are difficult to clean and it can be eaten fresh, and to minimize other contamination risks".
5. Page 5 - Clause 3.2.1.1 paragraph 3 line 4, please include fencing or electrical fencing.
6. Page 6 - Clause 3.2.3.2 paragraph 3, please add at the end of statement: "should obtain health certificate and in case that they have risky pathogens, they should not be allowed to work in contact with food until being treated and proved free.
7. Page 8 - Clause 4.2.1 at the end of paragraph 1, please add: "rooms should be adequate with means of aeration (e.g. wall fans) with filters to prevent cross contamination from the outside air".
8. Page 9 - Clause 5.2.2.1 at the end of paragraph 2, we should mention that change of water should be considered whenever necessary.

JAPAN

The Government of Japan is pleased to submit the following comments on the proposed Draft Annex on Berries to the *Codex Code of Hygienic Practice for Fresh Fruits and Vegetables* at Step 4 for consideration at the forthcoming 44th Session of the Codex Committee on Food Hygiene.

General Comments

Japan is of the view that the context of the Draft Annex should be consistent, as much as possible, with the *Code of Hygienic Practice for Fresh Fruits and Vegetables* and the Annexes (CAC/RCP 53-2003). Japan believes that the following specific comments may help the CCFH resolving discrepancies among the main document, existing Annexes and the Draft Annex, and refining the Draft Annex.

We are pleased to provide more detailed comments including editorial changes paragraph by paragraph as follows:

Please find the following specific comments of which proposed insertion is underlined and proposed deletion is ~~struck out~~.

Specific Comments

SECTION 2 - SCOPE, USE AND DEFINITION

2.3 Definitions

Foot note 4

~~Codex Classification of Foods and Animal Feeds as contained in Volume 2 of the Codex Alimentarius (CAC/MISC4 1993)~~

SECTION 3 - PRIMARY PRODUCTION

3.2 Hygienic primary production of berries

The 2nd para

Some berries frequently contact soil directly during growth and/or harvesting. Bird droppings and airborne contaminants (birds nesting around the packing area, nearby livestock, poultry areas or manure storage or treatment facilities, etc.) may also pose a risk of contamination to berries. Growers should use production practices to prevent or minimize the contact of berries with airborne contaminants and limit contact with the soil, animal droppings, soil amendments (including natural fertilizers) or direct contact with water used for irrigation or agricultural chemicals.

<Rational>: for clarity

3.2.1.1 Water for primary production

The 1st para

The 2nd sentence in the 1st bullet point,

In the case of identified contamination sources of the water used on the farm, corrective actions should be taken to minimize the contamination ~~risks~~.

<Rational> : editorial

The 2nd and 3rd bullet points,

The 2nd bullet point should be deleted. The following new bullet points from the text in the section on “Water for primary production” in the “Annex for melons” in the COP should be added to the 1st paragraph after the current 3rd bullet point as an alternative text.

- ~~• Verification of the microbial quality of water includes testing for *Escherichia coli* as an indicator of faecal pollution. *E. coli* provides strong evidence of recent faecal pollution and should not be present in water for irrigation and production. The frequency of testing for *E. coli* contamination should be established according to the source of the water (less frequent for adequately maintained deep wells, more frequent for surface waters), environmental conditions (e.g., temperature fluctuations, heavy rainfall) and the status of the irrigation system.~~
- Identifying and implementing corrective actions ~~is a means~~ to prevent or minimize contamination of water for primary production (e. g. , settling or holding ponds that are used for subsequent irrigation and/or harvesting may attract animals or in other ways increase the microbial risks associated with water for irrigation).

(New bullets)

- Determine if microbial and chemical testing should be done to evaluate the suitability of water for each intended use. Analytical testing may be necessary after a change in irrigation water source, flooding or a heavy rainfall when water is at a higher risk of contamination. If testing, determine and document.
 - What tests need to be performed, (e.g., which pathogens and/or sanitary indicators)
 - Which parameters should be noted (e.g., temperature of water sample, water source location, and/or weather description),
 - How often tests should be conducted,
 - What the test outcomes indicate, and
 - How tests will be used to define corrective actions.
- Frequency of testing should depend on the source of the irrigation water (less for adequately maintained deep wells, more for surface waters) and the risks of environmental contamination, including intermittent or temporary contamination (e.g., heavy rain, flooding, etc.).
- If water testing is limited to non-pathogenic indicators, frequent water tests may be useful to establish the baseline water quality so that subsequent changes in the levels of contamination can be identified.
- If the water source is found to have unacceptable levels of indicator organisms or is contaminated with foodborne pathogens, corrective actions should be taken to ensure that the water is suitable for its intended use. Testing frequency should be increased until consecutive results are within the acceptable range.

The 2nd paragraph [no change]

<Rational>

Japan thinks that the selection of indicators should be fit on purpose, we do not need to limit for *E.coli* testing.

3.2.1.2 Manure, biosolids and other natural fertilizers

The use of untreated manure and liquid manure should be avoided ~~to the extent possible.~~ Foodborne pathogen Pathogenic microorganisms can persist in soil for long periods of time and as some berries have a short production cycle, they could become contaminated by foodborne pathogens in the manure.

<Rational>: foodborne pathogens may be present in untreated manure and liquid manure and may persist for weeks or even months, particularly if treatment of these materials is inadequate.

3.2.3.1 Personnel hygiene and sanitary facilities

For clarity, replace the existing texts with the following new texts from the section on “Personnel hygiene and sanitary facilities” in the “Annex for melons” in the COP.

~~Sanitary facilities should be readily accessible to agricultural workers during harvesting and packing.~~

~~Growers should identify the areas where it is safe to put portable facilities and have written Standard Operating Procedures (SOPs) or documentation for proper cleaning and/or exhausting procedures.~~

Growers should consider providing areas away from the field and packing lines for agricultural workers to take breaks and eat. For worker convenience, these areas should provide access to toilet and hand-washing facilities so that agricultural workers can practice proper hygiene.

As far as possible, sanitary facilities should be located close to the field and readily accessible to the work area.

- Sanitary facilities should be located in a manner to encourage their use and reduce the likelihood that agricultural workers will relieve themselves in the field. Facilities should be present in sufficient number to accommodate all personnel.
- Portable facilities should not be located or cleaned in cultivation areas or near irrigation water sources or conveyance systems. Growers should identify the areas where it is safe to put portable facilities.

- Facilities should include clean running water, soap, toilet paper or equivalent, and single use paper towels or equivalent. Multiple use cloth drying towels should not be used. Hand sanitizers should not replace hand washing and should be used only after hands have been washed.
- If clean running water is not available, an acceptable alternative hand washing method should be recommended by the relevant competent authority.

3.2.4 Equipment associated with growing and harvesting

3rd bullet point

- Containers that are no longer cleanable should be disposed of since they may increase the risk of microbial contamination of berries. ~~fresh fruits and should be disposed of.~~

<Rational>: editorial

Last bullet point

- If the containers are stored outside, they should be cleaned and disinfected before ~~being used to~~ transporting berries.

<Rational> editorial

3.3 Handling, Storage and Transport

The 2nd para

Growers should implement safe handling, transport and storage practices and immediately cool berries after harvesting. Precooling (i.e., rapid removal of field heat) berries ~~within the first 2 hours~~ after harvesting (e.g., within the first 2 hours) is important to maintain freshness and quality and contributes to the control of foodborne pathogens. Growers should use potable water for ice and hydrocooler when precooling to minimize risks of contamination.

<Rational>

Considering that period of “2 hours” is one of the options that members could take, it is more appropriate to place wordings “within the first 2 hours” in parentheses and provide it as an example.

3.3.1 Prevention of cross-contamination

The 2nd bullet point

- Harvest workers should not handle culled fruit in the field in order to prevent cross-contamination ~~ing~~ of healthy berries during harvest. It is recommended that culls be removed from the field by a worker who is not harvesting healthy fruit.

<Rational>: editorial

The 3rd bullet point

- Harvest containers used repeatedly should be cleaned and disinfected after each use ~~seasonally or as needed.~~ Harvest containers that come into contact with berries should not be used for purposes other than holding product (e.g., should not hold personal items, waste, etc.).

<Rational>:

The new added text from the section on “Prevention of cross-contamination” in the “Annex for melons” in the COP is a point to minimize cross - contamination through the surface of containers.

4.1.2 Equipment

Whenever possible, equipment should be designed and placed to facilitate cleaning and disinfection, and to prevent build-up of biofilms that may contain foodborne pathogens ~~organisms~~ of concern.

Written SOPs should be developed and implemented ~~available~~ for the cleaning and disinfection of equipment used for post-harvest treatment.

<Rational>: editorial

5.1 Control of food hazards

The last sentence of the 3rd para.

~~Dispose of e~~Culled fruit should be hygienically disposed of to avoid ~~prevent it from~~ attracting pests.

<Rational>: editorial and improve clarity

5.2.2.1 Post-harvest water use

The 2nd para

~~Clean or preferably~~ Potable water should be used for berries that are washed. It is recommended that water used in pre-washing and washing tanks in packing establishments be controlled and monitored, i. e. recording the pH and temperature, turbidity, water hardness and product throughput capacity.

<Rational>: Water used for post harvest should be potable.

MALAYSIA

3.2 Hygienic primary production of berries

To be consistent with Annex on Melons, Malaysia proposes to include the informations on “Water for irrigation”, “Water for fertilizers, pest control and other agricultural chemicals” and “Water for harvesting and other agricultural uses” into the draft Annex on Berries.

3.2.3.1 Personnel hygiene and sanitary facilities

To be consistent with Annex on Melons, Malaysia proposes to include all the informations under this subheading into the draft Annex on Berries.

5.1 Control of food hazards

Malaysia is of the opinion that the statement should be reworded as follows:

“Culled berries should be removed from the field or packing facility and disposed of to prevent contamination of other fruit. ~~Dispose of culled fruit hygienically to prevent it from attracting pests~~
Culled fruit should be hygienically disposed to prevent it from attracting pests.”

5.7 Documentation and records

Malaysia is of the view that the examples of the types of records that should be retained to also include employee medical examination records as follows:

- **Employee medical examination records**

5.8 Recall procedure

Malaysia is of the opinion that the information needed to link each supplier is a must and should also include the “farm address”. Therefore, Malaysia proposes the statement to be amended as follows:

“Detailed records should be kept that link each supplier of the product with the immediate subsequent recipient of the berries throughout the food chain. The information needed to link each supplier should include, ~~if available~~, **the farm address**, the packer name, address, and phone number, date packed, date released, type of berry (e.g., strawberry, blueberry, etc.) including brand name, lot identification and number of lots, and transporter.”

MEXICO

General Comments:

- We believe that the translation into Spanish should be revised, including the general drafting of the document. (See the table at the end of the document.)
- We suggest ordering the numbers since there is no consistency.

Specific Comments:

Document CX/FH 12/44/9	Comments	Rationale
<p>3.2. Hygienic primary production of berries</p> <p>Rodents, insects and birds may also damage berries, leading to increased microbial spoilage and the potential transmission of foodborne pathogens. Growers should take measures to reduce the extent of damaged fruits during production.</p>	<p>3.2. Hygienic primary production of berries</p> <p>Rodents, insects and birds may also damage berries, leading to increased microbial spoilage and the potential transmission of foodborne pathogens. Growers should take measures to reduce the extent of damaged fruits during production. <u>Whenever possible, other methods should be found in order to minimize fruit handling by harvest workers, packers and inspectors.</u></p>	
<p>3.2.1.1 Water for primary production</p> <p>Paragraph 1 Only clean water should be used for berry production. Growers should identify the sources of water used on the farm (municipality, re-used, irrigation water, reclaimed wastewater, discharge water from aquaculture, well, open canal, reservoir, rivers, lakes, farm ponds, etc.). Growers should assess and manage the risk posed by water as follows:</p>	<p>3.2.1.1 Water for primary production</p> <p>Paragraph 1</p> <p>The meaning of “reclaimed wastewater” is not clear.</p>	<p>Defining this term will contribute to the correct application of the document</p>
<p>3.2.3. Personnel health, hygiene and sanitary facilities</p> <p>Personal hygiene is critical with manual harvesting due to the amount of human handling that could lead to contamination of berries.</p>	<p>3.2.3. Personnel health, hygiene and sanitary facilities</p> <p>Personal hygiene is critical with manual harvesting due to the amount of human handling that could lead to contamination of berries. <u>Whenever possible, harvesting, packing and inspection processes should be designed to reduce fruit handling.</u></p>	
<p>The SOPs should address worker training, facilities and supplies to enable agricultural workers to practice proper hygiene, and company policies relating to expectations for worker hygiene as well as illness reporting.</p>	<p>The SOPs should address, <u>without limitation:</u> worker training, facilities and supplies to enable agricultural workers to practice proper hygiene, and company policies relating to expectations for worker hygiene as well as illness reporting.</p>	

Document CX/FH 12/44/9	Comments	Rationale
<p>3.2.3.1 Personnel hygiene and sanitary facilities</p> <p>Sanitary facilities should be readily accessible to agricultural workers during harvesting and packing.</p>	<p>Sanitary facilities should be readily accessible to agricultural workers during harvesting and packing, <u>they should also be supplied with toilet paper, water, soap and hand wipes.</u></p> <p><u>The number of sanitary facilities should be proportionate to the number of agricultural workers.</u></p>	
<p>3.2.3.3 Personal cleanliness</p> <p>When personnel are permitted to continue working with cuts and wounds covered by waterproof dressings, they should wear gloves to cover the bandages thereby providing a secondary barrier between them and the berries they handle.</p>	<p>3.2.3.3 Personal cleanliness</p> <p>When personnel are permitted to continue working with cuts and wounds covered by waterproof dressings, then, they should wear gloves to cover the bandages thereby providing a secondary barrier between them and the berries they handle <u>or, otherwise, they should be reallocated to another working area where they do not handle berries directly.</u></p>	<p>The latter case should apply if it is not possible to provide gloves.</p>
<p>3.2.4 Equipment associated with growing and harvesting</p> <p>Paragraph 1</p> <p>Standard operating practices should be developed for the maintenance, cleaning and disinfecting operations of growing and harvesting equipment. In addition:</p>	<p>3.2.4 Equipment associated with growing and harvesting</p> <p>Paragraph 1</p> <p>Standard operating practices should be developed for the maintenance, cleaning and disinfecting operations of growing and harvesting equipment. In addition: <u>including the following:</u></p>	<p>This change is suggested since the bullets should be part of the corresponding SOP, otherwise, they would appear as isolated additional elements.</p>
<p>3.2.4 Equipment associated with growing and harvesting</p> <p>Bullet point 2.</p> <p>Containers used repeatedly during harvest should be cleaned after each load.</p>	<p>3.2.4 Equipment associated with growing and harvesting</p> <p>Bullet point 2.</p> <p>Containers used repeatedly during harvest should be cleaned after each load. <u>in accordance with an established programme, which provides for at least cleaning at the end of the harvesting shift.</u></p>	

Document CX/FH 12/44/9	Comments	Rationale
<p>3.3 Handling, Storage and Transport</p> <p>Bullet point 1. Manual harvest considerations:</p> <p>Item 2. Training and supervision of the agricultural workers is essential to the success of any harvesting operation. Growers should have a responsible person to supervise harvesting at all times to assure harvesters use proper hand washing and follow procedures not to harvest wet, bruised and/or damaged fruits. Additionally, berries that had fallen on the ground should not be harvested.</p>	<p>3.3 Handling, Storage and Transport</p> <p>Bullet point 1. Manual harvest considerations:</p> <p>Item 2 Training and supervision of the agricultural workers is essential to the success of any harvesting operation. Growers should have a responsible person to supervise harvesting at all times to assure harvesters use proper hand washing and follow procedures not to harvest wet, bruised and/or damaged fruits. Additionally, berries that had fallen on the ground should not be harvested.</p> <p>We suggest</p> <p>Including a paragraph indicating that berries that had fallen on the ground should have an alternative collection process, and that, if they are found in good condition, they can be reincorporated into the production process or used for the processing of other products that are not eaten fresh.</p>	<p>All berries that had fallen on the ground and are in good condition should be given the chance to be incorporated into the production process</p>
<p>3.3.1 Prevention of cross-contamination</p> <p><input type="checkbox"/> Harvest containers used repeatedly should be cleaned and disinfected seasonally or as needed.</p>	<p>3.3.1 Prevention of cross-contamination</p> <p>Harvest containers used repeatedly should be cleaned and disinfected seasonally or as needed.</p>	<p>Moreover, the equipment should be cleaned and disinfected in accordance with a program where a reasonable frequency is set and when this is required (for example, if the equipment passes through an area with a great concentration of animals or fecal material).</p>
<p>4.1 Location</p> <p>4.1 2 Equipment</p> <p>Whenever possible, equipment should be designed and placed to facilitate cleaning and disinfection, and to prevent build-up of biofilms that may contain organisms of concern.</p>	<p>4.1 Location</p> <p>4.1 2 Equipment</p> <p>Whenever possible, Equipment must should be designed and placed to facilitate cleaning and disinfection, and to prevent build-up of biofilms that may contain organisms of concern.</p>	

Document CX/FH 12/44/9	Comments	Rationale
<p>5.2.2.1. Post-harvest water use Paragraph 3</p> <p>Any antimicrobial agents used in the water should be maintained at sufficient levels to ensure that water used in pre-washing and washing tanks does not act as a source of contamination for the fruit.</p>	<p>5.2.2.1. Post-harvest water use Paragraph 3</p> <p>Antimicrobial agents can damage skin structure, hence, the shelf life of the product, therefore, we suggest the incorporation of text considering this situation.</p>	<p>Any antimicrobial agents used in the water should be maintained at sufficient levels to ensure that water used in pre-washing and washing tanks does not act as a source of contamination for the fruit, and to prevent antimicrobial agents from damaging fruit skin structure.</p>

SUGGESTED CORRECTIONS (SPANISH VERSION)

Current wording	Suggested correction
<p>Introduction, paragraph 1: arbutos</p>	<p>Introduction, paragraph 1: arbustos</p>
<p>All the document eses</p>	<p>All the document Heces</p>
<p>3.3 Handling, storage and transport Paragraph 1 encimas</p>	<p>3.3 Handling, storage and transport Paragraph 1 enzimas</p>
<p>3.3 Handling, storage and transport Paragraph 2</p> <p>Los productores deberían poner en práctica prácticas seguras en el manejo, transporte y almacenamiento de las bayas y enfriarlas inmediatamente luego de su cosecha. En pre enfriado (por ej., la eliminación del calor del campo) dentro de las primeras dos horas luego de su cosecha es muy importante para mantener su frescura y calidad, además de contribuir al control de los patógenos transmitidos por los alimentos. Asimismo, deberán usar agua potable para el hielo y la fase de hidro enfriamiento usado en el proceso de pre enfriamiento para reducir el riesgo de contaminación.</p>	<p>3.3 Handling, Storage and Transport Paragraph 2</p> <p>Los productores deberían poner en práctica <u>marcha</u> prácticas seguras en el manejo, transporte y almacenamiento de las bayas y enfriarlas inmediatamente luego de su cosecha. El pre enfriado (por ej., la eliminación del calor del campo) dentro de las primeras dos horas luego <u>de</u> su cosecha es muy importante para mantener su frescura y calidad, además de contribuir al control de los patógenos transmitidos por los alimentos.</p>

UNITED STATES OF AMERICA

The United States is providing a number of suggestions for revisions, primarily to provide clarity and to remove provisions we think are adequately covered in the *General Principles of Food Hygiene* or the *Code of Hygienic Practice for Fresh Fruits and Vegetables*. In the comments below, text to be removed is indicated by strike outs and text to be added is underlined.

INTRODUCTION

Comment: We propose an addition to the end of the first paragraph as shown below:

This diversity in production practices and consumption practices (while many berries are eaten fresh, some berries are most commonly processed using a microbiocidal treatment) may result in very different food

safety risks for the different berries, which results in growers needing to evaluate their production practices and develop food safety controls appropriate for their crop.

Rationale: This annex applies to fruits that are highly diverse and therefore may not share the same food safety risks or need the same control measures.

SECTION 2 – SCOPE, USE AND DEFINITION

2.3 Definitions

Comment: delete the definition of berries.

~~Berries—berries including other small fruits are derived from a variety of perennial plants and shrubs having fruit characterized by a high surface : weight ratio. The entire fruit, often including seed, may be consumed in a succulent or processed form⁴.~~

Rationale: The working group struggled with defining the term “berries.” In an attempt to do so, the working group used the Codex classification of foods, which has a group “Berries and Other Small Fruits.” The definition is based on the descriptor for that group. However, we do not find the definition adds clarity to what is meant by berries beyond the information in the introduction. Moreover, the definition, which comes from a fruit group that contains “other small fruits,” would apply to fruits not meant to be covered by this annex (e.g., grapes). Additionally, the reference in the definition to being consumed “in a succulent or processed form” is inappropriate for a definition and may cause confusion about the scope of the annex.

SECTION 3 – PRIMARY PRODUCTION

Section 3.1.1 Location of the production site

Comment: We propose the following revisions to the second paragraph:

The effects of some environmental events, such as heavy rains, cannot be controlled. For example, heavy rains may increase the exposure of berries to pathogens if soil contaminated with pathogens splashes onto fruit surfaces. Where appropriate, growers should take into consideration natural uncontrolled events such as heavy rains and evaluate postponing harvesting berries for direct consumption berries and/or to subject the berries to a treatment that will minimize the risk from pathogens~~design and validate cleaning and disinfection steps prior to packing berries that will be frozen.~~ The risk of contamination is greatest when heavy rains cause flooding and flood waters come in direct contact with berries; berries that have been contacted with flood waters should not be used unless the berries can be treated to minimize the risk from contaminants.

Rationale: It is unclear what cleaning and disinfection steps exist that could be used to remove contaminants; however, there are processing treatments that could be used, e.g., heat used in making jams. Although processed products receiving a microbiocidal treatment are not included in this Annex, we recognize that processing may be an alternative to not harvesting the berries. In addition to splashing due to heavy rainfall, the heavy rains may cause flooding, which presents a greater risk of contamination with both microbial and chemical hazards. In such instances the fruit should not be used unless steps are taken to mitigate the risk.

Comment: Replace the term “serious” in the last sentence of the fourth paragraph with the term “high”.

When the risks are high~~serious~~, these production sites should not be used for berry production unless adequate measures can be taken to mitigate the risks.

Rationale: The term “high” is more appropriate terminology as it relates to food safety risks.

Section 3.1.2 Wild and domestic animals and human activity

Comment: Delete “and” and insert the term “including” after the parenthetical statement in the first sentence of the first paragraph, and set the phrase off with commas:

Many animal species (e.g., insects, birds, amphibians, chickens, feral pigs, livestock and domestic or wild dogs), ~~and~~ including humans, that may be present in the production environment are known to be potential carriers of foodborne pathogens.

Rationale: Minor editorial to clarify that humans are animals.

Comment: Clarify what is meant by a “cultural” method for keeping animals from production field, as

shown in the first bullet (or delete the term):

- Domestic and wild animals should be excluded from the production area, to the extent possible, using appropriate biological, **cultural**, physical and chemical pest control methods.

Rationale: It is not clear to us what the term means here. An “e.g.” may be needed.

Section 3.2 Hygienic primary production of berries

Comment: We propose the third sentence in the second paragraph be revised as shown:

Growers should use production practices (e.g., site selection, wind breaks) to minimize the contact of berries with airborne contaminants and limit contact with the soil, animal droppings, soil amendments (including natural fertilizers) or direct contact with ~~water used for irrigation~~ irrigation water ~~or agricultural chemicals~~.

Rationale: Clarification of production practices that can minimize contact with airborne contaminants. Also it is not clear how growers would minimize contact of berries with agricultural chemicals, because pesticides are almost always mixed with water prior to application and this mix necessarily has contact with the berries and foliage to control pests. The change in wording from “water used for irrigation” to “irrigation water” is an editorial change.

Section 3.2.1.1 Water for primary production

Comment: We propose a paragraph that appeared in the first version of the draft berry annex, slightly modified, be included in this section in the first paragraph between the second and third sentences:

Growers should identify the sources of water used on the farm... The risk of contamination is considered to be higher with water delivery techniques that result in exposure of berries (particularly the edible portion) directly to irrigation water, such as with use of overhead sprinklers, as compared to other types of irrigation, such as drip irrigation. Growers should assess and manage the risk posed by water...

Rationale: It is not clear why this was eliminated, but this is an important aspect of the safety of irrigation water used for berry production. It is also consistent with the recommendations in the leafy greens annex.

Comment: In the third bullet change the term “is a” for the term “are”:

- Identifying and implementing corrective actions ~~is a~~ are means to prevent or minimize contamination of water for primary production...

Rationale: Minor editorial correction.

Section 3.2.3 Personnel health, hygiene and sanitary facilities

Comment: We suggest revising the first paragraph as shown below:

Personal hygiene is critical with manual harvesting due to the amount of human handling that could lead to contamination of berries. All agricultural workers should properly wash their hands using soap and clean running water and dry hands with single-use paper towels or the equivalent before handling berries, particularly during harvesting and post-harvest handling. ~~Agricultural workers should be trained in proper techniques for hand washing and drying.~~

Rationale: Drying hands with single-use paper towels is part of the hand washing procedure. This terminology is consistent with other annexes. The sentence “Agricultural workers...washing and drying” should be deleted because it appears in Section 10 -“Training.”

Comment: In the third paragraph insert the term “in” after the term “operating”:

Where appropriate, each business operating in primary production should have written Standard Operating...

Rationale: Minor editorial change.

Section 3.2.1.2 Manure, biosolids and other natural fertilizers

Comment: We recommend the first paragraph be revised as shown below:

The use of untreated manure and liquid manure should be avoided to the extent possible.

Pathogenic microorganisms can persist in soil for long periods of time and as some berries have a short production cycle, they could become contaminated by pathogens in the manure. Soil contaminated with

human pathogens from untreated and/or partially treated manure, biosolids, and other natural fertilizers may contaminate berries via rain splash or flooding.

Rationale: The sentence at the end further identifies how contamination with pathogens from untreated and liquid manure can occur.

Section 3.2.3.2 Health status

Comment: Change the term “note” in the first bullet to “recognize”:

- Growers should be encouraged to ~~note~~ recognize symptoms of diarrhoeal or food-transmissible communicable diseases, and reassign agricultural workers as appropriate.

Rationale: Using the term “note” may be interpreted as a recommendation to document symptoms in written records. The term is “recognize” more appropriate, since the intent is for growers to recognize when a worker may be ill.

Section 3.2.4 Equipment associated with growing and harvesting

Comment: Modify the second bullet as indicated.

- Containers used repeatedly during harvest should be cleaned and disinfected seasonally and after each load as needed in accordance with SOPs.

Rationale: The bullet was inconsistent with the third bullet in section 3.3.1 “Prevention of Cross Contamination” that states “Harvest containers used repeatedly should be cleaned and disinfected seasonally or as needed.” We propose the bullet be in this section and refer to SOPs for when cleaning and disinfection should be done during the harvest season.

Section 3.3 Handling, storage and transport

Comment: Revise the second paragraph as shown below:

Growers should implement safe handling, transport and storage practices and immediately cool berries after harvesting. Precooling (i.e., rapid removal of field heat) berries ~~within the first 2 hours~~ soon after harvesting is important to maintain freshness and quality and contributes to the control of foodborne pathogens. If hydrocoolers or ice are used to precool berries, only potable water should be used for ice and hydrocooler when precooling in order to minimize risks of contamination.

Rationale: There is no scientific basis to support “two hours” for all berries. With respect to the last sentence, the former construct could be misinterpreted to suggest that ice and hydrocoolers are the only methods used for cooling berries. Berries may also be cooled by air.

Comment: In the first bullet under “Mechanical harvest considerations” we propose the following revisions:

- Mechanical harvest is a common practice for some berries ~~and~~ but may create food safety hazards if the equipment breaks down during ~~the~~ harvest, if it has received poor maintenance and cleaning or if it damages the fruit.

Rationale: Editorial change.

Comment: In the second bullet under “Manual harvest considerations” we suggest the following minor revisions:

- Training and supervision of ~~the~~ agricultural workers is essential to the success of any harvesting operation. Growers should have a responsible person to supervise harvesting at all times to assure harvesters use proper hand washing procedures and follow procedures not to harvest wet, bruised and/or damaged fruits. Additionally, berries that ~~had~~ have fallen on the ground should not be harvested.

Rationale: Editorial changes.

Section 3.3.1 Prevention of cross-contamination

Comment: Delete the third bullet:

~~Harvest containers used repeatedly should be cleaned and disinfected seasonally or as needed.~~

Rationale: This was moved to section 3.2.4 “Equipment used with growing and harvesting”.

Comment: We request clarification on the last bullet in section 3.3.1:

Prevent cross-contamination between raw and washed berries, which will be frozen, from sources such as wash water, rinse water, equipment, utensils and vehicles.

Rationale: Section 3.3.1 covers issues of cross contamination in the field. Are some berries washed in the field?

Section 3.3.3 Field packing

Comment: We suggest the following changes to the first sentence of the second paragraph:

~~Growers should ensure that c~~Clean and disinfected pallets and containers ~~(disinfected where necessary) should be are~~ used and ~~growers should~~ take measures to ensure that the containers do not come into contact with soil and manure during field packing operations.

Rationale: Editorial changes to improve clarity. Moreover, it is not possible to disinfect pallets.

SECTION 4. PACKING ESTABLISHMENT: DESIGN AND FACILITIES

Comment: Delete the second paragraph.

~~The provisions below apply for cooling and/or washing berries in a packing establishment.~~

Rationale: Since this section applies to the packing establishment, it is not necessary to repeat this here.

Section 4.1.1 Location

Comment: Delete this section.

4.1.1 Establishments

~~To the extent possible and based on the risk associated with the particular berry, growers may consult an expert to assess the relative risk and determine recommendations specific for the location of packing establishments.~~

Rationale: Location of establishments is adequately covered under Codex General Principles of Food Hygiene. We do not see a need to include statements about growers consulting an expert. Moreover, the first phrase “to the extent possible” does not fit with saying “growers may...”

Section 4.2.1 Design and layout

Comment: Delete the first paragraph.

~~For berries that are washed (e.g., berries which will be frozen), premises and rooms should be designed to separate areas for incoming soiled and outgoing washed berries. This can be accomplished in a number of ways, including linear product flow.~~

Rationale: This section is about the packing establishment. The guidance in this paragraph is adequately covered by the Codex General Principles of Food Hygiene in section 4.2.1 “Design and Layout” and section 5.2.4 “Microbiological Cross-Contamination.”

Comment: In the last (fourth) paragraph in section 4.2.1 delete the last sentence and replace it with the sentence added below:

~~Prior to the start of the season, the facility should be cleaned and all food contact surfaces should be cleaned and disinfected. The design should allow thorough cleaning and disinfection of food contact surfaces.~~

Rationale: The deleted sentence deals with cleaning and disinfecting and not about the design and layout. The guidance about cleaning and disinfecting at the beginning of the season is covered in Section 6.1.1. The proposed replacement sentence is consistent with the sentence that appears in the melon annex.

SECTION 5 - CONTROL OF OPERATION

Comment: In addition to the codes referenced, add the reference under 5.2.2 to the *Code of Practice for the Processing and Handling of Quick Frozen Foods* (CAC/RCP 8-1976) here.

Rationale: Limiting the reference to section 5.2.2 would suggest that the “specific process step” is freezing; however, section 5.2.2 includes provisions that could apply to both ready-to-eat fresh berries and berries that are frozen. In addition, the Quick Frozen Foods code has provisions applicable to frozen berries that would

apply not just at the specific processing step of freezing, e.g., it provides guidance on temperature management in the cold chain.

Section 5.1 Control of food hazards

Comment: In the second paragraph, we propose the following revision:

Care should be taken to ensure that berries are not damaged ~~nor~~ and do not become cross-contaminated during transport and ~~processing~~ handling.

Rationale: Editorial changes. The focus of this section should be broad. By replacing the term “processing” with “handling,” any activities during packing or processing where berries are handled are covered.

Section 5.2.2 Specific process steps

Comment: Delete the reference:

~~Code of Practice for the processing and handling of quick frozen foods (CAC/RCP 8-1976)~~

Rationale: This reference should be included with the other references under the section header, as noted above.

Section 5.2.2.1 Post-harvest water use

Comment: We recommend inserting “where appropriate” in the second sentence of the second paragraph and deleting the term “water hardness” from the third line in the second paragraph:

Clean or preferably potable water should be used for berries that are washed. It is recommended that where appropriate, water used in pre-washing...controlled and monitored, i.e. recording the pH and temperature, turbidity, ~~water hardness~~ and product throughput capacity.

Rationale: Testing water for “water hardness” is not necessary as long as pH is being monitored. Adding the term “where appropriate” is consistent with the other annexes.

Comment: We recommend deleting the 3rd paragraph.

~~Antimicrobial agents used in the water should be maintained at sufficient levels to ensure that water used in pre-washing and washing tanks does not act as a source of contamination to the fruit.~~

Rationale: This is adequately covered in the *Code of Hygienic Practice for Fresh Fruits and Vegetables*.

Section 5.3 Incoming material requirements

Comment: Delete the last bullet:

- ~~• Maintain physical separation...finished product)~~

Rationale: This is already covered in the first bullet under Section 5.2.4 of the draft berries annex.

SECTION 9 – PRODUCT INFORMATION AND CONSUMER AWARENESS

Section 9.4 Consumer education

Comment: The following bullet is proposed as an addition following the fourth bullet under the heading “Consumer information on handling berries safely should cover:”

- The need to wash berries before consuming, especially when raw.

Rationale: This is consistent with the guidance provided in the WHO document referenced in footnote 5 and is an important consumer educational point.

SECTION 10 - TRAINING

Section 10.2 Training programs

Comment: Delete the first bullet:

- ~~• Training to recognize and harvest only ripe berries.~~

Rationale: This is a quality issue, not a food safety issue.

URUGUAY

Uruguay would like to thank the Electronic Working Group on Berries, led by Brazil, for the work conducted and appreciates the opportunity to submit the following comments.

General Considerations:

- Uruguay believes it is not clear why the document raises the question whether to restrict the list of berries to be addressed in the Annex, while at the same time the Introduction refers to a broad variety of berries, including wild berries. In this regard, we support Brazil's proposal, considering that the document on hygiene practice for fresh fruits and vegetables is very broad and not specifically applicable to berries, especially strawberries. In Uruguay's view, it is important that the document considers both strawberries and blueberries, because these are relevant commodities for the country.
- Translation problems have been noted.

Specific Considerations:

2.3 Definitions:

The definition of "berry" is considered very generic.

3.1.1. Location of the production site:

The description of this section is generic; it is not specific to this type of commodities. These considerations should be taken into account for all crops.

Regarding the control of some environmental events (heavy rains), nylon mulch and nylon tunnels (micro or macrotunnel) covering the crop could be used to minimize splashing

This section requires an item to reference the site background information.

3.1.2. Wild and domestic animals and human activity:

We reiterate the suggestion not to list wild and domestic animals. These can vary depending on the area and/or crop.

It should be clarified from the beginning, in the scope section, that the methods selected should comply with national/local standards.

The paragraphs are not clear and are sometimes repetitive. Preventive actions should be listed, and it should not be made explicit that growers may or may not decide to harvest regardless of GAPs, for example:

- domestic and wild animals should be excluded from the production area
- it is recommended to build a surrounding fence which should be periodically checked to ensure it stays in good condition.
- standing water in fields should be minimized
- keeping order and cleanliness in the farm
- examining the production area often to detect the presence of animal activity and evaluation of risks and whether or not to harvest.
- If activities other than crop growing are conducted in neighboring sites which may pose a risk to the safety of the crop, effective measures should be established to prevent the leakage or liquid or leachate into the active production area.

3.2. Hygienic primary production of berries

In order to consider all the animals that may damage berries, we suggest the addition of:

Rodents, insects and birds **among others**.....

3.2.1.1 Water for primary production

The recommendations in the Code of Hygienic Practice for Fresh Fruits and Vegetables should be followed.

3.2.1.2 Manure, biosolids and other natural fertilizers

The recommendations in the Code of Hygienic Practice for Fresh Fruits and Vegetable should be followed.

The use of untreated manure should not be allowed.

3.2.3. Personnel health, hygiene and sanitary facilities

We suggest that aspects related to personnel health and hygiene and sanitary facilities be treated separately, for example:

3.2.3. Personnel health and hygiene

3.2.3.1. Personnel health

This section should take the indications established in the Code of Hygienic Practice for Fresh Fruits and Vegetables and add the need for workers to perform medical screenings if considered appropriate.

3.2.3.2. Personal Cleanliness

This section should take the indications established in the Code of Hygienic Practice for Fresh Fruits and Vegetables and add:

If gloves are used, a procedure for glove use in the field should be documented and followed. If the gloves are reusable, they should be made of materials that are easily cleaned and disinfected. They should be cleaned regularly and stored in a clean area. If disposable gloves are used, they should be discarded when they become torn, soiled, or otherwise contaminated. The use of gloves is not a suitable substitute for hand washing practices.

3.2.4. Cleaning of facilities

3.2.3.3. Equipment associated with growing and harvesting

3.2.3.4. Access to sanitary facilities

Sanitary facilities should be readily accessible to agricultural workers during harvesting and packing.

Growers should identify the areas where it is safe to put portable facilities and have written Standard Operating Procedures (SOPs) or documentation for proper cleaning and/or exhausting procedures.

3.3 Handling, storage and transport

The text at the end of the second paragraph could include the following handling recommendation widely used in Uruguay for strawberries:

Harvesting is recommended in the early morning hours when the temperature is not so high and protect the crop from sunlight for further transport and/or storage.

3.3.1 Prevention of cross-contamination

Add in the fourth bullet point: **Growers should periodically follow these practices.**

Delete the fifth bullet point.

4.1.1. Establishments

It is not clear what is recommended. It would be important to have professionals throughout the chain.

5.2.2.1. Post-harvest water use

~~Clean or preferably~~ Potable water should be used for berries that are washed.

5.7 Documentation and records

In addition, all field activities and plant protection products applications should be recorded, considering that safety starts with an appropriate handling of production.