CANADAGAP FOOD SAFETY MANUAL FOR GREENHOUSE PRODUCT©

Commodities covered within this Manual:

Production, Packing and Storage:

Leafy Vegetable and Cruciferae (except for microgreens):
Leafy – Lettuce, Spinach, Edible Flowers, Mixed Greens, Baby Leafy Greens, Asian Greens, Arugula, Green Onions, Leeks, Swiss Chard and Kale
Head – Broccoli, Cauliflower, Cabbage, Brussels Sprouts, Radicchio, Kohlrabi and Lettuce (Iceberg, Romaine, etc.)
Leaf of Root Crops - Belgian Endive, Dandelion Greens, Beet Greens, Turnip Greens and Corn Salad
Fresh Leafy Herbs - Parsley, Cilantro, Fresh Dill, etc.
Petioles - Celery, Fennel, Rhubarb

Small Fruit:
Strawberries, Raspberries, Blackberries, Blueberries (High Bush, Wild), Saskatoon Berries, Currants (Red, Black)
and Other (Gooseberries, Elderberries, etc.)

Combined Vegetables:
Legumes (Beans and Peas)
Bulb and Root Vegetables: Garlic, Beets, Carrots, Onions, Radish, Parsnips, Turnips, Shallots, Other (Horseradish, Sweet Potatoes, Ginger, etc.)
Fruiting Vegetables: Peppers, Eggplant, Melons, Pumpkin, Squash, Cucumbers, Tomatoes and Okra

Repacking, Wholesaling and Brokerage:

Fresh Fruits and Vegetables

CANADAGAP®

CanadaGAP Program
245 Menten Place, Suite 312
Ottawa, Ontario, Canada K2H 9E8

Version 10.0 **2023**

Acknowledgment

The ***CanadaGAP Food Safety Manual for Greenhouse Product*** and related materials were developed as part of the original On-Farm Food Safety Program led by the Fruit & Vegetable Growers of Canada with the funding and support of Agriculture and Agri-Food Canada (AAFC). Effective November 1, 2012, the CanadaGAP program is operated by CanAgPlus, a Canadian not-for-profit corporation. CanAgPlus now owns, publishes and maintains the CanadaGAP manuals and related materials. The Fruit & Vegetable Growers of Canada is no longer involved with any publications or any other aspect of the CanadaGAP program.

Technical support for the development of this document was provided by various federal and provincial governments, regional associations and technical resources. This manual was developed by individuals from across Canada with employment or other relevant experience involving production, packing, repacking, and storage of fresh food and vegetables. A list of contributors is available on the CanadaGAP website at www.canadagap.ca.

Every effort has been made to ensure the material presented herein is up-to-date and accurate; however, the organizations and individuals involved in the research, development and publishing processes cannot be held responsible for any error or consequences that could result from use of this information.

DISCLAIMER

CanAgPlus has made every reasonable effort to ensure the accuracy of all the information contained in this publication and other publications in the CanadaGAP Program. However, CanAgPlus makes no representations or warranties whatsoever whether express or implied as to the accuracy, correctness, currency, completeness or fitness or suitability for any purpose of such information and therefore disclaims to the maximum extent permitted by law any and all liability for any error, damage, loss, injury or other consequence which may arise from use in any manner of any information contained in this publication.

This document is intended to provide general food safety guidelines for the production and handling of horticultural products. It is not intended to serve as, and does not constitute recommendations or legal advice for any of the material contained herein. Because food safety plans and issues are evolving, may vary, and could involve legal implications, the reader should consult legal counsel for advice on particular legal or regulatory matters that may arise.

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I. Introduction

This document is intended to bring into focus the potential sources of biological (B), chemical (C) and physical (P) hazards for horticultural products from the production site through to shipping. It contains basic information to support the horticultural industry as it develops, refines and implements measures to enhance the safety of the Canadian food supply.

Many of the Good Agricultural Practices (GAPs) and Good Manufacturing Practices (GMPs) that are described in this Manual are already being carried out. However, in some instances very little documentation of these good practices exists. This Manual will help with the documentation of food safety practices. It is recommended that an electronic backup of the Manual is kept.

The user is responsible for implementation of the food safety program within their operation. This manual provides the toolkit to document compliance with food safety management system requirements. At all times, ownership and responsibility for the company's food safety program belongs to user, not with the CanadaGAP Program as developer of the Manual.

Senior Management Commitment to Food Safety Management System
Completion and implementation of the Food Safety Manual constitutes a commitment on the part of the person(s) responsible and the company's senior management to the development, management and continuous improvement of their food safety system. This includes creating, managing and maintaining a food safety culture within the organization.

II. Background

Horticultural products are grown, harvested and handled under a wide range of conditions, using a variety of agricultural inputs and technologies (e.g., agricultural chemicals, commercial fertilizers) and on various sizes of farms. Biological, chemical and physical hazards may therefore vary significantly from one operation to another. Each operation will need to consider the GAPs/GMPs that promote the safety of products, taking into account the conditions specific to the site, the type of product produced and the production/handling methods used. Once produce is contaminated, removing or killing pathogens is difficult. Therefore, prevention of microbial contamination at all steps from production to distribution is strongly favoured over treatments to eliminate contamination after it has occurred. The individual shall consider any additional testing that may be critical to confirming product safety within his operation; and based on the risk assessment of biological, chemical and physical hazards, prepare and implement a system to ensure that product/ingredient analyses critical to the confirmation of product safety are undertaken and that such analyses are performed to standards equivalent to ISO 17025.

Procedures associated with the handling and brokerage of horticultural products must be conducted under clean, sanitary conditions that minimize potential human health hazards due to contamination.

The CanadaGAP Manual for Greenhouse Product has been developed based on a Generic Greenhouse Food Safety Hazard Analysis and Critical Control Points (HACCP) Model. The HACCP-based Model is the tool used to assess the potential hazards associated with the growing, handling, packing, repacking and storage of products and in determining areas of higher risk. The Generic HACCP Model is available for those who wish to obtain it. The Generic HACCP Model was developed according to the Canadian Food Inspection Agency's Hazard Analysis and Critical Control Point (CFIA HACCP) and Canadian Government Food Safety Recognition Program requirements. For complete details on this program and its requirements, refer to the CFIA website at www.inspection.gc.ca.

For further background information about specific food safety hazards, please visit the Index of References on the CanadaGAP web site at: www.canadagap.ca.

CanadaGAP is committed to reviewing annually the Generic HACCP Models, which provides the technical backdrop to the requirements and procedures in the CanadaGAP Manual. Corresponding

review and updates to the Manual and record-keeping templates will take place at the same time. CanadaGAP's commitment is to keep pace with advances in food safety science, and reflect new developments in industry practice, maintain the technical soundness and Canadian Government recognition status of the CanadaGAP Program materials, and ensure the continuing suitability, adequacy and effectiveness of the Generic HACCP Model and CanadaGAP Manual for implementation by users.

The person responsible and senior management of each operation using and implementing this Manual, are required to review the Food Safety Program within the company at least annually, to ensure the continuing suitability, adequacy and effectiveness of their food safety system. Section 24 requires an annual review of the CanadaGAP Manual to update procedures; account for new equipment, buildings or processes; take stock of deviations, complaints, corrective actions and any changes in procedures that arose as a result; and evaluate the need for changes to the food safety system, including related policies and objectives.

III. Scope

The CanadaGAP Manuals are intended for use by horticultural operations in Canada. They cover the production, packing (including production site packing and both on and off farm packinghouses), repacking, storage, wholesaling and brokerage of horticultural products.

The **CanadaGAP Manual for Greenhouse Product** covers production, packing and storage of **product for fresh market** (see exceptions below), and production/packing/storage of all commodities sent for further processing. If products are sent for further processing a check with buyers for any additional requirements is recommended. It also covers the repacking, wholesaling and brokerage of fresh fruits and vegetables (see exceptions below).

CanadaGAP has divided the horticultural sector into the following crop groups: Fruit and Vegetable (Combined Vegetables; Leafy Vegetables and Cruciferae; Potatoes; Small Fruit; and Tree and Vine Fruit) and Greenhouse Production. Refer to the appropriate Manual(s) for the crops you produce.

This Manual is intended for the Greenhouse production, packing and storage of:

Combined Vegetables:

Legumes (Beans and Peas)
Bulb and Root Vegetables –Garlic, Beets, Carrots, Onions, Radish, Parsnips, Turnips, Shallots, and Other (Horseradish, Sweet Potatoes, Ginger, etc.)
Fruiting Vegetables - Peppers, Eggplant, Melons, Pumpkins, Squash, Cucumbers, Tomatoes and Okra

Leafy Vegetable and Cruciferae (except for microgreens):

Leafy– Lettuce, Spinach, Edible Flowers, Mixed Greens, Baby Leafy Greens, Asian Greens, Arugula, Green Onions, Leeks, Swiss Chard and Kale
Head – Broccoli, Cauliflower, Cabbage, Brussels Sprouts, Radicchio, Kohlrabi and Lettuce (Iceberg, Romaine, etc.)
Leaf of Root Crops - Belgian Endive, Dandelion Greens, Beet Greens, Turnip Greens and Corn Salad
Fresh Leafy Herbs - Parsley, Cilantro, Fresh Dill, etc.
Petioles - Celery, Fennel, Rhubarb

Small Fruit:

Strawberries, Raspberries, Blackberries, Blueberries (High Bush, Wild), Saskatoon Berries, Currants (Red, Black) and Other (Gooseberries, Elderberries, etc.).

EXCEPT for:

- **Aquaponically grown product**

This manual is intended for the repacking, wholesaling and/or brokerage of Greenhouse fresh fruit and vegetables EXCEPT for:

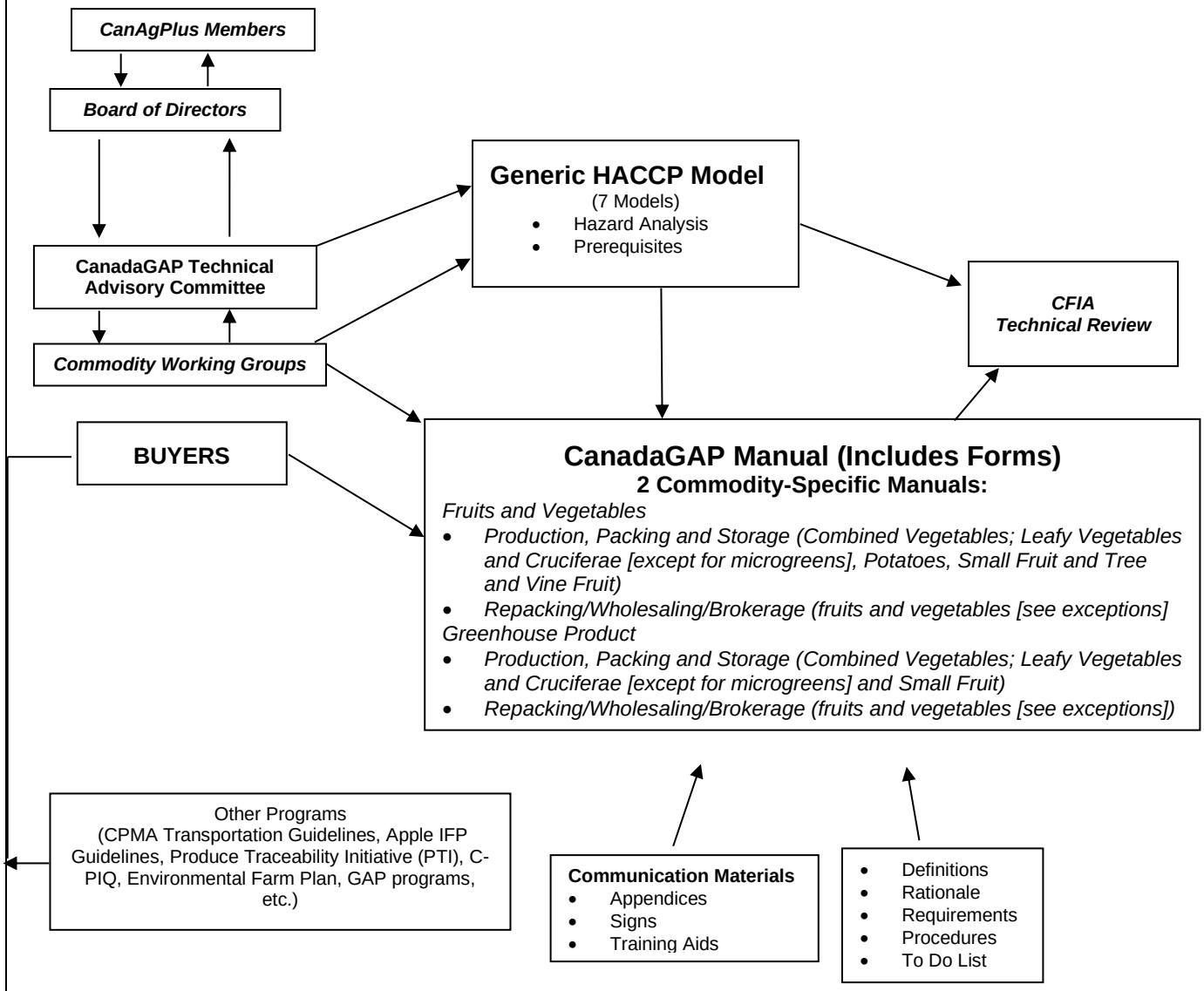
- **Fresh sprouts**
- **Fresh fruits and vegetables in hermetically sealed containers**
- **Minimally processed fruits and vegetables**

IV. Purpose

The CanadaGAP Manual has been created to make the contents of the Generic HACCP Model operational and commodity-specific. The purpose of this CanadaGAP Manual is to be the minimum requisite program for Food Safety (i.e., recognized national standard). Users with an existing program should review the CanadaGAP Manual and should integrate the requirements with their existing program to form an all-encompassing/equivalent food safety system suited to their needs.

The schematic diagram on the following page provides an excellent overview of food safety initiatives within horticulture.

V. Food Safety Roadmap for Horticulture



VI. How Do I Use this Manual?

IMPORTANT NOTE	**It is very important that you read carefully the next few pages (Sections VI.i – VI.v) before proceeding to Section 1: Commodity Starter Products of the Manual, and that you refer often to the Glossary as you work through the Manual. This will help you successfully implement your CanadaGAP Food Safety program by ensuring that you have a clear understanding of how to complete the Manual and of the terms and abbreviations used.**

VI.i Food Safety Tools

The CanadaGAP Food Safety tools developed by the CanadaGAP Program include the following:

CanadaGAP Food Safety Manual and Communication Materials

The communication materials complement the manual and include items such as signs, training support aids, appendices (which provide tools/information for implementation) and any additional items/information required for CanadaGAP Program implementation. To source these communication materials, visit the CanadaGAP website (www.canadagap.ca).

VI.ii How is this Manual Organized?

The Manual is divided into two parts:

i) Sections - The Manual content is organized into sections (e.g., Premises, Transportation, Traceability, etc.). Certain sections may not pertain to all products. Entire sections that are not applicable have been clearly identified as N/A. Sections that are applicable to specific crops have been clearly identified (e.g., For Tomatoes). The sections are further divided into Requirements (food safety requirements specific to horticultural products) and Procedures (how these requirements are to be met).

IMPORTANT NOTE	**It is assumed throughout the manual that EACH of the requirements (along with their procedures) are to be considered in terms of food safety. The risks are from those hazards that are in "direct contact with product" OR that may have an "impact on food safety through cross contamination".**

ii) Record-Keeping Form Templates - These Forms are found at the end of the Manual in the Compendium of Food Safety Forms. Two types of record-keeping form templates exist based on the frequency of completion.
   a) Forms that need to be completed once, annually, or as changes are made to the operation.
   b) Forms that need to be completed on an ongoing basis during the season (e.g., daily, weekly, monthly).

IMPORTANT NOTE	**Prevailing legislation (e.g., regulations at the federal, provincial, territorial, state, regional, local, municipal, etc. level) must be followed. The person responsible should find out whether regulations exist in the following or other areas:** ➢ **Purchasing, applying and storing commercial fertilizers and soil amendments** ➢ **Purchasing, receiving, applying and storing pulp sludge** ➢ **Spreading and storing manure and compost** ➢ **Purchasing, applying and storing agricultural chemicals** ➢ **Purchasing tertiary water** ➢ **Disposing of garbage, recyclables and compostable waste** ➢ **Disposing of empty agricultural chemical containers** ➢ **Disposing of production wastewater and waste from toilets and hand washing facilities** ➢ **Providing personal hygiene facilities** ➢ **Controlling pests inside buildings** ➢ **Human rights, privacy and employment standards** ➢ **Drinking water standards** **Prevailing legislation (e.g., regulations at the federal, provincial, territorial, state, regional, local, municipal, etc. level) SUPERSEDE the requirements in the manual and must be followed.** **Example – Some provinces require that one toilet is provided for every 20 employees while the manual requires one toilet for every 35 employees. Therefore, the operation must follow the regulations in their province for one in 20 if it applies to them.** **However, if the manual requires something that the regulations do not, then the manual must be followed.** **Example - In Quebec, according to the regulations, potable water parameters allow for 10 Total Coliforms and 0 E. coli. In order to follow the manual requirements, an operation would have to follow the potable water guidelines of 0 Total Coliforms and 0 E. coli.**

VI.iii How to Complete the Manual

The Manual can be completed independently or assistance may be sought to help address food safety requirements and concerns within the operation. The person responsible for the operation is named within this manual but it is important to note that all employees involved in a food operation have responsibility for the safe production of food. Food safety involves more than a single designated person responsible. The procedures in this manual may be carried out by a number of different individuals. Some operations may have a full- or part-time Food Safety or HACCP coordinator and/or a Food Safety team involving some or all employees. Regardless of the structure, the program will succeed only if everyone involved is aware of his or her role in achieving food safety.

Completion and implementation of the CanadaGAP Manual constitutes a commitment on the part of the person(s) responsible and the company's senior management to the development, management and continuous improvement of their food safety system. Senior management must determine and provide, in a timely manner, all the qualified resources (including suitable qualified personnel) needed to implement and improve the processes of the food safety program and to address customer satisfaction.

Important Note: It is the responsibility of the operation to complete ALL of the requirements within the CanadaGAP manual regardless of what may occur with the product (e.g., be final rinsed, labelled, etc.) after it leaves the operation's premises. Since activities further along the chain are out of the CanadaGAP-certified operation's control, the operation cannot assume that anything more will occur with the product before it is consumed, and must fulfill the requirements as stated.

Please note that operations may not have to complete all the requirements within the manual if there is a specific exception noted based on commodity/activity (e.g., except for potatoes, except for wholesaling, etc.), or if there is a triangle bullet (∆) stating a certification option (i.e., Option A1/A2) does not need to complete a specific sub-section.

The following steps must be carried out in order to complete the CanadaGAP Food Safety Program:

1. Read and complete each section of the Manual.

   When first implementing the CanadaGAP Manual, complete it section by section. Do not continue to the next section until you have completed each of the previous sections or identified outstanding items that need to be completed (use the To Do List – Outstanding Items to Complete in Manual). The Manual is not complete until all items have been checked off your To Do List. The following box appears at the end of each section. The confirmation/update log is NOT to be signed and dated (by the Food Safety Program Contact or designate) until all items have been completed in the section AND on the To Do List.

Confirmation/Update Log:

Date	**Jan 10, 2023**					
Initials	*JD*					

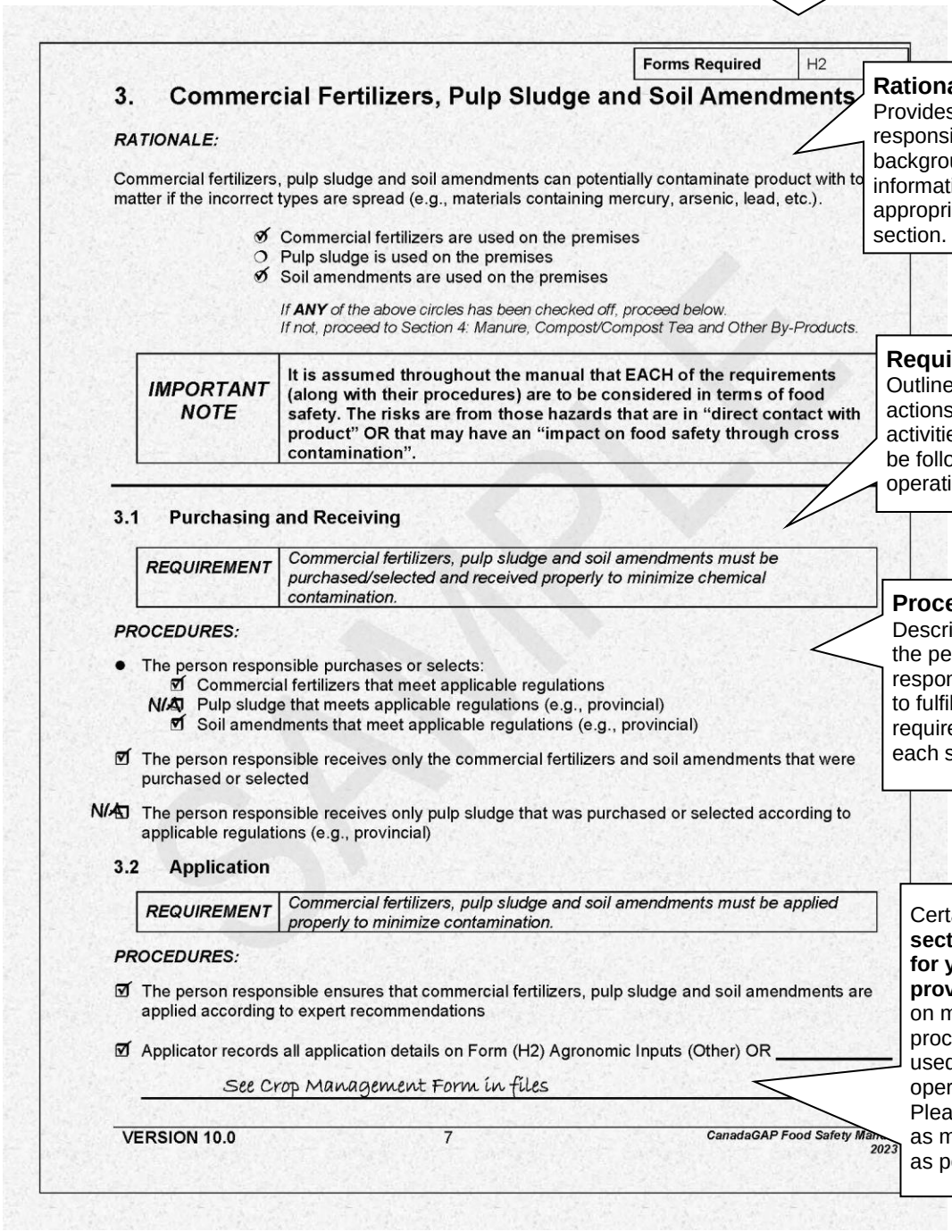
Make copies of Sections as needed, e.g., you may want to keep a clean copy and a working copy of each page.

IMPORTANT NOTE **!**	***Procedures for hazards that require both monitoring and record-keeping, as determined by the Generic HACCP Model, are marked with an exclamation mark throughout this Manual. These procedures link to the table of deviations and corrective actions in Section 23.***

The schematic diagram on the next page provides an example of how to complete the Manual.

How to Complete the Manual

Legend: The Reference box in the top right-hand corner of each section details which Form(s) are applicable to the section.



Forms Required	H2

3. Commercial Fertilizers, Pulp Sludge and Soil Amendments

RATIONALE:

Commercial fertilizers, pulp sludge and soil amendments can potentially contaminate product with to matter if the incorrect types are spread (e.g., materials containing mercury, arsenic, lead, etc.).

- ☑ Commercial fertilizers are used on the premises
- ○ Pulp sludge is used on the premises
- ☑ Soil amendments are used on the premises

*If **ANY** of the above circles has been checked off, proceed below.*
If not, proceed to Section 4: Manure, Compost/Compost Tea and Other By-Products.

IMPORTANT NOTE	**It is assumed throughout the manual that EACH of the requirements (along with their procedures) are to be considered in terms of food safety. The risks are from those hazards that are in "direct contact with product" OR that may have an "impact on food safety through cross contamination".**

3.1 Purchasing and Receiving

REQUIREMENT	*Commercial fertilizers, pulp sludge and soil amendments must be purchased/selected and received properly to minimize chemical contamination.*

PROCEDURES:

- The person responsible purchases or selects:
  - ☑ Commercial fertilizers that meet applicable regulations
  - N/A ☑ Pulp sludge that meets applicable regulations (e.g., provincial)
  - ☑ Soil amendments that meet applicable regulations (e.g., provincial)

☑ The person responsible receives only the commercial fertilizers and soil amendments that were purchased or selected

N/A ☑ The person responsible receives only pulp sludge that was purchased or selected according to applicable regulations (e.g., provincial)

3.2 Application

REQUIREMENT	*Commercial fertilizers, pulp sludge and soil amendments must be applied properly to minimize contamination.*

PROCEDURES:

☑ The person responsible ensures that commercial fertilizers, pulp sludge and soil amendments are applied according to expert recommendations

☑ Applicator records all application details on Form (H2) Agronomic Inputs (Other) OR _____

See Crop Management Form in files

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Rationale: Provides the person responsible with background information appropriate to each section.

Requirement: Outlines the actions and activities that must be followed in the operation.

Procedures: Describes how the person responsible is to fulfill the requirements in each section.

Certain **sections allow for you to provide details** on methods or procedures used in your operation. Please provide as much detail as possible.

There are **circles** (❍) at the beginning of each section to check (✓) if the section pertains to your operation.

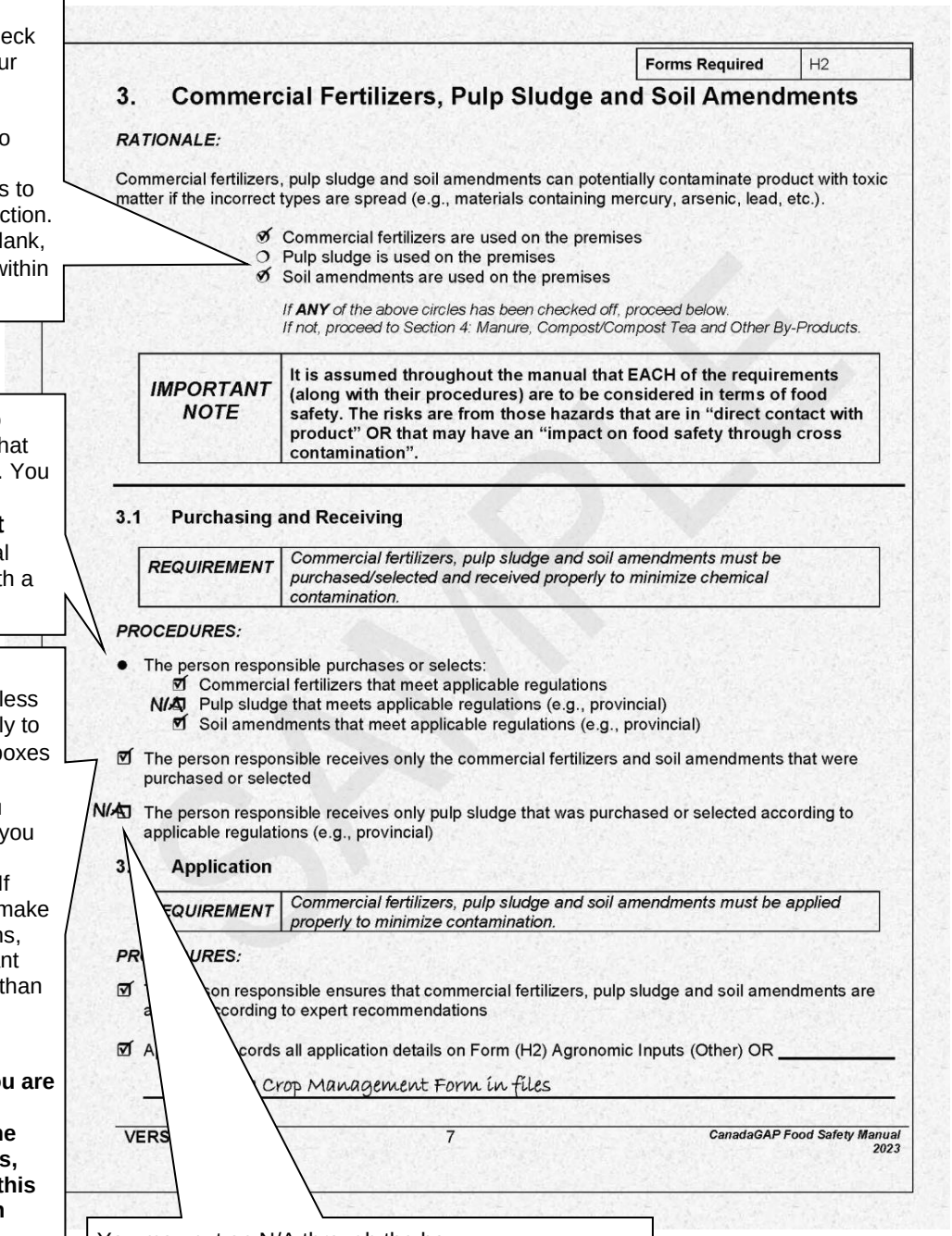
If the section does not pertain to your operation, leave the circle blank and follow the instructions to proceed to the next relevant section. The entire section can be left blank, including all check boxes (❒) within the section.

Solid circles (●) are used to introduce general procedures that may have several components. You do NOT need to check off solid circles (●). Each **component step** is listed below the general statement and is introduced with a box (❒) to check off (✓).

Every **check box** (❒) in the Manual must be completed, unless the entire section does not apply to your operation. Check (✓) all boxes (❒) unless there is an option indicating otherwise. When you check a box this indicates that you have understood and properly completed the requirement(s). If additional pages are required, make copies of the applicable sections, complete and add to the relevant section (e.g., if you have more than one water source, multiple storages).

If you do not check a box, you are not following the required GAP/GMP. You must make the necessary changes, additions, etc. to your operation. Once this has been completed, you can check off the box.

Arrow bullets (➢) are suggestions only and do not need to be checked.



Forms Required	H2

3. Commercial Fertilizers, Pulp Sludge and Soil Amendments

RATIONALE:

Commercial fertilizers, pulp sludge and soil amendments can potentially contaminate product with toxic matter if the incorrect types are spread (e.g., materials containing mercury, arsenic, lead, etc.).

- ☑ Commercial fertilizers are used on the premises
- ❍ Pulp sludge is used on the premises
- ☑ Soil amendments are used on the premises

*If **ANY** of the above circles has been checked off, proceed below.*
If not, proceed to Section 4: Manure, Compost/Compost Tea and Other By-Products.

IMPORTANT NOTE	**It is assumed throughout the manual that EACH of the requirements (along with their procedures) are to be considered in terms of food safety. The risks are from those hazards that are in "direct contact with product" OR that may have an "impact on food safety through cross contamination".**

3.1 Purchasing and Receiving

REQUIREMENT	*Commercial fertilizers, pulp sludge and soil amendments must be purchased/selected and received properly to minimize chemical contamination.*

PROCEDURES:

- The person responsible purchases or selects:
  - ☑ Commercial fertilizers that meet applicable regulations
  - N/A ☑ Pulp sludge that meets applicable regulations (e.g., provincial)
  - ☑ Soil amendments that meet applicable regulations (e.g., provincial)

☑ The person responsible receives only the commercial fertilizers and soil amendments that were purchased or selected

N/A ☑ The person responsible receives only pulp sludge that was purchased or selected according to applicable regulations (e.g., provincial)

3. Application

EQUIREMENT	*Commercial fertilizers, pulp sludge and soil amendments must be applied properly to minimize contamination.*

PR URES:

☑ on responsible ensures that commercial fertilizers, pulp sludge and soil amendments are a ccording to expert recommendations

☑ A cords all application details on Form (H2) Agronomic Inputs (Other) OR _____

Crop Management Form in files

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You may put an N/A through the box:
a) If the procedure does not apply to your operation,
b) If you do not follow the procedure for any other reason, and document why you are not following the required GAP/GMP.

If deviations from a procedure occur (e.g., non-compliance, incompletion), refer to Section 23: Deviations and Crisis Management for the appropriate corrective action.

IMPORTANT NOTE	The CanadaGAP program consists of a food safety "standard" – that is, **requirements** that must be met to ensure product is produced, packed, repacked, stored, wholesaled and/or brokered safely. The main documents for users are the CanadaGAP manuals, which identify the general requirements of the standard, and detail the procedures that will fulfill those requirements. The manuals provide a toolkit and a "shortcut" to users, to help them *document the practices* that will meet the CanadaGAP standard within their operation. This level of specificity was desired to better assist users with implementing the program requirements, and to improve consistency in user and auditor interpretation of the standard. Each section of the CanadaGAP manuals contains these two parts: *Requirements* (WHAT general actions and activities are needed to achieve food safety) and *Procedures* (HOW in specific terms these requirements are to be met). If the operation does not fulfill the requirements and follow the procedures, then they have not yet successfully implemented the CanadaGAP program. The requirements along with their procedures were determined based on food safety risks that may be present in an operation. If the hazards are not controlled, there is potential for contamination of the product. To mitigate the risks the procedures need to be followed. However, deviations from these procedures are possible and may be acceptable in completing the requirement. There may be a variety of ways to meet the requirements and still mitigate risk. An operation may choose to implement different procedures than those contained in the manual and these *may* be acceptable to satisfy program requirements. A risk assessment would need to be completed (see *Appendix U: Introduction on How to Assess Risk - with examples*). Procedures would need to be carefully developed to ensure the hazards are controlled, and thoroughly documented to ensure the procedures are followed consistently. If this approach is taken the effectiveness of those procedures will have to be assessed during an audit. It will be up to the certification body to determine if procedures different from those provided in the manuals are acceptable or not.

2. Complete each applicable record found in the Compendium of Food Safety Forms (or your own equivalent records).

   When you are asked to complete a Form, remove the template from the Compendium of Food Safety Forms and follow the instructions. Do not continue to the next section until you have completed each of the required Forms. The Forms are proof of activities performed. Make additional copies of these Forms as necessary and complete Page __ of __ where applicable to indicate that more than one page is used.

   Annual Forms: For those Forms that are to be completed on an **annual** basis, the person responsible (or Food Safety Program Contact or designate) must review the form to ensure that it is accurate and filled out correct, then sign and date the log at the bottom of the Form.

   EXAMPLE:

   The following box appears at the bottom of Forms completed annually. Each year the person responsible (or Food Safety Program Contact or designate) must review the annual Forms, update them as needed, sign and date the log:

Confirmation/Update Log:

Date	**Jan 10, 2023**					
Initials	*JD*					

Ongoing Forms: For those Forms that are completed on an **ongoing** basis (e.g., daily, weekly, monthly), once the Form has been completed or is full, the person responsible (or Food Safety Program Contact or designate) must confirm that the Form was completed accurately and that all requirements were met by signing and dating the bottom of the Form.

EXAMPLE:

The following appears at the bottom of Forms that are completed on an ongoing basis.

Confirmation Signature: *John Doe* ***Date:*** ***January 10, 2023***

IMPORTANT NOTE	**If you have existing forms, separate records or other methods of documentation, you may use these instead (e.g., custom applicator documents, invoices, receipts); ensure they contain all of the same information as the template forms in this Manual.** **A space has been left at the end of each line requiring the completion of a Form (i.e., complete Form (A) Building Sketch and Agricultural Chemical Storage Checklist OR _____). The space is for you to document what the other method/form may be and where the documentation can be found. This is important if anyone would like to see your program (e.g., auditors). You may also modify the Forms in any way you like so they meet the needs of your operation, as long as they contain all of the relevant information (e.g., if a Form states it is for EACH production site you may use it for ALL production sites).** ***Refer to Appendix P -- Customizing Record Keeping Forms.***

3. Perform an annual review.

   The person responsible must review and update each section of the Manual annually. The person responsible (or Food Safety Program Contact or designate) signs off and dates the Confirmation/Update log found at the end of each Section as it is reviewed.

   EXAMPLE:

Confirmation/Update Log:

Date	**Jan 10, 2023**					
Initials	*JD*					

VI.iv Document Retention

All Sections (1-24), Forms, receipts, letters of assurance and certificates must be kept for a minimum of four years for audit, recall or other purposes.

At least three months of records prior to the date of the initial audit are required for those seeking CanadaGAP Program Certification.

In the case of suspected or potential contamination, or other adverse event (e.g., recall, investigation by authorities), records should be available upon request within 24 hours and in the format required by the requester.

VI.v Food Safety Manual Document Control

Changes to the Manual will occur as a result of new science, emerging pathogens, new hazards, legislative requirements and changes in practices in an operation. Therefore, document control is necessary to ensure that all documentation is properly updated and maintained, ensuring each and every page is current.

The CanadaGAP document control box is located in the footer of each page. As CanadaGAP updates the Manual content, the document control box will also be updated. The **indexes** will also be updated.

EXAMPLE:

Updates will be posted on the CanadaGAP web site at www.canadagap.ca.

Glossary

Accredited laboratory: One whose accreditation has been obtained from an accrediting body that is a signatory to the International Laboratory Accreditation Cooperation (ILAC) MRA (mutual recognition agreement), using the internationally recognized criteria and procedures outlined in ISO/IEC 17025: (General requirements for Competence of Calibration and Testing Laboratories).There are two accreditation bodies in Canada which are the Standards Council of Canada and the Canadian Association of Laboratory Accreditation.

Active ingredient: That ingredient of an agricultural chemical that actually controls the targeted pest.

Adjacent: Refers to areas across from or beside the production site.

Agricultural activities: Livestock and crop production, processing activities, etc.

Agricultural chemicals: A subset of pest control products used to control crop pests such as insects, diseases and weeds (e.g., pesticides such as herbicides, fungicides and insecticides). These can be used on seed and during the production, storage and packing/repacking of product.

Agricultural water: See “Water”.

Agronomic inputs: Include agricultural chemicals, biological controls, pollinators, commercial fertilizers, compost, compost tea, cover crops/green manure, manure (livestock waste), mulch and row cover materials, other by-products, soil amendments.

Allergen: a protein or modified protein with the potential to cause an allergic reaction in people. Canada has identified a list of priority allergens that are responsible for the majority of allergic reactions to food in this country. These allergens are peanuts, tree nuts, sesame, soybeans, seafood (such as fish, crustaceans and shellfish), wheat and other cereals containing gluten, eggs, milk, mustard and sulphites. For more information on food allergens in Canada go to http://www.inspection.gc.ca/food/labelling/core-requirements/ingredients/allergen-labelling/eng/1332352596437/1332352683099. For program users in other countries, consult the information published by your prevailing authority.

Animal and bird activity: Includes activity from both wild and domestic animals and birds.

Baby leafy greens: These are NOT the same as microgreens (see definition below). Baby leafy greens are bigger than microgreens (usually more than 6cm in length) and smaller than mature leafy greens. Baby leafy greens are harvested earlier than other mature leafy greens (usually 15-40 days old), for a more immature leaf. During harvest, baby leafy greens may be cut once, and any further cuts to the harvested leaves will be considered as minimal processing. Baby leafy greens may be mixed with other types of leafy greens or herbs. During packing, if any other items are added to the packed product (e.g., nuts, raisins, seeds, etc.) or if the atmosphere is modified in the packaging, this is considered minimal processing.

Bait: Anything intended to attract, tempt or kill pests. It may NOT be used in the interior of buildings unless inside a trap.

Biannually: Twice a year.

Biological controls: The use of beneficial species, such as predatory and parasitic insects, nematodes or disease organisms to suppress populations of pests.

Biosolids: The material, predominantly organic in nature, resulting from treatment of industrial sewage, municipal sewage and septic system waste.

Brokerage: Activity where the operation is ONLY involved in arranging the transaction of product between a supplier and a buyer. The brokerage operation does NOT physically handle the product in any way. The person responsible for brokerage is the “broker”.

Building: Any structure where product or market ready packaging materials are handled and/or stored, and any structure where agricultural chemicals, commercial fertilizers, etc. are stored (e.g., packinghouse, storage areas, washing/grading areas, service area, boiler room, etc.).

Building equipment: Used in the packinghouse, washing/grading areas, etc., or storages (e.g., scales, baggers, conveyors, hoppers, bin pilers, bin dumpers, tables, pallets, forklifts, curtain doors, knives, wiping cloths; packing, washing, treating, drying, grading, sorting and handling equipment, etc.).

Calibration: Determination of the accuracy of an instrument, usually by measurement of its variation from a standard, to ascertain necessary correction factors.

Cargo area: The part of the vehicle that is intended to transport product (e.g., wagon, trailer, box).

CCP: Critical Control Point; a step at which control can be applied and is essential to prevent or eliminate a food safety hazard or reduce it to an acceptable level.

Certification *(codex):* is the procedure by which official certification bodies and officially recognized bodies provide written or equivalent assurance that foods or food control systems conform to requirements. Certification of food may be, as appropriate, based on a range of inspection activities, which may include continuous on-line inspection, auditing of quality assurance systems, and examination of finished products.

CFIA: Canadian Food Inspection Agency.

Chemigation: The application of agricultural chemicals and/or biological controls through the irrigation system (using agricultural water).

Chlorine: A chemical element that is widely used for disinfection, water purification and cleaning.

> **Total chlorine**: is the total amount of chlorine that has been used e.g., 1 cup/250 mL, 2 tsp/10 mL Measuring total chlorine is most useful when determining and checking how much chlorine to start with. 50-150 ppm is recommended for fresh fruit and vegetable applications. (*See Appendix B -- Chlorination of Water for Fluming and Cleaning Fresh Fruits and Vegetables and Cleaning Equipment – An Example.)*
>
> **Free chlorine**: is the amount of chlorine (from the total chlorine) that remains active when used. Measuring free chlorine is a much more accurate way of monitoring the effectiveness of a chlorination system over time. 2-7 ppm is recommended. (*See Appendix B -- Chlorination of Water for Fluming and Cleaning Fresh Fruits and Vegetables and Cleaning Equipment – An Example.)*

Cistern: A container for collecting or holding water (e.g., well water in a tank, delivered commercial water, a tank for catching rainwater).

Cleaning materials: Products and/or tools used to clean, sanitize or disinfect (e.g., cleaning agents, water treatment chemicals, sanitizers, brushes, scrubbers, brooms, mops, scrub pads, pressure washers, squeegees, cloths/rags, dust pans, pails, shovels, etc.).

Cleaning water: See “Water”.

CPMA: Canadian Produce Marketing Association.

Commercial fertilizers: Substances containing one or more recognized plant nutrients that are designated for use in promoting plant growth. Includes calcium.

Commodity Starter Products: Beginning materials used to produce a product such as seeds, seedlings, plants, cuttings, canes, nursery stock, etc.

Compost: Solid mature product resulting from a managed process of bio-oxidation of a solid heterogeneous organic substrate including a thermophilic phase. *(**Note**: Follow provincial/territorial guidelines for procedures to compost plant debris, dead stock, animal excrement, etc.).* For further information, see *Appendix C -- Composting Livestock Manure – An Example and Compost Tea Information* for an example of a general procedure to compost animal excrement.

Compost tea: A liquid solution made by steeping compost (produced properly by a managed process that includes a thermophilic phase) in water. It is used as a fertilizer. For further information see *Appendix C -- Composting Livestock Manure – An Example and Compost Tea Information*.

Compostable waste: Organic matter that will decay over time, is NOT compost and requires disposal.

Contamination: Infection or pollution with biological, chemical or physical substances.

Controlled-access area: An area within a building that only authorized persons are allowed to enter (e.g., packing/repacking area, storage area for market ready packaging materials, product or cleaning and maintenance materials).

Corrective action: An organized activity to fix a problem.

Crisis management: The act or practice of dealing with a crisis when it develops.

Curtain doors: Plastic strips that cover an entrance/opening.

DAA: Delay after application; the time between the post-harvest application of the agricultural chemical and storage/packing/shipping, as defined on the pest control product label (e.g., product label reads; “2 days before shipping”, “2 days after storage” etc.)

Deviation: An alteration from the standard.

Drip irrigation: A low-pressure method of directing agricultural water to the root zone of the plant, with or without commercial fertilizers and/or agricultural chemicals.

Earliest Allowable Harvest Date (EAHD): The date on or after which product can be harvested. This date takes into consideration the agricultural chemical application date, and PHI (e.g., if an agricultural chemical has a PHI of 21 days and it was applied on June 1st, then the EAHD would be June 22nd) and the 120 days between manure application and harvest (e.g., if manure is spread on April 1st the product cannot be harvested until August 1st).

E. coli: A bacterium (*Escherichia coli*) normally found in the animal and human gastrointestinal tract and existing as numerous strains, some of which are responsible for diarrheal diseases.

Employee: A person who works in return for financial or other compensation and/or who works in direct contact with the product or may have an impact on food safety through cross contamination.

Fertigation: The application of commercial fertilizers through the irrigation system (using agricultural water).

Fertilizers Act: A Canadian federal Act that regulates some commercial fertilizers imported into or sold in Canada.

Final rinse water: See “Water”.

First Aid Kits: Must include bandages to cover wounds.

Fluming water: See “Water”.

Food contact surface: Surface where unpackaged and packaged product may touch (e.g., conveyor belt, grading table, equipment, knife, harvest cup, cutting surface, cargo area of a vehicle).

Food Fraud: A collective term encompassing the deliberate and intentional substitution, addition, tampering or misrepresentation of food, food ingredients or food packaging, labelling, product information or false or misleading statements made about a product for economic gain that could impact consumer health.

Food Safety Culture: Shared values, beliefs and norms that affect mindset and behaviour toward food safety in, across and throughout an organization.

Formal training: Consists of a course offered by a recognized educational institution, government body or industry association/group for which a record of attendance is issued. Information about the training content is readily available from the course provider (e.g., course outline, online training materials, etc.).

Free Chlorine: See “chlorine”.

Generic: Applies nationally to all operations involved in the production, packing, repacking, storage, and/or wholesaling of a commodity.

Generic HACCP Model: Applies nationally to all operations involved in the production, packing, repacking, storage and/or wholesaling of a commodity, and involves conducting a hazard analysis for all steps that results in the GAP’s/GMP’s reflected in the CanadaGAP Manual.

Glue boards: Larger versions of sticky traps. They are made of cardboard or plastic, coated with extremely strong, sticky glue. They are used for monitoring and control of rats and mice.

Good Agricultural Practices/Good Production Practices/Good Manufacturing Practices (GAP’s/GPP’s/GMP’s): General steps, measures or procedures that control the operational conditions within an operation allowing for the environmental conditions that are favourable to the production of safe food.

Grading: Categorizing or separating product by size, colour or quality (i.e., into pre-determined grades).

Greenhouse: Enclosed structure that includes the production site(s) and buildings. This is an indoor growing environment that is controlled (e.g., temperature, humidity, etc.) such as a building, sea-can, semi-trailer, cellar, railway car, etc.

Ground water: See “Water”.

Grower Requested Own Use Program: A program managed by the Canadian Pest Management Regulatory Agency that allows operations to import the US version of Canadian-registered pest control products for their own use should they be available in that market at a lower price. More information can be found at: www.hc-sc.gc.ca.

Growing: The development and maturation process of product that occurs in the production site and ends at harvest.

Growing medium: Material in which seeds and plants can grow (e.g., soil, peat, water, rockwool, etc.).

HACCP: Hazard Analysis Critical Control Points; a system that is science-based and systematic and identifies specific hazards and measures for their control to ensure the safety of food. HACCP is a tool to assess hazards and establish control systems that focus on prevention rather than relying on end product testing.

HACCP-based program: A food safety program based on HACCP principles in which the hazard analysis conducted is generic (i.e., covers all of the operations in a given commodity sector) and results in a list of commonly accepted hazards and related controls, which are then translated into a series of good agricultural practices to which primary operations adhere.

HACCP program: An operation-specific (e.g., ABC farm's HACCP plan) hazard analysis applying HACCP principles and resulting in a site-specific HACCP plan. The hazard analysis conducted results in the identification of operation specific hazards and related controls, which are then translated into a series of good production practices to which the operation adheres.

Hand sanitizer: Waterless, antibacterial liquid or gel used to disinfect hands.

Hand washing facilities: May include hand sanitizers, water, soap, paper towel and hand wipes.

Hand wipes: Pre-moistened (by the manufacturer) disposable towels designed FOR hands/skin that are used to remove organic matter from hands (e.g., dirt, mud, product juice, suntan lotion, cream, food, saliva, etc.).

Harvested product: Produce that has **not** been put into **market ready** packaging materials.

Harvested product packaging materials: Containers used or reused in the production site to hold product or in the packinghouse/storage as a secondary container to sort/ hold product before it is transferred into **market ready packaging materials**. Include bins, crates, totes, lugs, baskets, bags, etc. This also refers to associated lids and covers.

Harvesting: The physical act of moving the product from the production site (e.g., picking it, pulling or digging product from the ground, separating it from the plant, taking it out of water, etc.), which can be done either manually or mechanically.

Hazard: A biological, chemical or physical agent in, or condition of, food having the potential to cause an adverse health effect.

Hazard analysis: A comprehensive analysis of all the steps in a production system in accordance with HACCP principles in order to determine hazards, develop a HACCP model and elaborate controls for each hazard.

Hermetically sealed container: Means a container designed and intended to be secure against the entry of microorganisms, including spores.

Holding: Keeping product in a non-temperature controlled (ambient) environment for a few minutes to a few days.

IFP: Integrated Fruit Production; a systems approach to fruit production that promotes sustainable agriculture practices to produce optimal yields of high-quality fruit while protecting the environment.

Impermeable: Not permitting passage (as of a fluid) through its substance.

Incoming: Refers to receiving product onto the premises. **Except in the case of "brokerage" where the product is NOT physically on the premises.**

Input: Anything needed to produce a crop.

Inspect: To examine carefully and critically.

IPM: Integrated Pest Management; a decision-making process that uses all necessary techniques to suppress pests effectively, economically and in an environmentally sound manner.

Internal Audit: Is conducted by the operation. See Section 24 for the choices on what may be used to complete it. The internal audit should be conducted before the certification audit and also when the operation's main activities (e.g., production, packing, storage, repacking, wholesaling, etc.) are occurring. The operation should leave enough time for changes or complete fulfillment of requirements to occur.

Labelling: The physical act of putting information on or with product (e.g., attaching pallet/bin tags, stickering, colour coding, numbering, lettering, etc.) to identify it for traceability, as per requirements within Section 17 and 22.

Legumes: All cultivars of peas and beans that are sold/eaten as a fresh product.

Letter of assurance: A written statement from a supplier/dealer that the product they are selling was produced under specified conditions and steps were taken to reduce biological, chemical or physical contaminants in accordance with all prevailing legislation.

Letter of no objection: Letter expressing favourable opinion by the regulatory body (e.g., CFIA, Health Canada). Indicates that the product can be sold in Canada for the uses listed in the submission, and outlines any restrictions or requirements relative to the regulatory body's decision.

Licensed dealer: A person who has successfully completed the dealers/dispensers course, paid the licensing fee and may sell agricultural chemicals.

Lot: Product packed during a period of time or according to a specific ID.

Lot Code: A code that can be used to identify a lot that was manufactured, prepared, produced, stored, graded, packaged or labelled, under the same conditions. A lot code can be numeric, alphabetic or alphanumeric. Examples of lot code include; production date, best before date, establishment number, or CFIA SFCR licence number. In addition, the lot code may also be the harvest date, grower identification number, growing region or any other code that may be used for traceability purposes.
Refer to CFIA's website for more information on Lot Code https://inspection.gc.ca/food/toolkit-for-food-businesses/glossary-of-key-terms/eng/1430250286859/1430250287405#a104
Refer to CPMA's website for further guidance on Lot Code https://cpma.ca/docs/default-source/industry/traceability_guidance_document_for_industry_compliance_with-the_sfcr.pdf

Lot ID: Any combination of letters OR figures, or letters AND figures, by which a unit of market product can be traced and identified in the operation's records (e.g., skid, block, box). Linked to Pack ID for complete traceability.

Maintenance materials: Products used on, or to repair, equipment and buildings (e.g., light bulbs, lubricants, oils, fuels, paints).

Major deviations: Deviations that could lead to a major food safety concern; employees must advise the person responsible immediately of the problem (see Section 23: Deviations and Crisis Management for a list of major deviations).

Manure: Animal excrement with or without bedding that has not been composted and is used to fertilize the soil. Includes all types (e.g., cow, sheep, horse, pig, chicken, vermicast, etc.) as well as aged manure.

Market product: Produce that is in market ready packaging materials. It may be packed in the production site or packed/repacked in the packinghouse.

Market ready packaging materials: Containers that **will go to food service, retail, repacking, wholesale or directly to the consumer**. These containers may first go through other facility(ies) (e.g., shipper, broker, marketer, handler, wholesaler, distributor/distribution centre, etc.) where further activity may occur (e.g., icing, cooling, labelling/coding, etc.) before product reaches food service, retail, repacking or the consumer. The product does not leave these containers until it is either taken out by the consumer or by the food service, repacking or retail operation.

There are two types:

1) Market ready **PRIMARY** packaging materials that come into direct contact with product (e.g., clamshells, bags, boxes, baskets, crates, pints); and
2) Market ready **SECONDARY** packaging materials (e.g., masters, dividers) that may be reused and do not come into direct contact with product.

   Product wrap (see glossary definition) is also considered as **primary** market ready packaging material if information other than a price, bar code, number code, environmental statement or product treatment symbol is included on the product wrap, such as brand, country of origin, etc.

Microgreens (including shoots): Small forms of edible product produced from very young vegetables, herbs or other plants. Seeds (from vegetables and herbs) are planted and they develop and grow in soil, substrate (e.g., peat moss or other fibrous material), aeroponically or using an alternative growing method. They are NOT grown in water. Microgreens, if sold already cut, are cut above the soil surface (approximately 3-6 cm long), packed without roots and the seed portion of the plant gets left behind in the growing medium. Larger greens would be considered as baby leafy greens. Microgreens are ideally grown in high light conditions, with low humidity and good air circulation. Unlike sprouts, the seed portion is not consumed. Microgreens are smaller than baby leafy greens and larger than sprouts.

Minimal processing: Transforming whole fruits and vegetables from their original state (e.g., peeling, slicing, shredding, coring, grinding, shelling, husking, chopping, combining/mixing ingredients, juicing, modified atmosphere packaging, ready-to-eat preparation, drying, etc.). Minimally processed fruit and vegetables are sometimes also called ready-to-use, ready-to-eat, fresh-cut, or pre-cut fruits and vegetables.

The following are **not** considered minimal processing:

- Removing outer leaves (e.g., of cabbage, broccoli, cauliflower, lettuce, etc.) after harvesting

- Trimming off leaves, ends, tops or other parts of the product generally considered inedible or unsaleable (e.g., trimming ends from asparagus, removing outer stalks of celery, removing rhubarb leaves, trimming ends from rutabagas, etc.)
- Removing tops from vegetables such as carrots, beets, turnips, etc.
- Air drying or curing products such as onions, squash, etc.

Minor deviations: Deviations from procedures and the intent/plan of the food safety program that can be rectified immediately by the employee and that are not a major food safety concern (e.g., spilled product on the floor).

Mock recall: A procedure to test the recall team's ability to find and trace their product during a recall

Mulch materials: Materials used to cover the soil (ground) in the production site to retain soil moisture, heat and humidity, and suppress weeds (e.g., straw, plastic film, bark chips, sawdust).

Municipal water: See "Water".

Non-agricultural activities: Dump sites, industrial activities and other human activities (e.g., golf course).

Non-porous surface: A smooth solid surface that limits absorption and penetration of liquid (e.g. metal, stainless steel, hard plastic material, rubber).

Off-site: Beyond the premises of the operation.

On-site: Within the premises of the operation.

ORP: Oxidation-Reduction Potential. A rapid and accurate way to measure chlorine effectiveness. ORP is measured using an ORP meter, similar to a digital thermometer or pH probe. Research has shown that water with an ORP value of 650-700 mV can kill bacteria such as *E. coli* in a few seconds while more resistant types of microorganisms are killed within a few minutes.

Other by-products: Include plant or animal debris used for soil and crop improvement (e.g., seafood waste, seaweed, peat moss, wood shavings, crop culls, cover crops/green manure, pomace, feather meal for chicken rendering), i.e. to improve the biological, chemical and physical characteristics of the soil, including improving the tilth, porosity, aeration, aggregation, water holding potential, or to increase the organic content, ion exchange capacity and microbial viability.

Other Materials: Items used by operations where these materials are NOT included in another category such as agricultural chemicals, other by-products, fertilizers, etc. within the CanadaGAP glossary. These materials may include adjuvants, surfactants, citric acid used on Brussels sprouts to reduce browning, chlorine dioxide used on watermelons to extend shelf-life, calcium used during washing to promote floatation of pears, decorative mulch added to potted herbs, storage aids such as ethylene, ozone, or nitrogen, etc.

Outgoing: Refers to product leaving the premises. **Except in the case of "brokerage" where the product is NOT physically on the premises.**

Own Use Import Program: Allows the import of registered foreign pest control products into Canada, provided they are deemed to be chemically equivalent to registered Canadian pest control products, are on the eligibility list and have received a permit from the PMRA. They also must bear the equivalent label information to that of the registered Canadian pest control product. Information can be found at www.pmra-arla.gc.ca.

Pack ID: Information identifying 1) who produced the product and 2) when the product is packed/repacked. Linked to Lot ID for complete traceability.

Packaging accessories: Materials used to fasten, contain, protect or identify product or packaging materials (e.g., liners, pads, ties, tags, labels, elastics, confining bands, rope, trays, dividers, slats, staples, ink, stickers, glue, and wrap such as shrink wrap, pallet wrap or mesh/net). **Product wrap** (see glossary definition) that is blank or that has no information shown other than a price, bar code, number code, environmental statement or product treatment symbol is also considered a **packaging accessory**.

Packaging materials: Include all containers and packaging accessories used for harvested and market product.

Packing: Includes:

1) The physical act of taking harvested product and putting it into harvested product packaging materials AND/OR market ready packaging materials for the first time (both in the production site and in the packinghouse). This does not include repacking
2) Activities (e.g., icing, labelling/coding, cooling, etc.) that occur once product is in the packaging materials.

The operation involved with packing may or may not store and/or transport product.

Packinghouse: Where the packing/repacking activities occur

Person Responsible: The one(s) who carries out an activity (e.g., harvesting, packing, storage, cooling, icing, labelling/coding, transporting, etc.) and ensures that the activity within his or her control is complete.

Personal effects: Include employees' lunches, clothing, shoes, smoking materials, electronic devices, etc.

Personal hygiene facilities: Washrooms (i.e., toilets, toilet paper) and hand washing facilities (i.e., hand sanitizers, water, soap, paper towel and hand wipes). These may be located inside or outside and can be portable or non-portable.

Pest: An animal, plant or other organism that is directly or indirectly injurious, noxious or troublesome, and an injurious, noxious or troublesome condition or organic function of an animal, a plant or other organism (e.g., rats, mice, birds, reptiles, beetles, weeds, disease, etc.).

Pest control product: Any product, device, organism, substance or thing that is manufactured, represented, sold or used as a means for directly or indirectly controlling, preventing, destroying, mitigating, attracting or repelling any pest. Control products include active ingredients used in the manufacture of end-use products and the end-use products themselves. Includes herbicides, insecticides, fungicides, antimicrobial agents, pool chemicals, microbials, material and wood preservatives, animal and insect repellents, and insect- and rodent-controlling devices.

Pest Control Products Act (PCP Act) and Regulations: A Canadian federal Act that enables the Pest Management Regulatory Agency (PMRA) to regulate all pest control products imported into, sold or used in Canada.

Pest Management Regulatory Agency (PMRA): Federal body in Canada responsible for administering the legislation under the *PCP Act*.

Pest program: Includes the control and monitoring of pests.

pH: A measure of acidity or alkalinity.

PHI: Pre-harvest interval; the time between the application of the agricultural chemical and harvest, as defined on the pest control product label.

pH meter: A device used to measure pH.

Plants with Novel Traits: A plant with a novel trait is a plant that contains a trait which is both new to the Canadian environment and has the potential to affect the specific use and safety of the plant with respect to the environment and human health. These traits can be introduced using biotechnology, mutagenesis, or conventional breeding techniques.

Post-harvest agricultural chemical application water: See "Water"

Potable water: See "Water".

Pre-cooling: Reducing temperature of product prior to storage (i.e., removing heat). Includes forced air and vacuum cooling.

Pre-planting: Time from harvest of prior crop to beginning of planting the current crop.

Premises: Includes production site(s), building(s) and immediate surrounding land.

Preventative measures: Actions taken that are intended to hinder or avert.

Prior to Use (for water testing)**:** Before the water is used on product, hands, equipment, packaging materials, etc. for the first time in a season. Results of water testing need to show potability before water is used. The test will be taken as close as possible to the first use of the water, up to a maximum of 60 days before the first use. **NOTE**: Where there is an event or activity (e.g., maintenance of piping/pumps, leaking storage tanks, changes in colour/odour and/or turbidity, etc.) that may affect the potability of the water and it takes place after testing was completed (e.g., between the time of analysis and production/packing/repacking/wholesale use, etc.), re-testing is performed. **NOTE:** For year-round operations, two tests must be taken per 365 days.

Product: Refers to both harvested and market produce.

Product wrap: A transparent protective wrapper or bag that may be used for commodities such as English cucumbers, heads of lettuce, cauliflower, bunches of grapes, etc.

Production: Activities (e.g., growing, harvesting, putting harvested product into harvested product packaging materials, cooling, rinsing, etc.) involved with harvested product. The production operation may or may not store and/or transport product.

Production site: Location where product is grown (i.e., the growing area of the greenhouse).

Production site equipment: Equipment used in the growing area (e.g., sprayers, foggers, carts, tractors, ladders, irrigation lines, elastics/netting/clips for supporting product, cultivators, tillers, spreaders, harvesters, conveyors, wiping cloths, blankets, brushes, stakes [wood, metal], pallets, knives, stools, troughs, racks, tables, plastic clips, twine, etc.).

Production wastewater: Water remaining from the cleaning of product or equipment (e.g., flume, dump tank or wash water).

Purchasing: Buying or ordering a product and/or service.

Recall: Means for an operation to remove from further sale or use, or to correct, a marketed product (i.e., that has been sold or distributed) that may have an impact on food safety.

Receiving: Taking delivery of a product or an input that was purchased and/or selected.

Recognized (*codex*): Officially recognized inspection systems and officially recognized certification systems* are systems which have been formally approved or recognized by a government agency having jurisdiction.

Recyclables: Containers from maintenance materials, agricultural chemicals, commercial fertilizers, cleaning agents or water treatment chemicals, etc., that are sent for recycling and are not re-used.

Re-circulated water: See “Water”.

Registered agricultural chemicals: Refers to products that have been approved under the *PCP Act* and that bear a Pest Control Products Number (PCP #).

Releasing: Handing product over to another operation that is responsible for the next activity/function (e.g. labelling, icing, storing), whether the product is purchased or not

Repacking: Includes:

1) Removing market product from its market ready packaging materials, re-handling the product (e.g., re-sorting, re-grading, re-trimming, re-washing, re-fluming, etc.) and putting it into market ready packaging materials. Product may also be combined with other product that differs in some way (e.g., type, origin, timeframe, etc.).
2) Activities (e.g., icing, labelling/coding, cooling, etc.) that occur once product is in the packaging materials.

The operation involved with repacking may or may not store and/or transport product.

Reservoir: A natural or artificial pond or lake used for collection or storage of water.

Reusable: Designed so it is capable of being used more than once or repeatedly (e.g. hard plastic packaging materials, rubber gloves, etc.)

Row cover: Material put over the crop to create a micro-climate and/or to exclude some pests.

Seedlings: Plant/transplants, plugs used for propagation purposes.

Sanitary dip: Container with water and sanitizer (e.g., chlorine, quaternary ammonium, etc.).

Selecting: Obtaining or sourcing a product and/or service where it is not purchased (e.g., choosing a water source, building your own equipment).

Separate: Not on top of, underneath or touching.

Sewage sludge: Includes municipal biosolids.

Soap: Cleaning agent used with water. Can be antibacterial or other.

Smooth-skinned melons: Includes honeydew, watermelon, etc. Does not have a netted rind (e.g., cantaloupe, musk melons, etc.)

Soil amendments: Ashes, gypsum and liming materials added to the soil for the purpose of improving the chemical properties (e.g., pH) of the soil. If liming materials are derived from biosolids, see requirements for sewage sludge/biosolids. If liming materials are derived from pulp and paper waste, refer to the requirements for the application of pulp sludge.

Sorting: Separating product (e.g., edible from non-edible; removing leaves, stones, other plant debris).

SOP: Standard Operating Procedure; A set of written instructions or steps for carrying out routine operations and established procedures. The details standardize the process and provide step-by-step instructions that enable anyone within an operation to perform a task in a consistent manner.

SSOP: Sanitation Standard Operating Procedure; specific sanitation practices that include detailed cleaning instructions *(refer to Appendix N -- Sanitation Standard Operating Procedures (SSOP) – An Example)*

Standalone Storage Operation: One whose ONLY activity is to store harvested product.

Start Date: This is Day 0 for an operation. Nothing has occurred yet. NOTE: Water tests need to be taken after the start date.

Sticky traps: Devices used to monitor or control crawling insects/pests. Sticky traps for insects are made of heavy paper or cardboard coated with a non-repellent, sticky glue. Insects that crawl over the trap are held fast by the glue. In dusty sites, these traps may need to be replaced weekly to maintain effectiveness. To prevent dust from coating sticky traps, they can be placed inside open-ended tubes that allow pests access.

Storage: Keeping product in a pre-determined and controlled location for a period of days to months (e.g., atmosphere controlled or modified; cooled, dry, contained location); or the location where product is kept.

Surface water: See “Water”.

Temperature conditioning: (Pre) cooling.

Tertiary water: See “Water”.

Total Chlorine: See “chlorine”.

Total Coliforms: A measurement of several bacteria belonging to the family *Enterobacteriaceae* spp., including *Escherichia coli* (*E. coli*) and various members of the genera *Enterobacter* spp., *Klebsiella* spp. and *Citrobacter* spp. These bacteria are typically found as a part of the intestinal microflora of warm-blooded animals and so are associated with fecal material. In addition, some members of this group of organisms can originate from nonenteric sources.

Traceability: Permits the source of the product to be identified and maintained at any stage in the supply/distribution system.

Training: The transfer of technical and/or food safety-related information to employees. Employees include offshore, local, seasonal, part-time and management personnel. Training may take a variety of forms including on-the-job demonstrations, job shadowing, formal sessions, reading and discussing protocols or presentations.

Transportation: Includes all movement of product, both on and off the premises.

Traps: Devices (baited or not) that pests enter and are unable to escape from. These may be used in the interior and exterior of buildings.

Vehicles: The means to transport product (e.g., personal and private carriers, trucks, flatbeds, wagons).

Visitor: Includes anyone not directly involved/employed in the operation (e.g., transportation drivers, contractors, auditors). Visitors are ONLY considered when entering controlled access areas.

Washrooms: Includes toilets and toilet paper.

Wash water: See "Water".

Waste: Refers to any item or material requiring disposal (i.e., garbage, production wastewater).

Water:

Agricultural water: Water used for irrigation, the pre-harvest application of agricultural chemicals and commercial fertilizers and for growing floating/living lettuce/herbs.

Post-harvest agricultural chemical application water: Water used to apply agricultural chemicals post-harvest (e.g., during packing, before, during or after storage, before holding, etc.)

Cleaning water: Includes all water (except for agricultural water) and is used for fluming, washing, rinsing, "other materials" and for post-harvest agricultural chemical applications. It also includes water used to wash hands in hygiene facilities and for cleaning equipment, harvested product packaging materials, buildings, etc.

Final rinse water: Water used in the final step of the cleaning process that covers all surfaces of the product (i.e., high volume spray/shower that drenches the entire product).

Fluming water: Water used for transporting product or for the initial step of the cleaning process.

Ground water: Water beneath the earth's surface, often between saturated soil and rock that supplies wells and springs.

Municipal water: Water supplied by the local government that is potable.

Potable water: Water that meets the parameters under the Canadian Water Quality Guidelines for Drinking Water Quality (i.e., biological parameters are 0 total coliform and 0 *E. coli*).

Re-circulated water: Water that is being reused.

Surface water: Water that is exposed to the environment [e.g., ponds, streams, lakes, rivers, canals, creeks, dugouts, rain (e.g., collected from the roof)].

Tertiary water: Waste water (e.g. municipal, industrial) that has received the third, or final, stage of water treatment. Primary treatment screens particulates and settles sludge in ponds. Secondary treatment removes harmful microorganisms and tertiary treatment passes the water through filters to remove organic pollutants that bacteria cannot break down. Tertiary treatment also uses chemicals to remove chemical pollutants such phosphorous and nitrogen.

Wash water: Water used during the cleaning process to remove organic material from product (e.g., dump tanks, pits, sprays, drums), unless this is the last water used on the product before it leaves the premises (if so – consider this as "Final rinse water").

Water sources: Ground, surface, municipal or tertiary water.

Water storage: Water that is held temporarily in a container/tank/cistern. These are not considered production site or building equipment. This includes water in coolers or jugs with a spigot, delivered municipal water stored in a tank, a cistern containing rainwater, water tank filled with well water, well water in a standalone handwashing tank/container, etc.

Wholesaling: Activity where operations are involved ONLY in storage of market product (see definition of “storage”). The operation may or may not transport product.

Working effects: Items that have been provided to the employees to minimize contamination to product (e.g., aprons, booties, gloves, smocks etc.)

Zone: Unit within a production site.

To Do List – Outstanding Items to Complete in Manual

Instructions: *When you are completing your CanadaGAP manual have this "To Do List" handy. If you need to make a change in your operation or are unable to check off a procedure immediately due to circumstances outside of your control (i.e., will complete the task at a later date), record the information in the appropriate section below. Once you have gone through the entire manual those areas requiring change/completion will be documented and this will save you from having to look for those items later. After you have completed the procedure, record the date, go back to the manual and check both the appropriate box there and the last column below.*

Section in Manual		Items Not Yet Complete	Item(s) Completed (✓) and Date	Item(s) Checked Off in Manual (✓)
Example:		**Portable toilets ordered – to be delivered April 12**	✓ **(April 15/23)**	✓
1. Commodity Starter Products				
1.1	Purchasing and Receiving		☐	☐
2. Premises				
2.1	Production Site and Surroundings Assessment, Cleaning, Maintenance, Repair and Inspection		☐	☐
2.2	Building Exterior and Surroundings Assessment, Cleaning, Maintenance, Repair and Inspection		☐	☐
2.3	Building Interior Assessment, Cleaning, Maintenance, Repair and Inspection		☐	☐
3. Commercial Fertilizers and Soil Amendments				
3.1	Purchasing and Receiving		☐	☐
3.2	Application		☐	☐
3.3	Storage		☐	☐
4. Manure, Compost/Compost Tea and Other By-Products				
4.1	Purchasing and Receiving		☐	☐

Section in Manual		Items Not Yet Complete	Item(s) Completed (✓) and Date	Item(s) Checked Off in Manual (✓)
4.2	Application		☐	☐
4.3	Storage		☐	☐
5. Mulch and Row Cover Materials				
5.1	Purchasing and Receiving		☐	☐
5.2	Application		☐	☐
5.3	Storage		☐	☐
6. Agricultural Chemicals				
6.1	Purchasing and Receiving		☐	☐
6.2	Application		☐	☐
6.3	Storage		☐	☐
7. Agricultural Water				
7.1	Source Assessment		☐	☐
7.2	Storage		☐	☐
8. Equipment				
8.1	Purchasing, Receiving and Installation		☐	☐
8.2	Use, Cleaning, Maintenance, Repair and Inspection		☐	☐
8.3	Calibration		☐	☐
8.4	Storage		☐	☐

Section in Manual		Items Not Yet Complete	Item(s) Completed (✓) and Date	Item(s) Checked Off in Manual (✓)
9. Cleaning and Maintenance Materials				
9.1	Purchasing and Receiving		☐	☐
9.2	Use		☐	☐
9.3	Storage		☐	☐
10. Waste Management				
10.1	Storage and Disposal of Garbage, Recyclables and Compostable Waste		☐	☐
10.2	Storage and Disposal of Empty Agricultural Chemical Containers		☐	☐
10.3	Disposal of Production Wastewater and Waste from Toilets and Hand Washing Facilities		☐	☐
11. Personal Hygiene Facilities				
11.1	Facilities		☐	☐
12. Employee Training				
12.1	Employee Training		☐	☐
12.2	Employee Illness		☐	☐
13. Visitor Policy				
13.1	Visitor Protocols		☐	☐
14. Pest Program for Production Sites and Buildings				
14.1	Control and Monitoring		☐	☐
14.2	Storage		☐	☐

Section in Manual		Items Not Yet Complete	Item(s) Completed (✓) and Date	Item(s) Checked Off in Manual (✓)
15. Water (for Fluming and Cleaning)				
15.1	Water Assessment		☐	☐
15.2	Storage		☐	☐
15.3	Treatment		☐	☐
16. Ice N/A				
17. Packaging Materials				
17.1	Purchasing and Receiving		☐	☐
17.2	Use of Packaging Material		☐	☐
17.3	Storage		☐	☐
18. Growing and Harvesting				
18.1	Growing		☐	☐
18.2	Harvesting		☐	☐
19. Sorting, Grading, Packing, Repacking, Storing and Brokerage				
19.1	Selecting/Purchasing and Receiving Harvested/Market Product		☐	☐
19.2	Sorting and Grading		☐	☐
19.3	Packing/Repacking		☐	☐
19.4	Application of Wax N/A			

Section in Manual		Items Not Yet Complete	Item(s) Completed (✓) and Date	Item(s) Checked Off in Manual (✓)
19.5	Other Materials		☐	☐
19.6	Environmental Monitoring Program (EMP)		☐	☐
19.7	Supplier Approval		☐	☐
20. Storage of Product				
20.1	Storage Conditions for Harvested Product		☐	☐
20.2	Storage Conditions for Market Product		☐	☐
21. Transportation				
21.1	Transportation of Product in Harvested Product Packaging Materials		☐	☐
21.2	Transportation of Product in Market Ready Packaging Materials		☐	☐
22. Identification and Traceability				
22.1	Traceability System		☐	☐
23. Deviations and Crisis Management				
23.1	Minor Deviations and Corrective Action		☐	☐
23.2	Major Deviations and Corrective Action		☐	☐
23.3	Crisis Management		☐	☐
23.4	Complaint Handling		☐	☐
23.5	Food Defense		☐	☐

Section in Manual		Items Not Yet Complete	Item(s) Completed (✓) and Date	Item(s) Checked Off in Manual (✓)
23.6	Allergens		☐	☐
23.7	Food Fraud		☐	☐
23.8	Food Safety Culture		☐	☐
24. HACCP Plan and Food Safety Program Maintenance and Review				
24.1	Site-Specific HACCP Plan		☐	☐
24.2	Protocols		☐	☐

Compendium of Food Safety Forms		Item(s) Not Yet Complete	Item(s) Completed (✓)	Item(s) Checked Off in Manual (✓)
ANNUAL FORMS				
A.	Building Sketch and Agricultural Chemical Storage Checklist		☐	☐
B.	Storage Assessment		☐	☐
C.	Employee Personal Hygiene and Food Handling Practices Policy - Production Site		☐	☐
D.	Employee Personal Hygiene and Food Handling Practices Policy – Packinghouse/Product Storage		☐	☐
E.	Pest Control for Production Sites Buildings		☐	☐
F.	Water (for Fluming and Cleaning) Assessment		☐	☐
S.	Allergen Information - Assessment		☐	☐
T.	Food Defense		☐	☐
U.	Food Fraud Vulnerability Assessment		☐	☐
V.	Production Site Assessment		☐	☐
ONGOING FORMS				
G.	Cleaning, Maintenance and Repair of Production Sites and Buildings		☐	☐
H1.	Agronomic Inputs (Agricultural Chemicals)		☐	☐
H2.	Agronomic Inputs (Other)		☐	☐

Compendium of Food Safety Forms		Item(s) Not Yet Complete	Item(s) Completed (✓)	Item(s) Checked Off in Manual (✓)
I.	Equipment Cleaning, Maintenance and Calibration		☐	☐
J.	Cleaning and Maintenance – Personal Hygiene Facilities		☐	☐
K.	Training Session		☐	☐
L.	Visitor Sign-In Log		☐	☐
M.	Pest Monitoring for Production Sites and Buildings		☐	☐
N1.	Water Treatment Control and Monitoring		☐	☐
N2.	Water Temperature Control and Monitoring		☐	☐
O.	Transporting Product		☐	☐
P.	Harvesting and Storing Product		☐	☐
Q.	Packing, Repacking, Storing and Brokerage of Market Product		☐	☐
R.	Deviations and Corrective Actions		☐	☐

Operation Information

***Note**: The purpose of completing this section of the Manual is to provide reviewers (e.g., auditors) with a general overview of your operation.*

Legal Operating Name: _____

Name of Person(s)
Responsible for the Operation: _____
*(**Note**: This person(s) becomes the person(s) responsible referred to in this Manual.)*

Address: _____
(Physical address of office location)

_____

Telephone: (____) _____

Cell: (____) _____

Fax: (____) _____

Email Address: _____

Food Safety Program Contact(s) and Contact(s) Information (if different from above): _____
(Person(s) responsible for the Food Safety Program)

_____

Recall Coordinator(s) and Contact(s) Information (if different from above): _____

_____

Draw below the operation's organizational structure (or attach the operations' organizational chart). Include name(s), job title(s), a brief description of job responsibilities and show the reporting relationship(s) (e.g., using arrows). Include only those people involved in activities relevant to food safety.

Brief Background

Amount of land in greenhouse production (owned and rented); length of the operation's season; whose product is being handled:

_____

_____

_____

Operation Description

Describe [e.g., number of locations (production sites, packinghouses, storages, etc.)] _____

_____

_____

_____

_____

_____

Please Check and List All Applicable Items Below:

Type of Greenhouse Production:	**Type of Greenhouse Operation:**
❒ Products for Fresh Consumption (*list):* _____ ❒ Products for Processing (*list):* _____ _____ _____ ❒ Other Uses *(describe):* _____ _____ _____	❒ Production ❒ Production Site Packing into Market Ready Packaging Materials ❒ Packinghouse with Washing Activities ❒ Packinghouse with No Washing ❒ Packing for Other Operations (i.e., co-packing) ❒ Repacking ❒ Importing Products ❒ Storage ❒ Wholesale ❒ Brokerage ❒ Processing *(list products):* _____ _____ _____ ❒ Other *(describe):* _____ _____ _____
❒ Producing Own Commodity Starter Products	
Other Crops Produced: ❒ _____ ❒ _____	Other Farm Programs *(please indicate date of last review)*: ❒ Environmental Farm Plan _____ ❒ Other Food Safety Program(s)/Audit(s): _____

❒ _____ ❒ _____ ❒ _____ Incompatible Operations [e.g., livestock, poultry, etc. *(specify type)]:* ❒ _____ ❒ _____ Other Products (non-produce items) handled or stored: ❒ _____ ❒ _____ ❒ _____ ❒ _____	❒ Other Certifications Achieved: _____ _____ ❒ Nutrient Management Plan: _____ ❒ Reduced input (e.g., no spray, IPM): _____ ❒ Organic Production: _____ ❒ Other *(describe)*: _____ _____ _____

Annual Operation Start Date

Give the date of when your season begins. If you are operating year-round then you must choose a start date (for information on selecting a start date, refer to the FAQ for Section 15 at www.canadagap.ca).

_____

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Section	Page Number	Title	Forms Required	CanadaGAP Version Number and Issue Date
1.	1	Commodity Starter Products	N/A	Version 10.0 2023
2.	3	Premises	A, B, G, V	Version 10.0 2023
3.	7	Commercial Fertilizers and Soil Amendments	N/A	Version 10.0 2023
4.	9	Manure, Compost/Compost Tea and Other By-Products	H2	Version 10.0 2023
5.	11	Mulch and Row Cover Materials	H2	Version 10.0 2023
6.	13	Agricultural Chemicals	A, H1	Version 10.0 2023
7.	17	Agricultural Water	A, I	Version 10.0 2023
8.	21	Equipment	A, I	Version 10.0 2023
9.	29	Cleaning and Maintenance Materials	N/A	Version 10.0 2023
10.	31	Waste Management	N/A	Version 10.0 2023
11.	33	Personal Hygiene Facilities	A, J	Version 10.0 2023
12.	37	Employee Training	C, D, K	Version 10.0 2023
13.	41	Visitor Policy	L	Version 10.0 2023
14.	43	Pest Program for Production Sites and Buildings	A, E, G, M	Version 10.0 2023
15.	47	Water (for Fluming and Cleaning)	A, F, N1, N2	Version 10.0 2023
16.	57	Ice N/A	N/A	Version 10.0 2023
17.	59	Packaging Materials	A, I, Q	Version 10.0 2023
18.	67	Growing and Harvesting	H1, H2, P, Q, R	Version 10.0 2023
19.	69	Sorting, Grading, Packing, Repacking, Storing and Brokerage	P, Q	Version 10.0 2023
20.	75	Storage of Product	A, P, Q	Version 10.0 2023
21.	79	Transportation	O	Version 10.0 2023
22.	81	Identification and Traceability	O, P, Q	Version 10.0 2023
23.	85	Deviations and Crisis Management	R, S, T, U	Version 10.0 2023
24.	101	HACCP Plan and Food Safety Program Maintenance and Review	N/A	Version 10.0 2023

1. Commodity Starter Products

Forms Required	N/A

RATIONALE:

Commodity starter products, depending on the product, may include seed(s), cuttings, seedlings, canes, plants, trees, vines and sets. These may be a source of chemical contamination if not treated properly or if certain cultivars/varieties are selected [e.g., Plants with Novel Traits (PNTs)]. The development of new varieties of products, through conventional breeding or modern biotechnology, has the potential to create varieties with unknown chemical compositions that pose risks to human health. If new varieties are considered different enough from existing varieties they may be considered Plants with Novel Traits in Canada and are subject to federal regulation. Before being grown for human consumption, a food safety assessment of these new varieties must be completed by the prevailing authority (e.g., federal government).

❍ Commodity Starter Products are used on the premises

If the above circle has been checked off, proceed below.
If not, proceed to Section 2: Premises.

IMPORTANT NOTE	**It is assumed throughout the manual that EACH of the requirements (along with their procedures) are to be considered in terms of food safety. The risks are from those hazards that are in "direct contact with product" OR that may have an "impact on food safety through cross contamination".**

1.1 Purchasing and Receiving

REQUIREMENT	*Commodity starter products must be purchased/selected and received properly to minimize chemical contamination. In Canada, Plants with Novel Traits must be assessed for food safety by the federal government before being grown for food use.*

PROCEDURES:

❒ When purchasing or selecting commodity starter products that are genetically modified [e.g., Plants with Novel Traits (PNTs)] the person responsible purchases or selects only varieties that have been approved for use by the prevailing authority [(e.g., federal government - Refer to the CFIA website https://inspection.canada.ca/active/netapp/plantnoveltraitpnt-vegecarnouvcn/pntvcne.aspx) or that have been issued a letter of no-objection (e.g., from Health Canada) or talk to your supplier]

❒ The person responsible receives only the commodity starter products that were purchased

Confirmation/Update Log:

Date						
Initials						

2. Premises

Forms Required	A, B, G, V

RATIONALE:

Direct and indirect contamination of product can occur due to previous activities in a production site or activities on adjacent lands. Animals (both wild and domestic), insects and birds are potential sources of contamination to product because they may carry a variety of pathogens. Therefore, production sites must be assessed before use to ensure all biological, chemical and physical hazards are minimized.

The design and construction of both the interior and exterior of buildings is important in preventing the contamination of product. For example, improper drainage results in standing water or wet areas around facilities that can create breeding grounds for insects and other pests. Long grass and bushes around the exterior walls of buildings may also harbour pests. Pests allowed to live and breed directly outside of buildings have a greater chance of entering the buildings and contaminating the product.

❍ Operation includes production site(s)
❍ Operation includes building(s)

*If **ANY** of the above circles has been checked off, proceed below.*
If not, proceed to Section 3: Commercial Fertilizers and Soil Amendments.

IMPORTANT NOTE	**It is assumed throughout the manual that EACH of the requirements (along with their procedures) are to be considered in terms of food safety. The risks are from those hazards that are in "direct contact with product" OR that may have an "impact on food safety through cross contamination".**

2.1 Production Site and Surroundings Assessment, Cleaning, Maintenance, Repair and Inspection

REQUIREMENT	*The exterior and interior of production sites must be assessed before use for biological, chemical and physical hazards due to previous use, and adjacent agricultural and non-agricultural activities and must be cleaned, maintained, repaired and inspected to minimize sources of contamination.*

PROCEDURES:

! ❒ Annually – The person responsible completes or updates Form (A) Building Sketch and Agricultural Chemical Storage Checklist) OR _____

- If product is grown directly in the ground (i.e., crop grows directly in the soil) and not in a tray/bag/trough/pond/etc. using another growing medium (e.g., rockwool, sawdust, vermiculite, soil, peat, water, coco fiber, etc.), the person responsible considers activities for the past <u>five</u> years of any production site operating for <u>the first time</u> and assesses potential hazards. Each new site is assessed for historical use of:
  - ❒ Persistent heavy metals such as mercury, lead, etc. remaining from previous applications of fertilizers, agricultural chemicals, sewage sludge or liming materials
  - ❒ Contaminants remaining from previous non-agricultural uses (e.g., landfills, refineries, buildings)

❒ If product is grown in a tray/bag/trough/pond/etc. using a growing medium (e.g., rockwool, sawdust, vermiculite, soil, peat, etc.), and not directly in the ground, the person responsible receives a letter of assurance from suppliers of that growing medium after purchasing/selecting it (File under Tab: Letters of Assurance/Certificates)

❒ The person responsible does not use production sites where sewage sludge has been applied.

- Annually – The person responsible considers production site activities and assesses potential hazards for ALL production sites. The person responsible checks that EACH site has NO:
  - ❒ Adjacent areas where livestock excrement dust, aerosols or feathers may drift or leach
  - ❒ Adjacent areas where crop production inputs may drift or leach (e.g., agricultural chemicals, soil amendments, fertilizers, pulp sludge)
  - ❒ Adjacent areas where cross contamination may occur from crops with novel traits
  - ❒ Adjacent areas where non-agricultural activities contribute to air, water or soil pollution [i.e., industrial activities, roadside debris, foreign objects (e.g., glass bottles, etc.)]
  - ❒ The area is not prone to flooding; there is proper drainage around the production site
  - ❒ Unusually high levels of animal and bird activity (e.g., migratory paths, nesting or feeding areas)
  - ❒ Any other air, soil or water pollutants are not a source of contamination

***Note**: If any of the above-noted hazards was identified, the following corrective actions are suggested as options:*

- ➢ Seeking and following expert advice
- ➢ Testing growing medium using an accredited lab that uses appropriate sampling and testing methods to perform analyses in accordance with the applicable requirements of *ISO/IEC 17025* (File under Tab: Test Results)
- ➢ Constructing and maintaining barriers or production site perimeters (e.g., fences, ditches, storage pits, buffer zones)
- ➢ Using bird deterrents, scarers and barriers (e.g., netting)
- ➢ Other *(describe)*: _____

- Annually – The person responsible, for EACH production site, assesses all of the following potential exterior and interior hazards:
  - Each production site is designed or constructed where there is or are:
    - ❒ no areas where pests (e.g., insects, mice, birds, rats) can hide/live/feed (e.g., junk piles, long grass, bushes, garbage, unused machinery)
    - ❒ no holes/leaks/broken items (e.g., plastic, windows, glass panes, screens)
    - ❒ doors that fit properly
    - ❒ doors with locks
    - ❒ windows and side vents that can be sealed or have close-fitting screens
  - The interior of each production site IS or HAS:
    - ❒ adequate drainage (e.g., floor sloped, sump pump for backup, drain covers).
    - ❒ pipes or condensation that does not leak onto product
    - ❒ fans are dust-free and clean
    - ❒ clean areas (e.g., free from garbage, spills)
    - ❒ other (describe): _____

! ❒ Annually [prior to using the production site (regardless of whether it's first time use or not)] – The person responsible conducts an assessment of ALL production sites (both the exterior and the interior) and completes Form (V) Production Site Assessment OR _____

! ❒ Monthly (when in use) – The person responsible conducts an inspection of the exterior and interior of the production site and completes Form (G) Cleaning, Maintenance and Repair of Production Sites and Buildings OR _____

2.2 Building Exterior and Surroundings Assessment, Cleaning, Maintenance, Repair and Inspection

REQUIREMENT	*The exterior of buildings and their surroundings must be assessed for the risk of biological, chemical and physical hazards and must be cleaned, maintained, repaired and inspected to minimize sources of contamination.*

Note: *Agricultural chemical storage buildings are not included in this section. See Section 6.3: Storage, for requirements on storage conditions for agricultural chemicals.*

PROCEDURES:

- Annually – The person responsible, for EACH building, assesses all of the following potential exterior hazards:
  - Each building (when in use) is located where:
    - ❒ crop production inputs will not drift or leach (i.e., agricultural chemicals, soil amendments, fertilizers or manure)
    - ❒ non-agricultural uses are not a source of air, water or soil pollution (e.g., landfills, refineries, water treatment plant, chemical processing plant, etc.)
    - ❒ livestock production is not a source of contamination
    - ❒ the area is not prone to flooding; there is proper drainage around the building (i.e., no standing water or wet areas)
    - ❒ any other air, soil or water pollutants are not a source of contamination
  - Each building is designed or constructed where there is or are:
    - ❒ no areas where pests (e.g., insects, mice, birds, rats) can hide/live/feed (e.g., junk piles, long grass, bushes, garbage, unused machinery)
    - ❒ no holes/crevices/leaks (e.g., walls, windows, screens)
    - ❒ doors that fit properly
    - ❒ doors that can be secured (e.g., to lock storages when unsupervised)
    - ❒ windows that can be closed OR have close-fitting screens (i.e., no gaps)

❒ The person responsible ensures that any new buildings or modifications/renovations to existing buildings meet applicable (e.g., federal, provincial, state, local, etc.) building codes with respect to food safety

! ❒ Monthly (when in use) – The person responsible conducts an inspection of the exterior of buildings and completes Form (G) Cleaning, Maintenance and Repair of Production Sites and Buildings OR

2.3 Building Interior Assessment, Cleaning, Maintenance, Repair and Inspection

REQUIREMENT	*The interior of buildings must be assessed for biological, chemical and physical hazards and must be cleaned, maintained, repaired and inspected to minimize sources of contamination.*

Note: *Agricultural chemical storage buildings are not included in this section. See Section 6.3: Storage, for requirements on storage conditions for agricultural chemicals.*

PROCEDURES:

! ❒ Annually – The person responsible completes or updates Form (A) Building Sketch and Agricultural Chemical Storage Checklist OR

- Annually – The person responsible, for EACH building, assesses all of the following potential interior hazards. Each building IS or HAS:
  - ❒ NOT used for livestock/poultry slaughter or meat processing activities
  - ❒ No sources of cross-contamination that may be carried by air, foot, hands, equipment, etc. (e.g., livestock, poultry, fish, etc.)
  - ❒ Lighting that is adequate (e.g., easy to see in corners, suitable for grading) *Refer to Appendix F -- General Guidelines for Adequate Lighting*
  - ❒ Lighting that is shatterproof or covered (e.g., prevent glass from falling onto product/materials) where product and packaging materials are handled or stored
  - ❒ Adequate drainage (i.e., floor sloped, sump pump for back up, drain covers, backflow preventers where necessary)
  - ❒ Pipes or condensation that do not leak onto product or packaging materials
  - ❒ Clean areas where product and packaging materials are handled and stored (e.g., free from garbage, spills, pests and pest droppings)
  - ❒ Walls, floors and ceilings without crevices
  - ❒ Adequate ventilation to prevent excessive heat, steam, condensation, dust, etc. and contaminated air (e.g. with allergens from dust/dry goods, etc.) is removed

- If there is potential for cross contamination from hazards (e.g., from non-produce activities, processing etc.) or items [e.g. allergens (e.g. nuts, wheat, raw meats, seafood)] being handled and stored on the premises, the person responsible implements the following control measures: (*check those that apply*)
  - ❒ Dedicated areas or barriers to prevent cross contamination
  - ❒ Air flow or ventilation to remove contaminated air
  - ❒ Specific pathways for employees or equipment [i.e. employees and equipment do not move into produce handling and storage areas from areas where there are potential hazards unless procedures are implemented to prevent cross contamination (e.g. change of clothing and footwear)]
  - ❒ Dedicated employees or dedicated working effects (e.g. gloves, footwear, aprons, clothing etc.)
  - ❒ Dedicated equipment
  - ❒ Separation by space or time
  - ❒ Covering or securing items (e.g., inputs, equipment, etc.) to prevent dust, spilling, leaking or other potential sources of cross-contamination

! ❒ Monthly (when in use) – The person responsible conducts a monthly inspection of the interior of buildings, and completes Form (G) Cleaning, Maintenance and Repair of Production Sites and Buildings OR _____

For Harvested and Market Product Storages

! ❒ Annually [prior to first time (in a season) use] – The person responsible inspects the product storage(s) and completes Form (B) Storage Assessment OR _____

_____

Confirmation/Update Log:

Date						
Initials						

Forms Required	N/A

3. Commercial Fertilizers and Soil Amendments

RATIONALE:

Commercial fertilizers and soil amendments can potentially contaminate product with toxic matter if the incorrect types are spread (e.g., materials containing mercury, arsenic, lead, etc.).

❍ Commercial fertilizers are used on the premises
❍ Soil amendments are used on the premises

*If **ANY** of the above circles has been checked off, proceed below.*
If not, proceed to Section 4: Manure, Compost/Compost Tea and Other By-Products.

IMPORTANT NOTE	**It is assumed throughout the manual that EACH of the requirements (along with their procedures) are to be considered in terms of food safety. The risks are from those hazards that are in "direct contact with product" OR that may have an "impact on food safety through cross contamination".**

3.1 Purchasing and Receiving

REQUIREMENT	*Commercial fertilizers and soil amendments must be purchased/selected and received properly to minimize chemical contamination.*

PROCEDURES:

- The person responsible purchases or selects:
  - ❒ Commercial fertilizers that meet prevailing legislation (e.g., federal regulations)
  - ❒ Soil amendments that meet prevailing legislation (e.g., provincial regulations)

❒ The person responsible receives only the commercial fertilizers and soil amendments that were purchased or selected

3.2 Application

REQUIREMENT	*Commercial fertilizers and soil amendments must be applied properly to minimize contamination.*

PROCEDURES:

❒ The person responsible ensures that commercial fertilizers and soil amendments are applied according to expert recommendations

3.3 Storage

❍ Commercial fertilizers are stored on the premises
❍ Soil amendments are stored on the premises

*If **ANY** of the above circles has been checked off, proceed below.*
If not, proceed to Section 4: Manure, Compost/Compost Tea and Other By-Products.

REQUIREMENT	*Commercial fertilizers and soil amendments must be stored in designated areas and under the proper conditions.*

PROCEDURES:

- The person responsible stores commercial fertilizers and soil amendments:
  - ❒ Separate from product and packaging materials
  - ❒ Only in product storage(s) when the storage(s) are not in use
  - ❒ In a covered, clean and dry location if necessary
  - ❒ With labels intact and legible if applicable
  - ❒ In a manner that maintains the integrity of the containers and its contents
  - ❒ Other *(describe)*: _____

Confirmation/Update Log:

Date						
Initials						

Forms Required	H2

4. Manure, Compost/Compost Tea and Other By-Products

RATIONALE:

Product may become contaminated with biological, chemical or physical contaminants if manure, compost and compost teas are not properly handled, applied or stored. It is important when purchasing manure to know the type (e.g., cow, sheep, chicken, etc.). Manure is known to carry pathogenic bacteria (e.g., *E. coli* O157:H7, Salmonella). These organisms can be eliminated through proper composting of manure (e.g., time, temperature) so that it is not a source of contamination to product. Presently there is little scientific information on pathogen survival when other by-products are applied in the production site (e.g., seafood waste, culls). *Refer to Section 23: Deviations and Crisis Management 23.2 Major Deviations and Corrective Action – Chart Section 4: Manure, Compost/Compost Tea and Other By-Products for action to take if deviations occur when purchasing/selecting/receiving compost and compost tea.*

- ❍ Manure is used on the premises
- ❍ Compost/compost tea is used on the premises
- ❍ Other by-products are used on the premises

*If **ANY** of the above circles has been checked off, proceed below.*
If not, proceed to Section 5: Mulch and Row Cover Materials.

IMPORTANT NOTE	**It is assumed throughout the manual that EACH of the requirements (along with their procedures) are to be considered in terms of food safety. The risks are from those hazards that are in "direct contact with product" OR that may have an "impact on food safety through cross contamination".**

4.1 Purchasing and Receiving

REQUIREMENT	*Manure, compost/compost tea and other by-products must be purchased or selected and received with knowledge of origin and handling.*

PROCEDURES:

- ❒ The person responsible does NOT purchase or use sewage sludge on any production site intended for product production even in rotational years

- ❒ When purchasing or selecting manure or other by-products from a supplier (e.g., company, neighbour, self), the person responsible is aware of the type (e.g., cattle, horse or hog manure; culls; seafood waste) and its origin [i.e., produced under conditions that are not a source of chemical (e.g., heavy metals) or physical (e.g., glass) contamination]

- ❒ The person responsible receives only manure and other by-products that were purchased or selected

Purchased Compost/Compost Tea *(If not applicable, proceed to the next sub-section: Compost/Compost Tea Produced On-Site)*

- ❒ The person responsible purchases compost/compost tea from a supplier and is aware of origin [i.e., produced under conditions that are not a source of biological (e.g., pathogens), chemical (e.g., heavy metals) or physical (e.g., glass) contamination] and requests a letter of assurance

! ❒ The person responsible receives only compost/compost tea that was purchased along with the letter of assurance (one letter per supplier per season) (File under Tab: Letters of Assurance/Certificates)

Compost/Compost Tea Produced On-Site *(If not applicable, proceed to Section 4.2: Application)*

❒ The person responsible produces compost/compost tea under conditions that are not a source of biological (e.g., pathogens), chemical (e.g., heavy metals) or physical (glass) contamination, and records the composting procedure (See *Appendix C -- Composting Livestock Manure – An Example and Compost Tea Information*)

! ❒ The person responsible receives only the compost/compost tea that was produced following a completed composting procedure. (File procedures/records under Tab: Letters of Assurance/Certificates)

4.2 Application

REQUIREMENT	*Manure and compost/compost tea must be spread at the appropriate time to minimize contamination of product.*

PROCEDURES:

- The person responsible spreads:
  - ! ❒ Manure only when the interval between application and harvest is greater than 120 days
  - ❒ Compost/compost tea (at any time)

! ❒ The person responsible records manure, compost/compost tea and other by-products (except cover crops/green manure) application details on Form (H2) Agronomic Inputs (Other) OR _____

4.3 Storage

❍ Manure is stored on the premises
❍ Compost/compost tea is stored on the premises
❍ Other by-products are stored on the premises

*If **ANY** of the above circles has been checked off, proceed below.*
If not, proceed to Section 5: Mulch and Row Cover Materials.

REQUIREMENT	*Manure, compost/compost tea and other by-products must be stored in designated areas.*

PROCEDURES:

❒ The person responsible stores manure, compost/compost tea and other by-products separate from each other, product, packaging materials, fuels, oils, chemicals and cleaning agents

❒ The person responsible stores manure and other by-products away from water sources

❒ The person responsible stores manure and compost/compost tea in a location where drifting or leaching will not be a source of contamination to product, OR in a way that protects from leaching or drifting (e.g., tarped, lagoon, barrier, etc.)

Confirmation/Update Log:

Date						
Initials						

5. Mulch and Row Cover Materials

Forms Required	H2

THIS SECTION IS ONLY APPLICABLE TO GREENHOUSE CROPS THAT ARE GROWN DIRECTLY IN THE GROUND (SOIL).

RATIONALE:

Product may become contaminated if mulch and row cover materials are inappropriately used, handled or stored.

❍ Mulch material is used on the premises
❍ Row cover material is used on the premises

*If **ANY** of the above circles has been checked off, proceed below.*
If not, proceed to Section 6: Agricultural Chemicals.

IMPORTANT NOTE	**It is assumed throughout the manual that EACH of the requirements (along with their procedures) are to be considered in terms of food safety. The risks are from those hazards that are in "direct contact with product" OR that may have an "impact on food safety through cross contamination".**

5.1 Purchasing and Receiving

REQUIREMENT	*Mulch and row cover materials must be acquired with knowledge of origin and handling.*

PROCEDURES:

❒ When purchasing or selecting mulch and row cover materials from a supplier (e.g., self, neighbour, company), the person responsible has knowledge of its origin [i.e., materials that are appropriate for intended use (e.g., from a reputable supplier, clean, free of excrement, heavy metals, glass, metal, wood preservatives, agricultural chemicals, etc.)]

❒ The person responsible receives only the mulch and row cover materials that were purchased or selected

5.2 Application

REQUIREMENT	*Application of mulch and row cover materials must be recorded.*

PROCEDURES:

FOR ALL COMMODITIES EXCEPT FOR BULB AND ROOT VEGETABLES *(If not applicable, proceed to Section 5.3: Storage)*

❒ If product is grown directly in the soil, the person responsible records mulch and row cover material applications (except plastic) on Form (H2) Agronomic Inputs (Other) OR_____

5.3 Storage

❍ Mulch material is stored on the premises
❍ Row cover material is stored on the premises

*If **ANY** of the above circles has been checked off, proceed below.*
If not, proceed to Section 6: Agricultural Chemicals.

REQUIREMENT	*Mulch and row cover materials must be stored in designated areas.*

PROCEDURES:

❒ The person responsible stores mulch and row cover materials (including reused plastic mulch and row covers) separate from product, packaging materials, manure, fuels, oils, chemicals and cleaning agents

Confirmation/Update Log:

Date						
Initials						

6. Agricultural Chemicals

Forms Required	A, H1

RATIONALE:

Production of safe products requires a non-contaminated environment. The inappropriate use, handling and storage of agricultural chemicals may result in a chemical hazard. The use of both pre-harvest and post-harvest agricultural chemicals is included in this section. Prevailing legislation (e.g., federal, provincial, state or local regulations) must be adhered to.

- ❍ Agricultural chemicals are used on the premises
- ❍ Product is destined for export markets

*If **ANY** of the above circles has been checked off, proceed below.*
If not, proceed to Section 7: Agricultural Water.

IMPORTANT NOTE	**It is assumed throughout the manual that EACH of the requirements (along with their procedures) are to be considered in terms of food safety. The risks are from those hazards that are in "direct contact with product" OR that may have an "impact on food safety through cross contamination".**

6.1 Purchasing and Receiving

REQUIREMENT	*Agricultural chemicals of the appropriate type must be purchased and received to minimize chemical contamination of product.*

PROCEDURES:

❒ The person responsible purchases agricultural chemicals registered for use on the applicable product in the country where it is grown, or permitted in Canada under the Own Use Import Program or the Grower Requested Own Use (GROU) Program, or permitted under comparable programs in other countries where product is grown

❒ The person responsible purchases agricultural chemicals from licensed dealers

! ● The person responsible receives:
- ! ❒ Only the agricultural chemicals that were purchased
- ! ❒ Containers that are not damaged
- ! ❒ Containers that are clearly and properly labelled and legible (name of product, active ingredient(s), concentration, PCP#, manufacturer's name, address and contact information and the instructions for use are on the label)
- ! ❒ A receipt and signs the receipt (File under tab: Letters of Assurance/Certificates) OR

6.2 Application

REQUIREMENT	*Agricultural chemicals must be applied by the appropriate person, following label instructions.*

PROCEDURES:

! ❒ Applicator follows prevailing legislation (e.g., provincial regulations), AND has completed formal training (e.g., online course, self-study course with materials and successful completion of exam, etc.) (File under Tab: Letters of Assurance/Certificates)

! ❒ The person responsible applies agricultural chemicals that are registered for use on applicable product in the country where it is grown and not in excess of label recommendations and directions

! ❒ When agricultural chemicals are applied (e.g., to the production site, post-harvest applications), the person responsible completes Form (H1) Agronomic Inputs (Agricultural Chemicals) OR _____

Note: *In Canada, a PHI of 1 day means an operation may harvest product the day after application. The PMRA considers a 1 day PHI in terms of calendar days, not hours.*

Note: *See Section 15 Water (for Fluming and Cleaning) for requirements for water used during post-harvest agricultural chemical applications.*

❒ The person responsible for the application of agricultural chemicals communicates with the person responsible for selling their product (e.g., packer, wholesaler, broker) and determines if the product is exported or not

❒ The person responsible for selling the product (e.g., packer, wholesaler, broker) determines whether the product is exported, and if so, communicates with the person responsible for the application of agricultural chemicals

If product is exported continue below. If product is not exported continue to Section 6.3 Storage.
FOR PRODUCT DESTINED FOR EXPORT MARKETS: *(Note: both the applicator of the agricultural chemicals and/or the exporter of the product would be the person responsible below).*

- The person responsible ensures that agricultural chemical residues on product do not exceed the published Maximum Residue Limits (MRL) in the destination market. Person responsible:
  - ❒ Has information (e.g., registration for the specific crop, product labels, Maximum Residue Limits, banned lists, etc.) for agricultural chemicals in destination market(s)
  - ❒ Ensures only chemicals approved for use in the destination market(s) are used
  - ❒ Ensures chemical applications and application rates for target pests and diseases comply with label recommendations applicable to the destination market(s)
  - ❒ Ensures the timing between chemical application and harvest complies with the approved harvest interval in the destination market(s)
  - ❒ For those whose customers require agricultural chemical residue testing: Annually - Conducts agricultural chemical residue testing of market product using an accredited lab that uses appropriate sampling and testing methods to perform analyses in accordance with the applicable requirements of *ISO/IEC 17025*, or participates in a third party agricultural chemical residue monitoring system which is traceable to the farm

    Refer to Appendix Q: Documentation Requirements on Agricultural Chemicals for Exported Product.

Note: *Refer to Section 8.2: Use, Cleaning, Maintenance, Repair and Inspection for rinsing and flushing application equipment. Further pest control product information is available on the Pest Management and Regulatory Agency (PMRA) web site* (https://www.canada.ca/en/health-canada/corporate/about-health-canada/branches-agencies/pest-management-regulatory-agency.html *and/or from the manufacturer*.

6.3 Storage

❍ Agricultural chemicals are stored, *proceed below.*
If not, proceed to Section 7: Agricultural Water.

REQUIREMENT	*Agricultural chemicals must be stored in designated areas and under the proper conditions.*

PROCEDURES:

! ❒ Annually – The person responsible records where agricultural chemicals are stored on Form (A) Building Sketch and Agricultural Chemical Storage Checklist OR _____

! ● Agricultural chemicals are stored:
- ! ❒ In an area dedicated only to agricultural chemicals, commercial fertilizers and pest control products with a PCP#. Contained fertilizers (e.g., bag, jug, tote) may be stored in the chemical storage except where prohibited by prevailing legislation (e.g., provincial regulations). Fertilizers must be stored in a designated area separate from agricultural chemicals
- ! ❒ In a clearly identified location (i.e., sign on door)
- ! ❒ In a locked location
- ! ❒ In a covered, clean and dry location that is temperature appropriate (e.g., to prevent chemicals from freezing)
- ❒ With labels/identification intact and legible [name of product, active ingredient(s), concentration, PCP#, manufacturer's name and address are on the label; the manufacturer's contact information and the instructions for use do not need to be on the label but are readily available]
- ❒ In a manner that maintains the integrity of the container and prevents leakage (e.g., closed bag, in a container, with a lid)

Note*: Refer to Section 10.2: Storage and Disposal of Empty Agricultural Chemical Containers.*

Confirmation/Update Log:

Date						
Initials						

7. Agricultural Water

Forms Required	A, I

RATIONALE:

Agricultural water is an essential element used for multiple purposes in the production of horticultural products. However, water may also be a source of biological or chemical contamination. The risk of contamination is dependent on the quality of the agricultural water source and the way in which it is stored and used to irrigate crops (e.g., drip, overhead, sprinkler, trickle).

- ❍ Agricultural water is used on the premises, *proceed below*.
  If not, proceed to Section 8: Equipment.
- ❍ All sources of agricultural water are municipal (and these are NOT re-circulated/recycled/stored).
  If so, proceed to Section 8: Equipment.

IMPORTANT NOTE	**It is assumed throughout the manual that EACH of the requirements (along with their procedures) are to be considered in terms of food safety. The risks are from those hazards that are in "direct contact with product" OR that may have an "impact on food safety through cross contamination".**

7.1 Source Assessment

REQUIREMENT	*Each agricultural water source must be identified, potential hazards must be assessed and preventative measures and/or corrective actions must be taken (when necessary).*

***Note**: EACH water source used for irrigation, agricultural chemical or commercial fertilizer applications (e.g., overhead, spray, drip, trickle, furrow) and for growing floating/living lettuce/herbs must be assessed (e.g., ponds, streams, lakes, rivers, canals, creeks, springs, cisterns, reservoirs, ground water).*

PROCEDURES:

❒ The person responsible does NOT use untreated sewage water

❒ If an abnormal event occurs to cause contamination of the water source (e.g., publicly announced breach of sewage system, chemical leakage), the person responsible does not spray, irrigate, chemigate or fertigate from that source

- Annually – The person responsible assesses all of the following potential hazards for each agricultural water source:
  - ❒ Unusually high levels of wild animal and bird activity (e.g., migratory paths, nesting or watering areas)
  - ❒ Upstream contamination sources
  - ❒ Access by livestock, domestic animals and birds
  - ❒ Runoff or spills from agricultural chemicals, oil, fuel, manure, etc.
  - ❒ Contamination in pipes
  - ❒ Recreational use (e.g., swimming area)
  - ❒ Working condition of the well (e.g., seals and well casings fit tightly, pump functioning)
  - ❒ Leaching of sunken wells by overland flooding
  - ❒ Placement of irrigation water intake equipment. (Equipment should be placed where sediment is NOT pulled in with water)

- ❒ Storage of irrigation pipes where they could become contaminated by manure, pests or agricultural chemicals

Refer to the following to help with the assessment:

- ➢ *There is a high risk of contamination associated with using poor quality agricultural water on product.*
- ➢ *Drip or trickle irrigation methods **may** reduce the risk of contamination because the water is less likely to come into direct contact with the edible portion of the product.*
- ➢ *If the agricultural water is potable then there may be no risk from the source itself.*
- ➢ *Water quality varies depending on the water source. The chart below is provided to help in the assessment of risk associated with their different water sources*

Water Source	Level of Risk
Municipal Water	Lowest
Well Water and Tertiary Water	Low
Pond/Reservoir/Dugout Fed by Groundwater (springs/wells) or Rainwater	Moderate
Lake	Medium
Pond/Dugout Fed by Stream, Ditch or Run-Off	High
River, Stream, Creek, Canal, Flooding	Highest

- ➢ *Water testing conducted early in the irrigation season may be used as an indicator of the risk associated with different water sources*
- ➢ *Water testing may provide evidence of (or increase) due diligence*
- ➢ *It is strongly recommended that agricultural water sources are tested. The test will provide a general idea of the quality of the water and help to determine if possible contamination is present. Water would be tested for Total Coliforms and E. coli using an accredited lab that uses appropriate sampling and testing methods to perform analyses in accordance with the applicable requirements of ISO/IEC 17025. See Appendix G -- Water Testing for examples of how to take a sample, where to take it and how to interpret the results.*

Note: *You may refer to the chart provided in Appendix K -- Agricultural Water Source Assessment to help with your assessment (and for preventative measures/corrective actions).*

❒ After assessing the source, if the person responsible determines that it may be contaminated an alternate source is used (if available)

- If no alternate source is available, **corrective actions are required.** The following are some options *(check those that apply)*:
  - ❒ Construct barriers (e.g., fences, ditches, storage pits)
  - ❒ Control runoff with sod strips, grass waterways, vegetative buffers, etc.
  - ❒ Spread manure during dry weather or incorporate manure within 24 hours of spreading
  - ❒ Leave a manure-free protective strip at least 10 m wide around surface water sources
  - ❒ Ensure all equipment is well-maintained
  - ❒ Ensure equipment is not cleaned, maintained or drained where the water source may become contaminated
  - ❒ Install aeration or filtration systems
  - ❒ Follow expert advice
  - ❒ Level ground to prevent runoff
  - ❒ Allow as long a period as possible between irrigating and harvest
  - ❒ Ensure proper operation of sewer/septic system

- ❒ Retest water for Total Coliforms and *E. coli* using an accredited lab that uses appropriate sampling and testing methods to perform analyses in accordance with the applicable requirements of *ISO/IEC 17025*. See *Appendix G -- Water Testing*
- ❒ Does not irrigate

- **Preventative measures are also required to reduce the risk of contamination in the water source.** The following are some options *(check those that apply)*:
  - ❒ Construct barriers (e.g., fences, ditches, storage pits)
  - ❒ Control runoff with sod strips, grass waterways, vegetative buffers, etc.
  - ❒ Level ground to prevent runoff
  - ❒ Spread manure during dry weather or incorporate manure within 24 hours of spreading
  - ❒ Leave a manure-free protective strip at least 10 m wide around surface water sources
  - ❒ Ensure all equipment is well-maintained
  - ❒ Ensure equipment is not cleaned, maintained or drained where the water source may become contaminated
  - ❒ Ensure proper operation of sewer/septic system
  - ❒ Install aeration or filtration systems
  - ❒ Follow expert advice
  - ❒ Allow as long a period as possible between irrigating and harvest
  - ❒ Test water for chemicals if you know of a particular problem (e.g., agricultural chemical spill where you know what chemical was spilled) and if the test is available
  - ❒ Test water for Total Coliforms and *E. coli* using an accredited lab that uses appropriate sampling and testing methods to perform analyses in accordance with the applicable requirements of *ISO/IEC 17025*. See Appendix G -- Water Testing
  - ❒ Does not irrigate

❒ The person responsible uses only water from a **potable** source to make agricultural chemical solutions for **overhead** spray application AND for misting (overhead/surface application of water)

! - At least twice annually (after your operation's start date) – the person responsible tests the water used for overhead spray of agricultural chemicals and for misting for Total Coliforms and *E. coli* using an accredited lab that uses appropriate sampling and testing methods to perform analyses in accordance with the applicable requirements of *ISO/IEC 17025* to ensure that the water is potable (File under Tab: Test Results) *Refer to Appendix G -- Water Testing*
  - ! ❒ Once prior to use
  - ! ❒ At least once more during the season to ensure water potability is being maintained

NOTE: *if the water is from a municipal source it does NOT need to be tested unless it is re-circulated/recycled/stored*

For leafy greens and fresh herbs ONLY:

❒ The person responsible uses only water from a **potable** source to fill or replenish ponds for growing floating/living lettuce/herbs

❒ The person responsible uses only water from a **potable** source for irrigation, fertigation and chemigation

! - At least twice annually (after your operation's start date) – the person responsible tests the water for Total Coliforms and *E. coli* using an accredited lab that uses appropriate sampling and testing methods to perform analyses in accordance with the applicable requirements of *ISO/IEC 17025* to ensure that the water is potable (File under Tab: Test Results). *For further guidance, refer to Appendix G -- Water Testing*
  - ! ❒ Once prior to use
  - ! ❒ At least once more during the season to ensure water potability is being maintained

NOTE: *if the water is from a municipal source it does NOT need to be tested unless it is re-circulated/recycled/stored.*

7.2 Storage

❍ Agricultural water is stored, *proceed below.*
If not, proceed to Section 8: Equipment.

REQUIREMENT	*Tanks, containers or cisterns used to store agricultural water must not be a source of contamination to water or product.*

PROCEDURES:

❒ Annually - The person responsible records location of water storage tank/container/cistern on Form (A) Building Sketch and Agricultural Chemical Storage Checklist OR _____

_____

- Prior to first use (in a season) – The person responsible:
  - ❒ Cleans the cistern, tank or container or used to store water (e.g., power washes, sanitizer) and records the cleaning on Form (I) Equipment Cleaning, Maintenance and Calibration OR

    _____

    AND

  - ❒ Follows instructions in *Appendix H -- Cleaning and Treating Cisterns – An Example* OR other written instructions (_____

    _____)

OR

- ❒ Tests water using an accredited lab that uses appropriate sampling and testing methods to perform analyses in accordance with the applicable requirements of *ISO/IEC 17025* (File under Tab: Test Results) See *Appendix G -- Water Testing*

❒ The person responsible ensures the tank, container or cistern has a lid, is free from rust and is closed when not in use

Confirmation/Update Log:

Date						
Initials						

8. Equipment

Forms Required	A, I

RATIONALE:

A good agricultural practice is to clean and maintain production site, packinghouse and storage equipment to reduce the potential for biological, chemical (residues) and physical (e.g., metal, glass, plastic, wood) contamination. The appropriate cleaning methods and materials will depend on the type of equipment and the nature of the product. Procedures may include the removal of debris from equipment surfaces, application of soaps/detergents, scrubbing/friction, rinsing with water, and where, appropriate, disinfection/sanitization. When required, equipment must be calibrated to ensure accurate application and delivery. Included in this section is irrigation equipment, slabs/bags (growing media), wires, clips, ladders, bamboo stakes, elastic bands, plastic/metal/wood gutters (trough systems), string and scissor carts (for pruning and harvesting, etc.).

❍ Production site equipment is used on the premises
❍ Building equipment is used on the premises

*If **ANY** of the above circles has been checked off, proceed below.*
If not, proceed to Section 9: Cleaning and Maintenance Materials.

IMPORTANT NOTE	**It is assumed throughout the manual that EACH of the requirements (along with their procedures) are to be considered in terms of food safety. The risks are from those hazards that are in "direct contact with product" OR that may have an "impact on food safety through cross contamination".**

8.1 Purchasing, Receiving and Installation

Note: *This section includes both new and current equipment.*

REQUIREMENT	*Equipment must be purchased or built so that its design, construction and installation are not a source of contamination to product.*

PROCEDURES:

Production Site Equipment

❒ The person responsible ensures that calibration instructions are received with equipment or are written based on expert recommendations and made available (File under Tab: Calibration Instructions OR _____). Refer to *Appendix E -- Agricultural Chemical Application Equipment Calibration - An Example* for further information

● The person responsible ensures that design and construction of production site equipment (e.g., carts, knives, sprayer panels that touch product, cutting blade, etc.), will not be a source of contamination to product, and:
  - ❒ Have food contact surfaces that are easy to clean
  - ❒ Are easily accessible for cleaning and maintenance

❒ The person responsible receives only the equipment that was purchased or selected

Building Equipment

❒ Annually – The person responsible records where equipment is located/installed on Form (A) Building Sketch and Agricultural Chemical Storage Checklist OR _____

_____

- The person responsible ensures that design and construction of building equipment (e.g., packing, sorting, grading, repacking and cutting surfaces, knives), will not be a source of contamination to product, and:
  - ❒ Have food contact surfaces that are easy to clean
  - ❒ Are easily accessible for cleaning and maintenance
  - ❒ Are made of non-porous surfaces (e.g., metal, stainless steel, hard plastic material, puckboard, rubber) (except for pallets, rollers and brushes)
  - ❒ Are equipped with shatterproof lights (if applicable), or are covered (e.g., prevent glass from falling into product or packaging material) (e.g., packing line, forklift, bin pilers)

❒ The person responsible receives only the equipment that was purchased or selected

❒ The person responsible ensures that calibration instructions are received with equipment or are written based on expert recommendations and made available (File under Tab: Calibration Instructions OR _____) (e.g., for scales to weigh agricultural chemicals, water treatment equipment)

❒ When installing equipment (e.g., the packing line), the person responsible ensures that the equipment is installed with sufficient space between walls, floors and other equipment to allow easy access for cleaning and maintenance

- The person responsible ensures that:
  - ❒ If catwalks are located above packing lines or areas where market product is handled or stored, or where market ready packaging materials are handled or stored, they are protected and have kick plates and solid floors (e.g., rubber mats) to prevent contamination of product
  - ❒ Barriers are in place to eliminate unauthorized access to equipment (e.g., walls, doors, ropes, signs). *Refer to Section 13.1: Visitor Protocols*

8.2 Use, Cleaning, Maintenance, Repair and Inspection

REQUIREMENT	*Equipment use must not contribute to the contamination of product. Equipment must be properly cleaned, have planned maintenance, and be repaired and inspected. Maintenance activities must not contribute to the contamination of product.*

PROCEDURES:

Production Site Equipment

❒ Equipment is not used (whether in use or not) for livestock/poultry slaughter or meat processing activities

❒ Before each use of production site equipment, the person responsible conducts a general inspection and ensures the equipment does not contribute to the contamination of product (e.g., checks for leaks, broken, corroded or damaged parts, cleanliness)

❒ Weekly (at a minimum when in use) – The person responsible inspects equipment (e.g. harvester, conveyors, tables) for proper functioning (e.g. checks for faulty or loose parts) and performs

maintenance as needed. The results of the inspection are recorded on Form (I) Equipment Cleaning, Maintenance and Calibration OR _____

_____

FOR LEGUMES, FRUITING VEGETABLES, SMALL FRUIT, AND LEAFY VEGETABLES AND CRUCIFERAE

! ● Weekly (at a minimum when in use) – The person responsible ensures that production site equipment (i.e., picking cart, step stools, mechanical harvester blade, conveyer belt) is clean by:

Cleaning Procedure *(choose at least one of the following options)*

❒ Washing with *(choose at least one of the following options)*:
- ❒ Water and friction (e.g. pressure wash, wiping, scrubbing)
- ❒ Water and a sanitizer (e.g., chlorine, quaternary ammonium)
- ❒ Water and soap

AND/OR

❒ Dry cleaning (e.g., broom, brushes, air)

❒ Describe your step-by-step cleaning instructions [include any soaps or sanitizers, concentrations and equipment used (*refer to Appendix B -- Chlorination of Water for Fluming and Cleaning Fresh Fruits and Vegetables and Cleaning Equipment - An Example, for examples of chlorine solutions for equipment cleaning and Appendix N -- Sanitation Standard Operating Procedures (SSOP) – An Example*)]:

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

[Filling in the above description completes your Sanitation Standard Operating Procedure (SSOP) for equipment cleaning.]

! ❒ Weekly - The person responsible records cleaning of equipment on Form (I) Equipment Cleaning, Maintenance and Calibration OR _____

_____

FOR BULB AND ROOT VEGETABLES

● Annually (before use) – The person responsible ensures that production site equipment (e.g., mechanical harvester blade, conveyer belt) is clean by *(choose at least one of the following options)*:

Cleaning Procedure

- ❒ Washing with (choose at least one of the following options):
  - ❑ Water and friction (e.g. pressure wash, wiping, scrubbing)
  - ❑ Water and a sanitizer (e.g., chlorine, quaternary ammonium)
  - ❑ Water and soap

AND/OR

- ❒ Dry cleaning (e.g., broom, brushes, air)

❒ Describe your step-by-step cleaning instructions [include any soaps or sanitizers, concentrations and equipment used (*refer to Appendix B: Chlorination of Water for Fluming and Cleaning Fresh Fruits and Vegetables and Cleaning Equipment - An Example, for examples of chlorine solutions for equipment cleaning and Appendix N: Sanitation Standard Operating Procedures (SSOP) – An Example)]*:

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

[Filling in the above description completes your Sanitation Standard Operating Procedure (SSOP) for equipment cleaning.]

❒ Annually - The person responsible records cleaning of equipment on Form (I) Equipment Cleaning, Maintenance and Calibration OR _____

_____

FOR ALL COMMODITIES

- Hand-held cutting and trimming tools that come into direct contact with product (e.g., clippers, pruners, knives) are:
  - ❒ Inspected daily when in use for damaged or broken tips. If knives are damaged or broken then corrective action is taken (*Refer to Section 23. Deviations and Corrective Actions*).
  - ❒ Knives are not retractable (e.g., boxboard cutters, retractable utility knives) **OR**
    If retractable knives are used, the following procedures are followed to control the risk (e.g., not used for harvesting, inspecting all knives to ensure blade is intact) (*describe your procedure):* _____

    _____

    _____

    _____

    _____

- Hand-held cutting and trimming tools that come into direct contact with product (e.g., clippers, pruners, knives) and the tool's case/sheath/cover are properly cleaned:
  - ❒ Daily before use
  - ❒ Using water with friction; water and soap, or a sanitary dip that is changed before use [e.g., quaternary ammonium, chlorine (*refer to Appendix B -- Chlorination of Water for Fluming and Cleaning Fresh Fruits and Vegetables and Cleaning Equipment – An Example, for examples of chlorine concentrations for sanitary dips*)] OR (*describe cleaning procedure*)*:*

    _____

    _____

    _____

    _____

! ❒ Daily – The person responsible records cleaning of hand-held cutting and trimming tools in direct contact with product on Form (I) Equipment Cleaning, Maintenance and Calibration OR _____

_____

- Items used for supporting product (e.g., elastics/netting/clips) are:
  - ❒ cleaned prior to each use
  - ❒ dedicated only for supporting product

- Cloths used for wiping product are:
  - ❒ laundered daily by the operation
  - ❒ used for only one commodity at a time
  - ❒ dedicated only for wiping product (e.g., not for other cleaning purposes, drying hands, etc.)

❒ If compressed air is used in direct contact with product or food contact surfaces, the person responsible maintains compressed air equipment as per manufacturer's instructions or according to a written procedure based on expert recommendations (File under Tab: Other Procedures OR _____ _____).

❒ Scales are cleaned between uses if the same scale is used to weigh product and agricultural chemicals

- Hoses for potable water uses are/have:
  - ❒ Ends that are kept up off the ground
  - ❒ Stored in a way that prevents contamination
  - ❒ Flushed out with potable water before EACH use

❒ Agricultural chemical application equipment is rinsed or flushed according to label instructions when applying agricultural chemical(s) (e.g., on a crop for which the previous chemical used is not registered)

❒ Agricultural chemical application equipment is NOT cleaned, used for mixing, maintained, rinsed or flushed where water source(s) or the production site may become contaminated

❒ Backflow prevention devices or other methods that do not present a risk of contamination are used when filling agricultural chemical application equipment to prevent backflow of agricultural chemicals into water sources or production site *(refer to Appendix O -- Examples of Backflow Prevention During Mixing of Agricultural Chemicals)*

Building Equipment

❒ Equipment is not used (whether in use or not) for livestock/poultry slaughter or meat processing activities

❒ Before each use of building equipment, the person responsible conducts a general inspection and ensures the equipment does not contribute to the contamination of product (e.g., checks for chipping paint, rust, rotting wood, leaks; broken, loose, corroded or damaged parts, cleanliness)

! ❒ Weekly (at a minimum when in use) – The person responsible inspects equipment (e.g., grading table, packing/repacking line, buncher, baggers) for proper functioning (e.g., checks for faulty or loose parts) and performs maintenance as needed. The results of the inspection are recorded on Form (I) Equipment Cleaning, Maintenance and Calibration OR _____

_____

! ● Weekly (at a minimum when in use) – The person responsible ensures that building equipment is clean by:

Cleaning Procedure *(choose at least one of the following options)*

- ❒ Washing with (choose at least one of the following options):
  - ❒ Water and friction (e.g. pressure wash, wiping, scrubbing)
  - ❒ Water and a sanitizer (e.g., chlorine, quaternary ammonium)
  - ❒ Water and soap

AND/OR

- ❒ Dry cleaning (e.g., broom, brushes, air)

❒ Describe your step-by-step cleaning instructions [include any soaps or sanitizers, concentrations and equipment used (*refer to Appendix B -- Chlorination of Water for Fluming and Cleaning Fresh Fruits and Vegetables and Cleaning Equipment - An Example, for examples of chlorine solutions for equipment cleaning and Appendix N -- Sanitation Standard Operating Procedures (SSOP) – An Example*)]:

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

[Filling in the above description completes your Sanitation Standard Operating Procedure (SSOP) for equipment cleaning.]

! ❒ Weekly - The person responsible records cleaning of equipment on Form (I) Equipment Cleaning, Maintenance and Calibration OR _____

● Cloths used for wiping product are:

- ❒ laundered daily by the operation
- ❒ used for only one commodity at a time
- ❒ dedicated only for wiping product (e.g., not for other cleaning purposes, drying hands, etc.)

❒ If compressed air is used in direct contact with product or food contact surfaces, the person responsible maintains compressed air equipment as per manufacturer's instructions or according to a written procedure based on expert recommendations (File under Tab: Other Procedures OR _____).

❒ Scales are cleaned between uses if the same scale is used to weigh product and agricultural chemicals

- Hoses for potable water uses are/have:
  - ❒ Ends that are kept up off the ground
  - ❒ Stored in a way that prevents contamination
  - ❒ Flushed out with potable water before EACH use

- Hand-held cutting and trimming tools that come into direct contact with product (e.g., knives, pruners) are:
  - ❒ Inspected daily when in use for damaged or broken tips. If knives are damaged or broken then corrective action is taken (*Refer to Section 23. Deviations and Corrective Actions*)

  - ❒ Knives are not retractable (e.g., boxboard cutters, retractable utility knives) **OR**
    If retractable knives are used, the following procedures are followed to control the risk (e.g., not used for packing, inspecting all knives to ensure blade is intact) (*describe your procedure):* _____

    _____

    _____

    _____

    _____

- Hand-held cutting and trimming tools that come into direct contact with product (e.g., knives, pruners) and the tool's case/sheath/cover are properly cleaned:
  - ❒ Daily before use
  - ❒ Using water and soap, or a sanitary dip that is changed before use [e.g., quaternary ammonium, chlorine (refer to Appendix B -- Chlorination of Water for Fluming and Cleaning Fresh Fruits and Vegetables and Cleaning Equipment – An Example, for examples of chlorine concentrations for sanitary dips)] OR (describe cleaning procedure):

    _____

    _____

    _____

    _____

! ❒ Daily - The person responsible records cleaning of hand-held cutting and trimming tools in direct contact with product on Form (I) Equipment Cleaning, Maintenance and Calibration OR _____

8.3 Calibration

REQUIREMENT	*An effective calibration program must be followed for all equipment requiring calibration.*

PROCEDURES:

Production Site Equipment

! ❒ At the start of the season, when inspection results indicate a need, when equipment is changed and/or adjusted, the person responsible calibrates production site equipment as per calibration instructions.

- The person responsible calibrates the following production site equipment *(check all that apply; if not applicable, proceed to the next sub-section: Building Equipment)*:
  - ! ❒ Agricultural chemical applicator (including seed treaters, hopper for granular/liquid application)
  - ! ❒ Scales (if used to weigh agricultural chemicals)

❒ The person responsible records detailed results of the calibration for agricultural chemical applicators (File under Tab: Calibration Instructions).

! ❒ The person responsible records the calibration activity on Form (I) Equipment Cleaning, Maintenance and Calibration OR _____

Building Equipment

! ❒ At the start of the season, or when inspection results indicate a need, or when key components are replaced (e.g., belts or sprockets are changed), the person responsible calibrates the equipment as per calibration procedures

! - The person responsible calibrates the following building equipment *(check all that apply; if not applicable, proceed to Section 8.4: Storage)*:
  - ! ❒ pH meter (if used to verify water treatment, i.e., chlorination)
  - ! ❒ ORP meter (if used to verify water treatment)
  - ! ❒ Scales (if used to weigh agricultural chemicals)
  - ! ❒ Thermometers (if used to verify internal temperature of product and water)
  - ❒ Other *(specify)*: _____

! ❒ The person responsible records the calibration activity on Form (I) Equipment Cleaning, Maintenance and Calibration OR _____

8.4 Storage

REQUIREMENT	*Equipment must be stored in designated area(s) so that it will not contribute to the contamination of product.*

PROCEDURES:

❒ The person responsible stores production site equipment (when not in use) separate from product, water sources, market ready packaging materials and other sources of potential contamination

❒ The person responsible stores building equipment (when not in use) in a manner that prevents leakage of fuel, oil, gases, etc. from equipment coming into contact with product, water sources and market ready packaging materials

Confirmation/Update Log:

Date						
Initials						

9. Cleaning and Maintenance Materials

Forms Required	N/A

RATIONALE:

Cleaning and maintenance materials can be a source of chemical and physical contamination if the proper materials and procedures are not used.

❍ Cleaning materials are used on the premises
❍ Maintenance materials are used on the premises

*If **ANY** of the above circles has been checked off, proceed below.*
If not, proceed to Section 10: Waste Management.

IMPORTANT NOTE	**It is assumed throughout the manual that EACH of the requirements (along with their procedures) are to be considered in terms of food safety. The risks are from those hazards that are in "direct contact with product" OR that may have an "impact on food safety through cross contamination".**

9.1 Purchasing and Receiving

REQUIREMENT	*Cleaning and maintenance materials must be properly purchased/selected and received to ensure the appropriate type for use.*

PROCEDURES:

❒ When purchasing or selecting cleaning and maintenance materials (including materials used on food contact surfaces), the person responsible purchases or selects materials that are appropriate for their intended use

❒ The person responsible receives only the cleaning and maintenance materials that were purchased or selected and if applicable, verifies that the label contains the name of product, active ingredient(s), concentration and the manufacturer's name and address; the manufacturer's contact information and the instructions for use do not need to be on the label but are readily available

***Note**: For materials, refer to Appendix D -- Reference Lists: Packaging Materials, Inks, Lubricants, Maintenance Materials, Sanitizers, Water Treatment Aids, and Food and Incidental Additives.*

9.2 Use

REQUIREMENT	*Cleaning and maintenance materials must be used so as not to be a source of contamination to product.*

- When using cleaning and maintenance materials, the person responsible:
  - ❒ Mixes materials by following the instructions for use and the concentration guidelines
  - ❒ Uses the appropriate material for its intended use
  - ❒ Follows the instructions for use during the application process
  - ❒ Avoids cross contamination from cleaning and maintenance materials (e.g., if a broom was used to sweep water into a drain, this broom cannot then be used to sweep a food contact surface, etc.).

Note: *Refer to Appendix B -- Chlorination of Water for Fluming and Cleaning Fresh Fruits and Vegetables and Cleaning Equipment - An Example, for examples and information on using chlorine to sanitize equipment.*

9.3 Storage

REQUIREMENT	*Cleaning and maintenance materials must be stored in designated areas and under proper conditions.*

- The person responsible stores cleaning and maintenance materials:
  - ❒ Separate from product, equipment, waste, agricultural chemicals, market ready packaging materials and other sources of contamination
  - ❒ In a clean and dry location
  - ❒ If applicable, with labels/identification intact and legible [name of product, active ingredient(s), concentration and the manufacturer's name and address are on the label; the manufacturer's contact information and the instructions for use do not need to be on the label but are readily available]
  - ❒ In a manner that maintains the integrity of the container/contents and prevents leakage (e.g., closed bag, in a closed container, with a lid)

Confirmation/Update Log:

Date						
Initials						

10. Waste Management

Forms Required	N/A

RATIONALE:

Proper waste management is required to prevent biological, chemical or physical contamination of your premises (e.g., culls left to rot in a pile near a building can attract pests).

❍ Waste is on the premises

If the above circle has been checked off, proceed below.
If not, proceed to Section 11: Personal Hygiene Facilities.

IMPORTANT NOTE	**It is assumed throughout the manual that EACH of the requirements (along with their procedures) are to be considered in terms of food safety. The risks are from those hazards that are in "direct contact with product" OR that may have an "impact on food safety through cross contamination".**

10.1 Storage and Disposal of Garbage, Recyclables and Compostable Waste

REQUIREMENT	*Areas for garbage, recyclables and compostable waste (when applicable) must be identified, and all waste must be stored and disposed of in a manner to minimize contamination.*

PROCEDURES:

- The person responsible provides dedicated containers for waste that are:
  - ❒ In the appropriate areas/rooms (e.g., lunchroom, washroom, packinghouse, production site, storage)
  - ❒ Separate from product, water sources and market ready packaging materials
  - ❒ Designated or labelled for each applicable type of waste (i.e., garbage, recyclables, compost, etc.)
  - ❒ Covered where pest or animal intrusion may be a problem
  - ❒ Of sufficient quantity and size
  - ❒ Cleaned thoroughly at least monthly (e.g., pressure washed, scrubbed, change plastic liners) in an area separate from product and market ready packaging materials

❒ The person responsible disposes of waste as soon as the container is full (or before) or as frequently as required to avoid attracting pests (e.g., flies, rodents)

10.2 Storage and Disposal of Empty Agricultural Chemical Containers

REQUIREMENT	*Empty agricultural chemical containers must be stored and disposed of in a manner that minimizes the potential for chemical contamination of product and the premises.*

PROCEDURES:

❒ The person responsible does not reuse empty agricultural chemical containers for any purpose

❒ The person responsible triple rinses containers and empties the rinsate into the applicator tank

- The person responsible stores empty agricultural chemical containers:
  - ❒ Separate from product, water sources and market ready packaging materials
  - ❒ In a designated or labelled area/container

❒ The person responsible disposes of empty agricultural chemical containers by following prevailing legislation (e.g., federal, provincial, state or local regulations) for disposal of empty containers

10.3 Disposal of Production Wastewater and Waste from Toilets and Hand Washing Facilities

REQUIREMENT	*Production wastewater, waste from toilets and wastewater from hand washing facilities must be disposed of in a manner that minimizes biological and chemical contamination of product, water sources and the premises.*

PROCEDURES:

❒ The person responsible disposes of waste from toilets in a manner that prevents contamination of packaging materials, product, water sources, compost and other by-products

- The person responsible disposes of waste from toilets *(choose at least one of the following)*:
  - ❒ Into a septic system or municipal sewer system
  - ❒ By contracting with a portable toilet company or cleaning service
  - ❒ Other *(specify where and how waste is disposed of)*:

    Describe: _____

    _____

    _____

❒ The person responsible disposes of wastewater from hand washing facilities in a manner that prevents contamination of packaging materials, product, water sources, compost and other by-products

- The person responsible disposes of wastewater from hand washing facilities *(choose at least one of the following)*:
  - ❒ Into a septic system or municipal sewer system
  - ❒ By contracting with a portable toilet company or cleaning service
  - ❒ Other *(specify where and how wastewater is disposed of)*:

    Describe: _____

    _____

    _____

❒ The person responsible disposes of production wastewater in a manner that prevents contamination of packaging materials, product, water sources, compost and other by-products

❒ The person responsible disposes of production wastewater by *(specify where and how wastewater is disposed of)*:

Describe: _____

_____

_____

Confirmation/Update Log:

Date						
Initials						

11. Personal Hygiene Facilities

Forms Required	A, J

RATIONALE:

Humans may be a source of biological contamination (e.g., Hepatitis A, Salmonella, *E. coli* O157:H7) especially if unable to properly wash their hands. Therefore, it is important to provide personal hygiene facilities and to keep them well-maintained.

❍ Operation includes production site(s)
❍ Operation includes packing/repacking and/or product storage

*If **ANY** of the above circles has been checked off, proceed below.*
If not, proceed to Section 12: Employee Training.

IMPORTANT NOTE	**It is assumed throughout the manual that EACH of the requirements (along with their procedures) are to be considered in terms of food safety. The risks are from those hazards that are in "direct contact with product" OR that may have an "impact on food safety through cross contamination".**

11.1 Facilities

REQUIREMENT	*Sufficient personal hygiene facilities must be available. All facilities must be accessible, properly stocked, cleaned and well-maintained.*

PROCEDURES:

In the Production Site *[If not applicable, proceed to the sub-section: Packing/Repacking and/or Product Storage]*

! ● Properly stocked hand washing facilities that are easily accessible are provided for employees **IN** the production site or **IN** the header house/entrance/service room/connecting house, and include:
  - ***Note:*** *Hand washing water stored in permanent tanks (e.g., within portable washrooms or as standalone facilities) is not considered potable UNLESS:*
    - the water is tested from the tank each time the tank is filled to confirm potability, OR
    -the water is treated and tested to confirm potability is being maintained with treatment as per procedures in Section 15.3 Treatment*, OR*
    - the cleanliness of the tank is maintained, filling procedures are followed and the water is tested to confirm potability as per procedures in Section 15.2 Storage

Choose at least one of the following 3 options (The items within each option are to be used ONLY in the order that they appear):

! ❐ hot and/or cold running **potable** water (with a receptacle to collect wastewater), soap and disposable paper towels

OR

! ❐ water (with a receptacle to collect wastewater), disposable paper towels and hand sanitizer

OR

! ❐ hand wipes and hand sanitizer

AND

❐ a garbage container

❒ all hand washing facilities have hand washing signs with understandable instructions (e.g., appropriate language for employees, pictograms) and that are appropriate for the handwashing option chosen. *Refer to Appendix I -- Hand Washing Sign Templates*

! ● Washrooms are provided **FOR** production site employees and include: *Choose at least one of the following options:*

- ❒ Access to washrooms in an adjacent building
- ❒ Washrooms in the header house/entrance/service room/connecting house
- ❒ Washroom in the production site

AND

- ❒ There is 1 toilet per 35 employees and they are fully equipped (i.e., toilet paper)

! ❒ Weekly (while in use) and daily (during the peak season) – The person responsible cleans and maintains the personal hygiene facilities and records the activity on Form (J) Cleaning and Maintenance – Personal Hygiene Facilities OR _____

Packing/Repacking and/or Product Storage *[If not applicable, proceed to the sub-section: Other Facilities in the Production Site and Building(s)]*

! ❒ Annually – The person responsible records all locations of personal hygiene facilities on Form (A) Building Sketch and Agricultural Chemical Storage Checklist OR _____

_____

! ● The person responsible provides properly stocked handwashing facilities **IN** the packinghouse and **FOR** the handling of market ready packaging materials and **FOR** product storage including:

! • ***Note:*** *Hand washing water stored in permanent tanks (e.g., within portable washrooms or as standalone facilities) is not considered potable UNLESS:*
- the water is tested from the tank each time the tank is filled to confirm potability, OR
-the water is treated and tested to confirm potability is being maintained with treatment as per procedures in Section 15.3 Treatment*, OR*
- the cleanliness of the tank is maintained, filling procedures are followed and the water is tested to confirm potability as per procedures in Section 15.2 Storage

Choose at least one of the following 3 options (The items within each option are to be used ONLY in the order that they appear):

! ❒ hot and/or cold running **potable** water (with a receptacle to collect wastewater), soap and disposable paper towels

OR

! ❒ water (with a receptacle to collect wastewater), disposable paper towels and hand sanitizer

OR

! ❒ hand wipes and hand sanitizer

AND

- ❒ a garbage container
- ❒ all hand washing facilities have hand washing signs with understandable instructions (e.g., appropriate language for employees, pictograms) and that are appropriate for the handwashing option chosen. *Refer to Appendix I -- Hand Washing Sign Templates*

- The person responsible provides washrooms:
  - ! ❒ in the packinghouse/market ready packaging material handling building/product storage

    OR
  - ! ❒ in the immediate vicinity of the packinghouse/market ready packaging material handling building/product storage (e.g., portable toilet, residence, bunkhouse)

- Washrooms include:
  - ❒ 1 toilet per 35 employees
  - ❒ Fully equipped facilities (i.e., toilet paper)
  - ❒ If the washroom is in the vicinity of the packinghouse/market ready packaging material handling building/product storage, describe where it is located: _____

! ❒ Weekly (while in use) and daily (during the peak season) – The person responsible cleans and maintains the personal hygiene facilities and records the activity on Form (J) Cleaning and Maintenance – Personal Hygiene Facilities OR _____

Other Facilities: In the Production Site and Building(s) (e.g., lunchroom, break area)

- The person responsible provides:
  - ❒ Fully stocked first aid kits
  - ❒ Waterproof covering for bandaged wounds on hands (e.g., rubber gloves)

❒ The person responsible provides a dedicated storage area for personal effects separate from product handling areas and washrooms

❒ The person responsible provides a dedicated lunchroom/break area separate from product handling areas

❒ The person responsible ensures employees remove working effects prior to entering washrooms and before breaks (e.g., reusable gloves/aprons)

❒ The person responsible ensures employees store working effects in a designated location separate from break areas, surfaces where food is prepared or eaten and other sources of potential contamination

Confirmation/Update Log:

Date						
Initials						

12. Employee Training

Forms Required	C, D, K

RATIONALE:

Employees must be trained on good personal hygiene practices and safe product handling to help prevent the biological, chemical and physical contamination of product. Job-specific training is also important to ensure food safety related practices are adhered to.

IMPORTANT NOTE	**It is assumed throughout the manual that EACH of the requirements (along with their procedures) are to be considered in terms of food safety. The risks are from those hazards that are in "direct contact with product" OR that may have an "impact on food safety through cross contamination".**

12.1 Employee Training

REQUIREMENT	*All employees must receive training on their role in food safety, food handling, personal hygiene practices, biosecurity and any other area related to food safety for their job. Senior management must demonstrate its commitment to determining and providing, in a timely manner, all the qualified resources (including suitably qualified personnel) needed to implement and improve the processes of the food safety system.*

PROCEDURES:

❒ Responsibility for overseeing employee training is assigned to [record name here: _____], who becomes the "person responsible" below

- Annually – The person responsible uses the following Employee Personal Hygiene and Food Handling Practices Policy Forms for training *(check those that are applicable)*:
  - ❒ Form (C) Employee Personal Hygiene and Food Handling Practices Policy – Production Site
  - ❒ Form (D) Employee Personal Hygiene and Food Handling Practices Policy – Packinghouse/Product Storage

- The person responsible provides training:
  - ❒ To all employees at the beginning of each season
  - ❒ To new employees
  - ❒ As a refresher to reinforce good practices (i.e., as a result of non-conformances or mid-way through the season)
  - ❒ To provide feedback from an audit, or information on new techniques, new science or other technical findings

❒ Person responsible provides appropriate training in a language and in a way employee(s) understand (Refer to the CanadaGAP website to obtain training materials: www.canadagap.ca)

❒ Person responsible records employee personal hygiene, food handling practices and minor and major food safety deviations training activities and employees' attendance on Form (K) Training Session OR _____

❒ The person responsible observes employees for compliance with the personal hygiene and food handling practices policy

- ❒ The person responsible trains employees to stop and report to the person responsible immediately if any broken glass is observed while harvesting (i.e., panes, bulbs)

- ❒ The person responsible trains employees to touch only the sides of the ladders, not the rungs, to avoid contaminating their hands while using or carrying the ladder

- ❒ The person responsible trains employees on minor and major food safety deviations (*Refer to Section 23: Deviations and Crisis Management)*

- ● The person responsible provides job-related training to employees performing tasks that could lead to biological, chemical or physical contamination of product *(check those that are applicable)*:
    - ❒ Calibration of production site equipment
    - ❒ Calibration of building equipment
    - ❒ Use of cleaning and maintenance materials (including water treatment chemicals)
    - ❒ Production site equipment cleaning and maintenance procedures (e.g., cutting and trimming tools, knives)
    - ❒ Building equipment cleaning and maintenance procedures
    - ❒ Record keeping procedures (i.e., forms applicable to job)
    - ❒ Application of agronomic inputs
    - ❒ Harvesting procedures
    - ❒ Sorting, grading, packing, repacking and wholesaling procedures
    - ❒ Allergen awareness (e.g. preventing cross contamination from allergens)
    - ❒ Purchasing/receiving/handling/storing procedures
    - ❒ Procedures for preventing cross-contamination from other non-produce activities that occur on the premises (e.g. food processing, cattle operation etc.)
    - ❒ Handling of job-related electronic devices

12.2 Employee Illness

REQUIREMENT	*The person responsible must be aware of and know how to manage the risks associated with illnesses transferable to food. All employees must be informed of their role in the potential transfer of illness to food and trained to report illnesses or symptoms to their supervisor.*

PROCEDURES:

- ❒ The person responsible abides by appropriate legislation (e.g., human rights, privacy, employment standards) and operation policies (written and verbal)

- ❒ The person responsible is aware that there are illnesses transferable to food (e.g., Hepatitis A, Salmonella, *E. coli* O157:H7)

- ❒ The person responsible trains employees to report if they have a disease or illness transferable to food, symptoms of such a disease or illness, or an open or infected lesion

- ❒ The person responsible informs employees to see a doctor when they are ill and excludes employees with symptoms of an active infectious disease from activities that may contaminate product, packaging materials or food contact surfaces

- ❒ The person responsible is alert to signs of employee illness, and encourages those employees to seek medical attention as soon as possible

- ❒ If the person responsible is advised that an employee has an illness transferable to food (e.g., Hepatitis A, Salmonella, *E. coli* O157:H7), advice, guidance and collaboration is sought with their local public health authority and/or other regulatory agencies (CFIA or provincial government representatives) and/or experts (e.g., food safety consultant, academic institution, etc.) to help determine when the employee can return to work and measures that can be taken (e.g., risk assessment, corrective action, preventative measures, product recall etc.) if the product was potentially contaminated (e.g., handled by ill employee, cross-contamination risks, etc.).

- ❒ The person responsible keeps all records confidential, including copies of correspondence, doctor's notes, etc. in a secure location that is not accessible to unauthorized people

Confirmation/Update Log:

Date						
Initials						

13. Visitor Policy

Forms Required	L

RATIONALE:

Restricting visitors from areas where product or market ready packaging materials are handled or stored helps to prevent contamination.

❍ Operation may have visitors on the premises

If the above circle has been checked off, proceed below.
If not, proceed to Section 14: Pest Program for Production Sites and Buildings.

IMPORTANT NOTE	**It is assumed throughout the manual that EACH of the requirements (along with their procedures) are to be considered in terms of food safety. The risks are from those hazards that are in "direct contact with product" OR that may have an "impact on food safety through cross contamination".**

13.1 Visitor Protocols

REQUIREMENT	*Visitors must adhere to protocols when on the premises so as not to be a source of contamination.*

PROCEDURES:

❒ The person responsible determines controlled-access areas within the production site(s) and building(s) including areas where harvested and market product and market ready packaging materials are handled or stored, and where cleaning and maintenance materials are stored, and controls access to those designated areas (e.g., puts up signs, walls) *Refer to Appendix J -- Controlled Access Area Sign Templates*

❒ The person responsible accompanies or designates a person to accompany first time visitors entering controlled-access areas

❒ The person responsible ensures visitors are informed of and understand the visitor policy on Form (L) Visitor Sign-In Log OR _____

❒ The person responsible or designated person ensures all visitors entering controlled-access areas sign in using Form (L) Visitor Sign-In Log OR _____

Confirmation/Update Log:

Date						
Initials						

Forms Required	A, E, G, M

14. Pest Program for Production Sites and Buildings

RATIONALE:

Pests such as rodents, birds and insects are potential sources of contamination to product as they may carry a variety of pathogens. The use of traps, chemicals, tape or bait, and monitoring these continually can be effective in controlling pests.

❍ Operation has production site(s) on the premises
❍ Operation has building(s) on the premises

*If **ANY** of the above circles has been checked off, proceed below.*
If not, proceed to Section 15: Water (for Fluming and Cleaning).

IMPORTANT NOTE	**It is assumed throughout the manual that EACH of the requirements (along with their procedures) are to be considered in terms of food safety. The risks are from those hazards that are in "direct contact with product" OR that may have an "impact on food safety through cross contamination".**

14.1 Control and Monitoring

REQUIREMENT	*An effective pest program must be in place for the exterior and interior of production sites and buildings to monitor and control pests.*

Note: *This section does not apply to stand-alone agricultural chemical storage buildings.*

PROCEDURES

❒ The person responsible completes pest risk assessment for the interior and exterior of production sites and buildings by reviewing Sections 2.1, 2.2, and 2.3 and Form (G) Cleaning, Maintenance and Repair of Production Sites and Buildings OR _____

❒ The person responsible prevents nesting of birds on the interior and exterior of production sites and buildings

❒ The person responsible does NOT allow animals, either wild or domestic (including pets), or pests (e.g. birds, rodents) in production sites and buildings

- The person responsible uses traps in production sites and buildings and ensures that:
  - ❒ They are flush against the wall
  - ❒ If using bait inside buildings, it is in a trap from which rodents cannot escape (e.g., tin cat, iron cat, ketch-all)
  - ❒ They are set, at a minimum, on the inside of each entrance (doorways) on both sides (i.e., two traps per door)
  - ❒ Pest control products in bait or baited traps are registered for use in the country where they are used

NOTE: Snap traps may be used inside production sites and buildings, but cannot be baited.

! ❒ The person responsible adheres to a pest control and monitoring program. (You **MUST** choose <u>one</u> of the two options listed on the following page and complete the associated sub-bullets):

! ❒ **Third Party Pest Program**	! ❒ **Self-Managed Pest Program**
! ● The person responsible hires a licensed third party pest control company to monitor production sites and buildings (when in use). The company provides the person responsible with: ! ❒ A contract/agreement/letter of assurance showing company's name and the applicator's license number ! ❒ A written pest control manual detailing the procedures, pest control products used, PCP numbers, frequencies (minimum of once monthly) and methods used ! ● The company ensures that: ! ❒ Bait (unless inside a trap) is not used in the interior of production sites and buildings ! ❒ Bait is not in contact with product ! ❒ Pest control products are registered for use in the country where they are used and used according to label directions ! ❒ All pest control devices are clearly numbered/labelled/identified ! ❒ The location of production site and building exterior and interior pest control devices is recorded and provided to the person responsible ! ❒ All leftover bait, damaged traps, used glue boards and pests are disposed of in a sealed container and placed in the garbage ! ❒ A record of detailed findings and suggested control measures are provided after each scheduled visit	! ● The person responsible implements a self-managed pest program. The person responsible ensures that: ! ❒ Bait (unless inside a trap) is not used in the interior of production sites and buildings ! ❒ Bait is not in contact with product ! ❒ Pest control products are registered for this use in the country where they are used and are used according to label directions ! ❒ All pest control devices are clearly numbered/labelled/identified ! ❒ The location of building exterior and interior pest control devices is recorded on Form (A) Building Sketch and Agricultural Chemical Storage Checklist OR _____ _____ ! ❒ All leftover bait, damaged traps, used glue boards and pests are disposed of in a sealed container and placed in the garbage ! ❒ After handling bait, devices, or disposing of pests, proper hand washing techniques are followed ! ❒ The person responsible records PCP # on Form (E) Pest Control for Production Sites and Buildings OR _____ _____ _____
! ❒ After each visit, the person responsible reviews the record left by the company and signs the record for confirmation of activities	! ❒ Annually – The person responsible describes the pest program on Form (E) Pest Control for Production Sites and Buildings OR _____ _____
! ❒ The person responsible files all records under Tab: Third Party Pest Control Records OR _____ _____	! ❒ Monthly at a minimum (when in use) – The person responsible monitors the pest program and records findings on Form (M) Pest Monitoring for Production Sites Buildings OR _____
❒ Annually - The person responsible reviews the company's program (procedures, numbering of devices, monitoring frequency, etc.) for effectiveness	❒ If a persistent problem, pattern or increases in pest populations are observed, the person responsible takes corrective action and/or seeks expert advice on alternative control measures

14.2 Storage

❍ Pest control products are stored on the premises

If the above circle has been checked off, proceed below.
If not, proceed to Section 15: Water (for Fluming and Cleaning).

REQUIREMENT	*Pest control products must be stored in designated areas and under the proper conditions.*

PROCEDURES:

! ❒ Annually – The person responsible records where pest control products are stored on Form (A) Buildings Sketch and Agricultural Chemical Storage Checklist OR _____

- The person responsible stores pest control products:
  - ❒ Separate from product and packaging materials
  - ❒ In a covered, clean and dry location if necessary
  - ❒ With labels/identification intact and legible if applicable (e.g., name of product, active ingredient(s), concentration, PCP#)
  - ❒ In a manner that maintains the integrity of the container and its contents

Confirmation/Update Log:

Date						
Initials						

15. Water (for Fluming and Cleaning)

Forms Required	A, F, N1, N2

RATIONALE:

Water may be used in an operation for a number of different reasons, using a variety of practices. It is important to assess the quality of the water as it may be a source of biological or chemical contamination. When warm tomatoes are submerged in cold water, water can be drawn inside the tomato. Water quality and temperature are important to maintain any time tomatoes are submerged in water because contamination inside the tomato cannot be washed off.

- ❍ Water is used for fluming, washing or rinsing of product
- ❍ Water is used for post-harvest applications of agricultural chemicals
- ❍ Water is used for "Other Materials" (see glossary definition)
- ❍ Water is used for cleaning equipment, containers, buildings, etc.
- ❍ Water is used in personal hygiene facilities for hand washing

*If **ANY** of the above circles has been checked off, proceed below.*
If not, proceed to Section 16: Ice.

**** NOTE: Water (for Fluming and Cleaning) should not be used in SMALL FRUIT operations unless it is used for cleaning (equipment, buildings, containers, etc.) and/or hand washing in personal hygiene facilities.***

IMPORTANT NOTE	**It is assumed throughout the manual that EACH of the requirements (along with their procedures) are to be considered in terms of food safety. The risks are from those hazards that are in "direct contact with product" OR that may have an "impact on food safety through cross contamination".**

15.1 Water Assessment

REQUIREMENT	*Water source must be identified and potential hazards assessed. The required preventative measures must also be determined and implemented to prevent biological (pathogenic bacteria, parasites and viruses) and chemical contamination.*

PROCEDURES:

- ❒ The person responsible never uses untreated sewage water

- ❒ The person responsible ensures that any system that supplies potable water is not cross-connected with any other water system, unless measures are taken to eliminate any risk of contamination to the product as a result of the cross-connection

- ❒ If an abnormal event occurs to cause contamination of the water (e.g., chemical leakage, leaching of well by overland flooding, municipal boil water advisory), the person responsible does not use the water until remediation is possible to eliminate the contaminant or testing (if possible i.e. contaminant [e.g. agricultural chemical] is known and tests are available) indicates the water is safe to use

! ● Annually – By completing or updating Form (F) Water (for Fluming and Cleaning) Assessment OR _____, the person responsible:

  ! ❒ Identifies the water sources
  ! ❒ Describes the intended use of each water source
  ! ❒ Describes the method of application

- ❒ Assesses the potential hazards for each source considering its use
- ❒ Determines the appropriate action or preventative measures needed to control the hazards

To assist with the assessment, the following MUST be adhered to:

***Note**: Composite Samples may be an option for water testing. Refer to Appendix G: Water testing 4. Composite Water Samples for further information.*

***Note: Potable water**: Water that meets the parameters under the Canadian Water Quality Guidelines for Drinking Water Quality (biological parameters are 0 Total Coliforms and 0* E. coli*).*

Private Well Water *(If not applicable, proceed to the next sub-section: Municipal Water)*

- At least twice annually (after your operation's start date) – If water is from a private well, the person responsible tests the well water for Total Coliforms and *E. coli* using an accredited lab that uses appropriate sampling and testing methods to perform analyses in accordance with the applicable requirements of *ISO/IEC 17025*, to ensure that the well water is potable (File under Tab: Test Results) *Refer to Appendix G -- Water Testing*
  - ❒ Once prior to use
  - ❒ At least once more during the season to ensure water potability is being maintained

❒ The person responsible ensures the water sample is taken from the appropriate location (e.g., equipment, tap, storage cistern/tank/container, etc.)

Municipal Water *(If not applicable, proceed to the next sub-section: Surface Water)*

***Note**: Municipal water is assumed to be potable; therefore, it does not need to be tested UNLESS it is stored (Section 15.2), treated (Section 15.3), recycled/recirculated or a test is required from the equipment. Testing may not be required even under those circumstances; therefore, carefully read Section 15 in its entirety. In countries where municipal water parameters for potability are not the same as the CanadaGAP 'potable water' requirements of 0 Total Coliforms and 0 E coli, municipal water must be tested to ensure that the CanadaGAP parameters are achieved.*

❒ If water is provided by the municipality, the person responsible receives notification if the supply becomes contaminated along with the appropriate treatment method(s)

Surface Water *(If not applicable, proceed to the next sub-section: Water for Fluming and Washing Product)*

- If water is from a surface water source, the person responsible:
  - ❒ Follows a water treatment program to make it potable as per Section 15.3: Treatment below
  - At least twice annually (after your operation's start date) - tests the treated water for Total Coliforms and *E. coli* using an accredited lab that uses appropriate sampling and testing methods to perform analyses in accordance with the applicable requirements of *ISO/IEC 17025*, to ensure that the treated water is potable (File under Tab: Test Results) *Refer to Appendix G -- Water Testing*
    - ❒ Once prior to use
    - ❒ At least once more during the season to ensure water potability is being maintained

Water for Fluming and Washing Product (EXCEPT FOR SMALL FRUIT*) *(If not applicable, proceed to the next sub-section: Water for Post-Harvest Applications of Agricultural Chemicals)*

FOR Combined Vegetables, Broccoli, Cauliflower, Cabbage and Brussels sprouts	***FOR Leafy Vegetables and Cruciferae (EXCEPT FOR Broccoli, Cauliflower, Cabbage and Brussels sprouts)***
! ❒ Water used to fill or replenish flumes, dump tanks, buckets, drums or pits is from a **potable source** ! ❒ Water used for fluming or washing is **kept potable** if this is the final water in contact with product (i.e., there is no final rinse) *(check only if applicable)*	! ❒ Water is **kept potable** at all times ! ❒ Water is changed daily (at a minimum) or more frequently to reduce the load of organic matter, and only **potable water** is used to fill or replenish flumes, dump tanks, drums or pits

FOR MELONS ONLY: *(if not applicable, proceed to the next sub-section: For Tomatoes Only)*

❒ If melons are washed/flumed, water is kept potable at all times; if potable water is not available, melons are kept dry

FOR Cantaloupes/Musk Melons ONLY

❒ If cantaloupes/musk melons are washed/flumed, measures are taken (e.g., controlling product through-put, minimizing depth of water, etc.) to ensure the cantaloupes/musk melons are NOT fully submerged in the water

! ❒ **FOR TOMATOES ONLY** – (*if not applicable, proceed to the next sub-section: Water for Post-Harvest Applications of Agricultural Chemicals)* - If water potability is not maintained and tomatoes are immersed in water, the person responsible ensures that the tomatoes (inside core temperature) are **at least** 5.5°C or 10°F colder than the water temperature (i.e., water temperature is **at least** 5.5°C or 10°F warmer than the tomatoes) and records this activity on Form (N2) Water Temperature Control and Monitoring OR _____

_____

Refer to Appendix L -- Temperature Monitoring For Internal Product And Water Temperature and Thermometer Use – An Example for instructions on how to take the internal temperature of tomatoes. Refer to the following to help with the assessment:

1. *Tomatoes coming directly from the production site may need to have the heat removed.*
2. *Tomatoes coming directly out of cold storage may not present a risk.*
3. *Water that is kept potable does not present a risk.*
4. *Water may be warmed to ensure the water is **at least** 5.5°C or 10°F warmer than the tomatoes.*

Note: *If water potability was not maintained AND the water/product temperatures were not monitored then ALL tomatoes are disposed of. They may not be rewashed/rinsed as internalization of pathogens may have already occurred and these can not be washed/rinsed off.*

❒ Thermometers are the appropriate type for their intended use and checked for accuracy and calibrated or replaced when necessary. Refer to *Section 8.3: Calibration* and *Appendix L -- Temperature Monitoring For Internal Product And Water Temperature and Thermometer Use – An Example* for guidelines on checking the accuracy of a thermometer

Water for Post-Harvest Applications of Agricultural Chemicals (EXCEPT FOR SMALL FRUIT*) *(If not applicable, proceed to the next sub-section: Final Rinse Water)*

! ❒ Water for post-harvest applications of agricultural chemicals (e.g., during packing, before, during or after storage, before holding, etc.) is from a **potable source**

! ❒ Water used for post-harvest applications of agricultural chemicals is **kept potable** if this is the final water in contact with product (i.e., there is no final rinse) *(check only if applicable)*

! ● At least twice annually (after your operation's start date) – If providing a post-harvest agricultural chemical application, the person responsible tests the water (even if it is from a municipal source) for Total Coliforms and *E. coli* using an accredited lab that uses appropriate sampling and testing methods to perform analyses in accordance with the applicable requirements of *ISO/IEC 17025,*to ensure that the water is potable (File under Tab: Test Results) *Refer to Appendix G -- Water Testing*

- ! ❒ Once prior to use
- ! ❒ At least once more during the season to ensure water potability is being maintained

❒ The person responsible ensures the water sample is taken directly from the application equipment when testing for potability

Note: *If there are multiple packing lines or chemical application equipment EACH one (e.g., set of nozzles on each packing line not individual nozzles) must be tested twice. Contamination can occur in the equipment itself and this needs to be assessed.*

Note: *See Section 6 Agricultural Chemicals for requirements for agricultural chemicals*

Final Rinse Water (EXCEPT FOR SMALL FRUIT*) *(If not applicable, proceed to the next sub-section: Water for Cleaning)*

FOR Combined Vegetables, Broccoli, Cauliflower, Cabbage and Brussels sprouts	***FOR Leafy Vegetables and Cruciferae (EXCEPT FOR Broccoli, Cauliflower, Cabbage and Brussels sprouts)***
! ❒ If water used to flume or wash product has **not been kept potable**, the person responsible provides a **final potable water rinse**	! ❒ If water has been used to flume or wash product (even though it was kept potable), the person responsible provides a **final potable water rinse**

FOR ALL COMMODITIES *(*EXCEPT FOR SMALL FRUIT*)

! ❒ If the person responsible is using water for a final rinse, water is potable

! ● At least twice annually (after your operation's start date) – If providing a final rinse, the person responsible tests the water for Total Coliforms and *E. coli* using an accredited lab that uses appropriate sampling and testing methods to perform analyses in accordance with the applicable requirements of *ISO/IEC 17025*, to ensure that the water (even if it is from a municipal source) is potable (File under Tab: Test Results) *Refer to Appendix G -- Water Testing*

- ! ❒ Once prior to use
- ! ❒ At least once more during the season to ensure water potability is being maintained

❒ The person responsible ensures water sample is taken directly from rinse equipment (unless a hose is used to rinse product; then the sample may be taken from the water source) when testing for potability

Note: *If there are multiple packing lines or rinsing equipment EACH one (e.g., set of nozzles on each packing line not individual nozzles, hose, etc.) must be tested twice. Contamination can occur in the equipment itself and this needs to be assessed.*

Water used for "Other Materials" (EXCEPT FOR SMALL FRUIT*) (see glossary definition) *(If not applicable, proceed to the next sub-section: Water for Cleaning)*

! ❒ The person responsible uses **potable water** for "other materials"

! ● At least twice annually (after your operation's start date) – The person responsible tests the water for Total Coliforms and *E. coli* using an accredited lab that uses appropriate sampling and testing methods to perform analyses in accordance with the applicable requirements of *ISO/IEC 17025*, to ensure that the water is potable (File under Tab: Test Results) *Refer to Appendix G: Water Testing*
  - ! ❒ Once prior to use
  - ! ❒ At least once more during the season to ensure water potability is being maintained

❒ The person responsible ensures the water sample is taken directly from the application equipment when testing for potability

Note: *See Section 19.5 for "Other Materials" requirements*

Note*: If 'other materials' are being applied/used with agricultural water (e.g., adjuvants used with agricultural chemicals), then water is not required to be potable.*

Water for Cleaning (equipment, buildings, containers, water storages, etc. and hand washing in personal hygiene facilities)

! ● The person responsible uses **potable** water:
  - ! ❒ For cleaning buildings, equipment, containers, etc.
  - ! ❒ In personal hygiene facilities for hand washing

! ● At least twice annually (after your operation's start date) – The person responsible tests the water for Total Coliforms and *E. coli* using an accredited lab that uses appropriate sampling and testing methods to perform analyses in accordance with the applicable requirements of *ISO/IEC 17025*, to ensure that the water is potable (File under Tab: Test Results) *Refer to Appendix G: Water Testing*
  - ! ❒ Once prior to use
  - ! ❒ At least once more during the season to ensure water potability is being maintained

❒ The person responsible ensures the water sample is taken from the appropriate location (e.g., equipment, tap, storage cistern/tank/container, etc.).

15.2 Storage

❍ Water for fluming and cleaning is stored, *proceed below.*
If not, proceed to Section 15.3: Treatment.

REQUIREMENT	*Cisterns, tanks or containers used to store water may be a source of contamination. Water must be stored in clean cisterns, tanks and/or containers.*

PROCEDURES:

Note: *Hand washing water stored in permanent tanks (e.g., within portable washrooms or as standalone facilities) is not considered potable UNLESS:*
- *the water is tested from the tank each time the tank is filled to confirm potability, OR*
- *the water is treated and tested to confirm potability is being maintained with treatment as per procedures in* Section 15.3 Treatment*, OR*
- *the cleanliness of the tank is maintained, filling procedures are followed and the water is tested to confirm potability as per procedures in* Section 15.2 Storage

***Note**: If stored water is being treated according to the procedures outlined in 15.3 Treatment, then the requirements under 15.2 Storage are not applicable (e.g., cleaning and filling procedures are no longer necessary as proper water treatment occurs AFTER these activities have been completed, which mitigates any risks they may have posed).*

❒ Annually - The person responsible records location of water storage tank/container/cistern on Form (A) Building Sketch and Agricultural Chemical Storage Checklist OR _____

_____

! ● Annually (prior to use) and monthly (during use) - The person responsible ensures that the water storage tank/cistern/container is clean by:

Cleaning Procedure*:*

- ❒ Washing with (choose at least one of the following options):
  - ❒ Water with friction (e.g. pressure wash, wiping, scrubbing)
  - ❒ Water and a sanitizer (e.g., chlorine, quaternary ammonium)
  - ❒ Water and soap

❒ Describe your step-by-step cleaning instructions [include any soaps or sanitizers, concentrations and equipment used (*refer to Appendix B: Chlorination of Water for Fluming and Cleaning Fresh Fruits and Vegetables and Cleaning Equipment – An Example for examples of chlorine solutions for equipment cleaning, Appendix H: Cleaning and Treating Cisterns – An Example and Appendix N: Sanitation Standard Operating Procedures (SSOP) – An Example),]*:

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

[Filling in the above description completes your Sanitation Standard Operating Procedure (SSOP) for cleaning your water storage tank/container/cistern.]

! ❒ Annually (prior to use) and monthly (during use) – The person responsible records cleaning of water storage on Form (I) Equipment Cleaning, Maintenance and Calibration OR _____

_____

● Each time the tank/cistern/container is filled – The person responsible ensures that:

❒ A description of the step-by-step filling instructions is given for each water source used:

Identify your water source: _____

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

[Filling in the above description completes your Standard Operating Procedure (SOP) for filling your water storage tank/container/cistern. ***Complete a different SOP for each water source, type of tank/container/cistern or filling mechanism***.]

- The person responsible ensures that:
  - ❒ Filling mechanism (e.g. hose) is not a source of contamination
  - ❒ Employees filling tank/cistern/containers are not a source of contamination

- During Filling:
  - ❒ Contamination does not occur from outside sources (e.g., dirty hose, tank opening or lid not clean etc.)
  - ❒ Tank/cistern/container must be closed immediately after filling
  - ❒ The part of the tank/cistern/container where the water is emptied from (e.g., spigot, tap, opening, etc.) is kept free from contamination.

! - Regardless of water source (e.g., rain, municipal, private well water) - At least twice annually (after your operation's start date) and after abnormal events – the person responsible tests water from the tank/container/cistern for Total Coliforms and *E. coli* using an accredited lab that uses appropriate sampling and testing methods to perform analyses in accordance with the applicable requirements of *ISO/IEC 17025*, to ensure that the water is potable (File under Tab: Test Results). *Refer to Appendix G -- Water Testing*
  - ! ❒ After cleaning, but prior to use
  - ! ❒ At least once more during season to ensure water potability is being maintained
  - ! ❒ After abnormal events

❒ The person responsible ensures the water sample is taken directly from the cistern/tank/container when testing for potability

❒ The person responsible ensures the water storage tank, container or cistern has a lid, is free from rust, is closed when not in use and is protected from chemical contamination

15.3 Treatment

REQUIREMENT	*The treatment of water (for fluming and cleaning) with chlorine or other methods must be controlled and monitored to ensure appropriate chemical concentrations or functioning of the equipment and to prevent both the biological (pathogenic bacteria, parasites and viruses) and chemical contamination of product.*

PROCEDURES:

❍ Water is treated, *proceed below.*
If not, proceed to Section 16: Ice.

! ● When treating water the person responsible (*choose those that are applicable*):

! ❒ Follows instructions in *Appendix A -- Shock Chlorination of Well Water – An Example* OR _____

! ❒ Follows instructions in *Appendix B -- Chlorination of Water for Fluming and Cleaning Fresh Fruits and Vegetables and Cleaning Equipment – An Example* OR _____

! ❒ Follows instructions in *Appendix H -- Cleaning and Treating Cisterns – An Example* OR _____

! ❒ Other instructions *(specify or describe)*: _____

! ❒ Uses an alternative method to chlorination (e.g., hydrogen peroxide, ozone, ultra violet light, reverse osmosis) as per manufacturer's instructions (*describe method):* _____

! ❒ Records the control and monitoring of alternative water treatment on (*indicate name and location of form*): _____

(File under Tab: _____)

Note: *Seek expert or professional advice for proper setup and monitoring of alternative water treatment systems.*

! ❒ If adding water treatment aids (i.e. chlorine) manually and monitoring treatment with chlorine/pH strips or ORP, the person responsible establishes a standard operating procedure following instructions in *Appendix B -- Chlorination of Water for Fluming and Cleaning Fresh Fruits and Vegetables and Cleaning Equipment – An Example OR:* _____ AND fills out the right hand column of the chart below

Volume of water in wash tank or system:	
Water treatment used (e.g., *5.25% household bleach*):	
Initial amount of treatment chemical added and target concentration (ppm) (e.g., ¾ *cups of chlorine per 50 gallons to reach 50 ppm*):	
What are you using to monitor levels (*e.g., chlorine strips/pH strips, ORP*)?	
How often do you check treatment levels (*e.g., every hour during use)*?	

How often is water changed (*e.g., daily, weekly)*? _____

What is the target level (for ORP/chlorine/pH)? _____

ORP =700 or greater; pH=6-0-7.5;
free chlorine =between 2-7 ppm
Other: _____

Actions taken if:

ORP is between 650-700 (*e.g. add 3/4 cups of chlorine per 50 gallons)*

Add: _____

Recheck ORP/free chlorine/pH and record on Form N1 or _____

ORP is below 650 or free chlorine is below 2ppm *(e.g. add 2 cups of chlorine)*

Add: _____

Discard or rewash any product that has come in contact with contaminated water (TOMATOES/CANTALOUPE/MUSK MELONS must be disposed of)

! ❒ Daily (for chlorination) – The person responsible controls and monitors (as applicable) chlorine/pH levels or Oxidation-Reduction Potential (ORP) in water and records this on Form (N1) Water Treatment Control and Monitoring OR _____

! ❒ Daily (for alternative water treatment methods) – The person responsible monitors the equipment for proper functioning and records this on (*indicate name and location of form*): _____

(File under Tab: _____)

! ● At least twice annually (after your operation's start date) – The person responsible tests the treated water for Total Coliforms and *E. coli* using an accredited lab that uses appropriate sampling and testing methods to perform analyses in accordance with the applicable requirements of to *ISO/IEC 17025,* to ensure that the water is potable (File under Tab: Test Results) *Refer to Appendix G -- Water Testing and Appendix B: Chlorination of Water for Fluming and Cleaning Fresh Fruits and Vegetables and Cleaning Equipment – An Example.*

! ❒ Once prior to use
! ❒ At least once more during the season to ensure water potability is being maintained

❒ The person responsible ensures the water sample is taken directly from the equipment when testing treated water for potability

Confirmation/Update Log:

Date						
Initials						

Forms Required	N/A

16. Ice

This Section is not applicable to Greenhouse Operations.

17. Packaging Materials

Forms Required	A, I, Q

(EXCEPT FOR WHOLESALING)

RATIONALE:

Packaging materials that are not handled or stored properly may contribute to the biological, chemical and physical contamination of product.

- ❍ Harvested product packaging materials are on the premises, either with product in them or not
- ❍ Market ready packaging materials are on the premises, either with product in them or not
- ❍ Packaging accessories are on the premises

*If **ANY** of the above circles has been checked off, proceed below.*
If not, proceed to Section 18: Growing and Harvesting.

IMPORTANT NOTE	**It is assumed throughout the manual that EACH of the requirements (along with their procedures) are to be considered in terms of food safety. The risks are from those hazards that are in "direct contact with product" OR that may have an "impact on food safety through cross contamination".**

17.1 Purchasing and Receiving

REQUIREMENT	*Packaging materials must be obtained with knowledge of origin and must be appropriate for use in the packaging of product.*

PROCEDURES:

Harvested Product Packaging Materials

- The person responsible purchases or selects materials that are:
  - ❒ Free of objects that may become embedded in product (e.g., material is in good repair, no splinters, glass)
  - ❒ Clean and free of debris (e.g., from other crops, compostable waste, garbage)
  - ❒ Have not been used for any other purpose that may be a source of contamination (e.g., to carry tools, personal effects, cleaning agents, agricultural chemicals, maintenance materials)

❒ The person responsible receives only the materials that were purchased or selected

Market Ready (Primary and Secondary) Packaging Materials

❒ When purchasing or selecting packaging materials, the person responsible is aware of their origin (i.e., manufactured with components that are not a source of chemical contamination)

FOR ALL COMMODITIES EXCEPT FOR SMOOTH-SKINNED MELONS, WINTER SQUASH, AND PUMPKINS *(If not applicable, proceed to FOR ALL COMMODITIES below)*

- The person responsible purchases or selects **primary** materials (e.g., clamshells, bags, boxes) that are *(choose one of the following)*:
  - ❒ New, OR

❒ If reused, new liners are used (***Note***: *Liners are considered packaging accessories, not primary packaging materials)* unless the materials are non-porous and are cleaned before use (see Section 17.2)

FOR ALL COMMODITIES

❒ The person responsible purchases or selects packaging materials (e.g., masters) that are free of loose objects that may become embedded in product (e.g., splinters, glass)

❒ The person responsible receives only the packaging materials that were purchased or selected

Note*: For materials, refer to Appendix D -- Reference Lists: Packaging Materials, Inks, Lubricants, Maintenance Materials, Sanitizers, Water Treatment Aids and Food and Incidental Additives.*

Packaging Accessories

❒ When purchasing or selecting packaging accessories, the person responsible is aware of their origin (i.e., manufactured with components that are not a source of chemical or physical contamination)

❒ The person responsible purchases or selects new packaging accessories (e.g., liners, trays, ties, tags, confining bands) if coming into direct contact with product

❒ The person responsible receives only the packaging accessories that were purchased or selected

Note*: For packaging accessories, refer to Appendix D -- Reference Lists: Packaging Materials, Inks, Lubricants, Maintenance Materials, Sanitizers, Water Treatment Aids and Food and Incidental Additives.*

17.2 Use of Packaging Materials

REQUIREMENT	*Harvested product packaging materials must be clean and properly maintained and repaired before use, and market ready primary packaging materials and accessories must not be a source of contamination.*

PROCEDURES:

a) Harvested Product Packaging Materials

! ● Annually (before first use) – The person responsible ensures that materials are clean by:

Cleaning Procedure *(choose at least one of the following options):*

❒ Washing with (choose at least one of the following options):
- ❑ Water with friction (e.g. pressure wash, wiping, scrubbing)
- ❑ Water and a sanitizer (e.g., chlorine, quaternary ammonium)
- ❑ Water and soap

AND/OR

❒ Dry cleaning (e.g., broom, brushes, air)

AND/OR

❒ Using a third party (e.g., packinghouse or co-op providing containers that are cleaned according to one of the above procedures)

❒ Describe your step-by-step cleaning instructions [include any soaps or sanitizers, concentrations and equipment used (*refer to Appendix B: Chlorination of Water for Fluming and Cleaning Fresh*

Fruits and Vegetables and Cleaning Equipment – An Example for examples of chlorine solutions for equipment cleaning and Appendix N: Sanitation Standard Operating Procedures (SSOP) – An Example)] OR receives a Letter of Assurance from the third party cleaning the packaging materials (one letter per supplier per season) (File under Tab: Letters of Assurance/Certificates):

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

[Filling in the above description completes your Sanitation Standard Operating Procedure (SSOP) for cleaning packaging materials.]

❒ The person responsible records cleaning of materials on Form (I) Equipment Cleaning, Maintenance and Calibration OR _____

- The person responsible uses materials that are:
  - ❒ Free of objects that may become embedded in product (e.g., material is in good repair, no splinters, glass)
  - ❒ Clean and free of debris (e.g., from other crops, compostable waste, garbage)
  - ❒ Have not been used for any other purpose that may be a source of contamination (e.g., to carry tools, personal effects, cleaning agents, agricultural chemicals, maintenance materials or previously used to harvest other crops where agricultural chemical residues may contaminate product)
  - ❒ Any materials that have been used for other purposes are clearly marked (e.g. with paint) so they will not subsequently be used for product
  - ❒ Not removed from the premises by employees or taken home

- Covers/lids are:
  - ❒ Kept dry
  - ❒ Handled and stored in a way that prevents contamination (e.g., kept off the ground)

❒ The person responsible conducts a visual inspection of packaging materials before each use

❒ The person responsible for releasing harvested product keeps track of harvested product (e.g. harvest dates or date received) through the use of pallet/bin tags or some other form of identification

Note: Refer to Section 22: Identification and Traceability for more information on labelling requirements

b) Market Ready Primary Packaging Materials

- The person responsible uses materials that are:
  - ! ❒ New or reusable containers that are in good repair
  - ! ❒ Reusable containers made of porous materials (e.g., wood, wicker, cardboard) with a new integrity-maintaining liner (e.g., liner creates a barrier that has no holes, rips, breaks or faults, liner remains intact if wet, liner is not a source of contamination, etc.) [**for all commodities <u>except for smooth-skinned melons, winter squash and pumpkins</u>**]
  - !❒ Reusable containers made of non-porous materials (e.g., plastic, stainless steel) with a new integrity-maintaining liner (e.g., liner creates a barrier that has no holes, rips, breaks, or faults, liner remains intact if wet, liner is not a source of contamination, etc.) [**for all commodities <u>except for smooth-skinned melons, winter squash and pumpkins</u>**] OR are cleaned before use by washing with/by *(choose at least one of the following four options)*:
    - ! ❒ water with friction (e.g. pressure wash, wiping, scrubbing)
    - ! ❒ water and a sanitizer (e.g., chlorine, quaternary ammonium)
    - ! ❒ water and soap
    - ❒ a third party [e.g., Reusable Plastic Containers (RPC's)]

! ❒ The person responsible describes the step-by-step cleaning instructions [include any soaps or sanitizers, concentrations and equipment used (*refer to Appendix B -- Chlorination of Water for Fluming and Cleaning Fresh Fruits and Vegetables and Cleaning Equipment - An Example, for suggested chlorine solutions for cleaning and Appendix N -- Sanitation Standard Operating Procedures (SSOP) – An Example)] OR receives a Letter of Assurance from the third party cleaning the packaging materials (one letter per supplier per season) (File under Tab: Letters of Assurance/Certificates)* :

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

[Filling in the above description completes your Sanitation Standard Operating Procedure (SSOP) for cleaning of packaging materials.]

- The person responsible uses materials that are:
  - ❒ Not previously used for any other purposes that may be a source of contamination (e.g., to carry tools, personal effects, cleaning agents, agricultural chemicals, maintenance materials)
  - ❒ Any materials that have been used for other purposes are clearly marked (e.g. with paint, marker) so they will not subsequently be used for product
  - ❒ Handled in a way that maintains their integrity (e.g., protected from the elements, protected from chemicals, properly stacked, etc.) and that prevents cross-contamination before and during use (e.g., boxes placed on clean surfaces)

❒ Are kept off the ground (e.g., placed on a cardboard slipsheet/pallet liner that is not a source of contamination) whether in the production site or on platforms, stairs and catwalks where employees walk etc.

- Labelled with the correct identifying information (i.e., name and address) of:
  - ❒ The operation that produced the product, **OR**
  - ❒ The operation that packaged the product, **OR**
  - ❒ The company for whom it was produced/packaged

❒ Labelled with Lot Code (see glossary definition)

Note: Refer to CFIA's website for more information on Lot Code https://inspection.gc.ca/food/toolkit-for-food-businesses/glossary-of-key-terms/eng/1430250286859/1430250287405#a104

- Labelled with Pack ID if there is no secondary packaging materials
  - ❒ Who produced the product **AND**
  - ❒ When the product is packed/repacked

Note: *Including Pack ID on the primary market ready packaging materials can also satisfy the Lot Code requirement (i.e., producer identification).*

Note: Refer to Section 22: Identification and Traceability for more information on labelling requirements

FOR MUSHROOMS FOR REPACKING ONLY *(if not applicable, proceed to the next sub-section: FOR ALL COMMODITIES)*

❒ The person responsible ensures that if non-perforated plastic film is used, perforations are added (e.g., by adding holes/lines in the film)

(*For further information refer to:* https://www.canada.ca/en/health-canada/services/food-nutrition/legislation-guidelines/guidance-documents/guidance-concerning-packaging-fresh-mushrooms.html).

FOR ALL COMMODITIES

! - The person responsible conducts a visual inspection of all packaging materials before use ensuring the packaging materials are:
  - ❒ Clean (e.g. free from stains, foreign objects, potential sources of contamination, etc.)
  - ❒ In good repair
  - ❒ Labelled correctly
  - ❒ FOR MUSHROOMS FOR REPACKING ONLY – plastic film is perforated

! ❒ The person responsible records the inspection of reusable and new packaging materials on Form (Q) – Packing, Repacking, Storing and Brokerage of Market Product OR _____

_____

! ❒ The person responsible records cleaning of reusable packaging materials on Form (I) Equipment Cleaning, Maintenance and Calibration OR _____

_____

c) Market Ready Secondary Packaging Materials

- The person responsible uses materials that are:
  - ❒ Clean, free of debris and in good repair

- ❒ Have not been used for any other purposes that may be a source of contamination (e.g., to carry tools, personal effects, cleaning agents, agricultural chemicals, maintenance materials)
- ❒ Any materials that have been used for other purposes are clearly marked (e.g. with paint, marker) so they will not subsequently be used for product
- ❒ Handled in a way that maintains their integrity (e.g., protected from the elements, protected from chemicals, properly stacked, etc.) and that prevents cross-contamination before and during use (e.g., boxes placed on clean surfaces)
- ❒ Are kept off the ground (e.g., placed on a cardboard slipsheet/pallet liner that is not a source of contamination) whether in the production site or on platforms, stairs and catwalks where employees walk, etc.

- Labelled (unless the secondary container is transparent e.g., a large clear plastic bag holding smaller labelled bags of carrots)] with the correct identifying information (i.e., name and address) of:
  - ❒ The operation that produced the product, **OR**
  - ❒ The operation that packaged the product, **OR**
  - ❒ The company for whom it was produced/packaged

❒ Labelled with Lot Code (see glossary definition)
Note: Refer to CFIA's website for more information on Lot Code https://inspection.gc.ca/food/toolkit-for-food-businesses/glossary-of-key-terms/eng/1430250286859/1430250287405#a104

- Labelled with the Pack ID
  - ❒ Who produced the product **AND**
  - ❒ When the product is packed/repacked

Note: *Including Pack ID on the secondary market ready packaging materials can also satisfy the Lot Code requirement (i.e., producer identification).*

Note: Refer to Section 22: Identification and Traceability for more information on labelling requirements

If there is NO market ready primary OR secondary packaging materials used, the person responsible labels the pallet/skid with:

- The correct identifying information (i.e., name and address) of:
  - ❒ The operation that produced the product, **OR**
  - ❒ The operation that packaged the product, **OR**
  - ❒ The company for whom it was produced/packaged
- The Pack ID
  - ❒ Who produced the product **AND**
  - ❒ When the product is packed/repacked

Note: Refer to Section 22: Identification and Traceability for more information on labelling requirements

d) Packaging Accessories

❒ The person responsible uses only **new** packaging accessories

❒ The person responsible uses pallet liners when the product comes in direct contact with the pallet (e.g., onions, leeks, shallots, beets, cabbage in mesh bags, etc.)

❒ The person responsible may reuse packaging accessories that do not come into direct contact with the product such as pallet dividers, slats and rope

❒ The person responsible ensures that tags attached to a confining band (e.g., holding bunches of lettuce, herbs, kale etc.) are labelled with Lot Code (see glossary definition)

Note: Refer to CFIA's website for more information on Lot Code https://inspection.gc.ca/food/toolkit-for-food-businesses/glossary-of-key-terms/eng/1430250286859/1430250287405#a104

17.3 Storage

❍ Harvested product packaging materials are stored on the premises
❍ Market ready packaging materials are stored on the premises
❍ Packaging accessories are stored on the premises

*If **ANY** of the above circles has been checked off, proceed below.*
If not, proceed to Section 18: Growing and Harvesting.

REQUIREMENT	*Packaging materials must be stored in designated areas and under the proper conditions to prevent biological, chemical and physical contamination.*

PROCEDURES:

! ❒ Annually - The person responsible records the storage locations for market ready packaging materials and accessories on Form (A) Building Sketch and Agricultural Chemical Storage Checklist OR _____

Harvested Product Packaging Materials

❒ The person responsible stores these separate from potential sources of contamination and damage (e.g., equipment, fuels, agricultural chemicals)

Market Ready Primary and Secondary Packaging Materials and Accessories

- The person responsible stores these:
  - ❒ In a clean, covered, dry location and off the ground (e.g., on a shelf or pallet)
  - ❒ Separate from potential sources of contamination and damage (e.g., product, water, equipment, fuels, agricultural chemicals, other non-produce items, etc.)
  - ❒ At least 8 cm away from any wall

Confirmation/Update Log:

Date						
Initials						

18. Growing and Harvesting

Forms Required	H1, H2, P, Q

RATIONALE:

Product harvested less than four months after the application of manure may be a source of biological contamination. Similarly, product harvested before a pre-harvest interval (PHI) has elapsed may be a source of chemical contamination. Product release procedures include checking that the appropriate intervals have elapsed, and that the production site is assessed before harvest. The product itself, packaging materials and anything else that may contribute to contamination is to be considered both before and during harvest.

❍ Growing of product occurs on the premises
❍ Harvesting of product occurs on the premises

*If **ANY** of the above circles has been checked off, proceed below.*
If not, proceed to Section 19: Sorting, Grading, Packing, Repacking, Storing and Brokerage.

IMPORTANT NOTE	**It is assumed throughout the manual that EACH of the requirements (along with their procedures) are to be considered in terms of food safety. The risks are from those hazards that are in "direct contact with product" OR that may have an "impact on food safety through cross contamination".**

18.1 Growing

***Note**: Refer to Sections 3, 4, 5, 6, 7 for requirements and procedures related to inputs used during the growing period.*

18.2 Harvesting

REQUIREMENT	*Product must be harvested at appropriate times to minimize the source of contamination. Product, packaging materials and other substances' (e.g,, weed, biological control, water, glass) risk must be assessed so as to not be a source of biological, chemical or physical contamination.*

PROCEDURES:

! ● Before harvesting – The person responsible refers to Forms (H1) and (H2) Agronomic Inputs and ensures that:
  ! ❒ A minimum 120 day period has elapsed between the spreading of manure and the initial harvest
  ! ❒ The pre-harvest interval (PHI) has been met for each agricultural chemical application

❒ Before harvesting – The person responsible surveys the production site to ensure there are no signs of obvious contamination (e.g., oil or chemical spill, portable toilet leaking, flooding, animal intrusion, etc.)

❒ During harvest – The person responsible ensures that product is protected from contamination [e.g., water dripping when harvesting or transferring product (e.g., trays, rafts, roots)]

❒ Employees visually inspect product and surrounding area for glass and if glass is observed (i.e., broken panes, bulbs), the employee immediately ceases harvesting and reports to the person responsible.

- If glass is observed, the person responsible immediately:
  - ❒ Closes off the affected area (e.g., ropes, tape)
  - ❒ Cleans up the glass
  - ❒ Disposes of any affected or potentially affected product
  - ❒ Completes Form (R) Deviations and Corrective Actions OR _____

❒ When harvesting, the person responsible ensures that packaging materials are not a source of contamination (e.g., does not stack muddy containers on top of each other, etc.)

❒ The person responsible visually inspects product before and during harvest to look for evidence of unusual animal or bird activity (i.e., excrement) and other possible contaminants (e.g., biological controls, etc.). Product (if it has been contaminated) and contaminants are discarded

❒ The person responsible does not harvest product that has fallen on the ground

! ● The person responsible records all harvesting information:

- ! ❒ If harvesting into **harvested product packaging materials**, by completing Form (P) Harvesting and Storing Product OR _____
- ! ❒ If harvesting into **market ready packaging materials**, by completing Form (Q) Packing, Repacking, Storing and Brokerage of Market Product OR _____

Confirmation/Update Log:

Date						
Initials						

Forms Required	P, Q

19. Sorting, Grading, Packing, Repacking, Storing and Brokerage

NOTE: Section 19 applies to MOST CanadaGAP operations, regardless of activities/scope of certification. Please read the circle bullets below carefully to determine if any apply to your operation.

Δ Sections 19.6 and 19.7 do not apply to certification option A1/A2

RATIONALE:

Product that is properly handled, stored, packed or repacked will have a reduced likelihood of biological, chemical and physical contamination.

- ❍ Product is sorted or graded (in the production site/packinghouse)
- ❍ Inputs/materials are purchased/selected from suppliers
- ❍ Outside service providers are used
- ❍ "Other materials" are used (see glossary definition)
- ❍ Product is packed
- ❍ Product is repacked
- ❍ Product is stored (only applicable if storing someone else's product)
- ❍ Brokerage of Product

*If **ANY** of the above circles has been checked off, proceed below.*
If not, proceed to Section 20: Storage of Product.

IMPORTANT NOTE	**It is assumed throughout the manual that EACH of the requirements (along with their procedures) are to be considered in terms of food safety. The risks are from those hazards that are in "direct contact with product" OR that may have an "impact on food safety through cross contamination".**

19.1 Selecting/Purchasing and Receiving Harvested/Market Product

- ❍ Harvested product is selected/purchased
- ❍ Market product is selected/purchased

If **ANY** of the above circles has been checked off, *proceed below.*
If not, proceed to Section 19.2: Sorting and Grading.

REQUIREMENT	*Harvested/market product must be selected/purchased and received to not be a source of contamination.*

PROCEDURES:

- The person responsible selects/purchases harvested/market product from operations that have successfully completed one of the options below and requests a copy of a current/valid certificate:
  - ❒ CanadaGAP
  - ❒ Other industry recognized third party food safety audit/certification

(***Note: Person responsible for export ensures destination market MRLs are met for product being selected/purchased as per Section 6.2. The certificate would not replace this requirement).

! ❒ The person responsible receives only the harvested/market product that was selected/purchased along with the certificate (one certificate per season per supplier) (File under Tab: Letters of Assurance/Certificates)

- ❒ The person responsible inspects the cargo area of the incoming vehicle and the received harvested/market product for damage or sources of contamination (e.g., glass, rodent droppings/feces) and if contamination is observed, they notify the operation of the problem and take appropriate action (e.g., sorts, grades, trims, removes contamination, refuses product, identifies and segregates product as required, etc.)

! ❒ The person responsible for brokerage completes the transaction of the harvested/market product that was selected/purchased and receives the certificate (one certificate per season per supplier) (File under Tab: Letters of Assurance/Certificates)

! ● If services are selected/purchased from an outside service provider to perform activities on behalf of the person responsible (e.g., harvesting, packing, icing, washing of product, storing in a standalone storage operation), regardless of whether product comes back from the service provider, the person responsible obtains a copy of a current/valid certificate (one certificate per season per service provider) (File under Tab: Letters of Assurance/Certificates):
    - ❒ CanadaGAP
    - ❒ Other industry recognized third party food safety audit/certification

Note: *The certificate alone may not contain all of the necessary information that is required nor be clear enough to ensure that the outside provider is performing the intended service. Therefore, it may be necessary to have the entire audit report or other supporting documentation available for review during an audit.*

19.2 Sorting and Grading

REQUIREMENT	*Product, in the production site or in the packinghouse, must be sorted and graded in a manner that minimizes sources of biological, chemical and physical contamination.*

PROCEDURES:

In the Production Site

- During sorting and grading, employees or equipment:
    - ❒ Separate foreign objects (e.g., plastic clips, hooks, stones, glass, wood), damaged or rotten product and crop debris (e.g., stems, leaves) from marketable product
    - ❒ Discard foreign objects, culls and debris in the appropriate location (i.e., back into the production site, labelled container)

In the Packinghouse

- During sorting and grading, employees or equipment:
    - ❒ Separate foreign objects (e.g., plastic clips, hooks, stones, glass, wood), damaged or rotten product and crop debris (e.g., stems, leaves) from marketable product
    - ❒ Discard foreign objects, culls and debris in the appropriate container
    - ❒ **FOR COMBINED VEGETABLES, LEAFY VEGETABLES AND CRUCIFERAE :** Discard or return product to the beginning of the cleaning process if it becomes contaminated (e.g., falls on the floor)
    - ❒ **FOR SMALL FRUIT:** Discard product if it becomes contaminated

19.3 Packing/Repacking

REQUIREMENT	*Harvested and market product, whether out in the production site or in the packinghouse, must be packed/repacked in a manner that minimizes sources of biological, chemical and physical contamination.*

PROCEDURES:

In the Production Site

❍ Packing is done in the production site, *proceed below.*
If not, proceed to the next sub-section: In the Packinghouse.

- The person responsible records all packing information by completing:

❒ Form (P) Harvesting and Storing Product OR _____

AND/OR

❒ Form (Q) Packing, Repacking, Storing and Brokerage of Market Product OR _____

In the Packinghouse

❍ Packing/Repacking is done in the packinghouse, *proceed below.*
If not, proceed to Section 19.5: "Other Materials".

❒ The person responsible records all packing/repacking information by completing Form (Q) Packing, Repacking, Storing and Brokerage of Market Product OR _____

19.4 Application of Wax

This Section is not applicable to Greenhouse Operations.

19.5 "Other Materials" (see glossary definition)

❍ "Other materials" are used on the premises, *proceed below.*
If not, proceed to 19.6 Environmental Monitoring Program (EMP).

REQUIREMENT	*"Other materials" must not contribute to the contamination of the product.*

PROCEDURES:

❒ When purchasing or selecting "other materials", the person responsible purchases or selects materials that were manufactured with ingredients that are appropriate for their intended use

❒ The person responsible receives only the "other materials" that were purchased or selected

❒ When using "other materials", the person responsible is aware of their origin (i.e., manufactured with ingredients that are not a source of contamination) and uses/applies it according to the recommended label instructions (if applicable)

❒ The person responsible lists the "other materials" used:

_____
_____
_____

❒ When storing "other materials", the person responsible ensures they are not a source of contamination and that they cannot become contaminated

***Note**: If "other materials" are being applied/used with agricultural water (e.g., adjuvants used with agricultural chemicals), then water is not required to be potable.*

***Note:** See Section 15 Water (for Fluming and Cleaning): Water used for "Other Materials" for water requirements*

19.6 Environmental Monitoring Program (EMP)

Δ Section 19.6 does not apply to certification option A1/A2

○ Market product is handled/stored
If the above circle has been checked off, proceed below.
If not, proceed to 19.7 Supplier Approval.

REQUIREMENT	*A risk-based approach must be in place to define the microbiological environmental monitoring program. The program must be established, implemented and maintained to reduce the risk of product contamination.*

***NOTE:** An environmental monitoring program is an operation-specific program that helps to assess the effectiveness of sanitation practices and to provide information for preventing potential microbial contamination of product.*

PROCEDURES:

- Annually, the person responsible has completed a risk assessment by assessing the following areas/sources for risks of contamination:
  - ❒ Surfaces/Areas which are often wet
  - ❒ Surfaces/Areas with high humidity
  - ❒ Surfaces/Areas where dirtier activities occur
  - ❒ Surfaces/Areas with high levels of staff activity
  - ❒ Surfaces/Areas with high levels of equipment movement
  - ❒ Areas that are cooled (e.g., with a condenser unit)
  - ❒ Handling/storing of high risk product(s)

- Annually, the person responsible has mitigated the identified risks by following the procedures outlined in the following sections of the manual:
  - ❒ Section 2: Premises
  - ❒ Section 8: Equipment
  - ❒ Section 9: Cleaning and Maintenance Materials
  - ❒ Section 11: Personal Hygiene Facilities
  - ❒ Section 12: Employee Training
  - ❒ Other: _____

❒ If the risk assessment completed above identified the need to confirm the cleanliness of the environment or the effectiveness of sanitation, the person responsible develops a sampling plan. (File under Tab: Test Results) See Appendix X. *Environmental Monitoring Program (EMP) - Resources* for additional guidance.

- If the results of the sampling plan indicated a need for further action, the person responsible:
  - ❒ Implements procedures to improve cleaning and sanitation
  - ❒ Re-tests
  - ❒ Completes Form (R) Deviations and Corrective Actions OR _____

❒ The person responsible maintains the environmental monitoring program on an on-going basis and makes changes as necessary (e.g., from sampling results, if new surfaces/areas are identified, etc.).

19.7 Supplier Approval

Δ Section 19.7 does not apply to certification option A1/A2

❍ Inputs/materials are purchased/selected

If the above circle has been checked off, proceed below.
If not, proceed to 20. Storage of Product.

REQUIREMENT	*A procedure for the approval of suppliers shall be established, implemented and maintained. This shall include procurement in emergency situations.*

PROCEDURES:

❒ The person responsible has procedures in place for approving suppliers when purchasing/selecting inputs and materials.

❒ The person responsible keeps a list OR _____of ALL approved suppliers that the operation may use to purchase/select their inputs and materials. This may include suppliers of commodity starter products, commercial fertilizers, pulp sludge, soil amendments, manure, compost/compost tea, other by-products, mulch and row cover materials, agricultural chemicals, equipment, cleaning and maintenance materials, pest control products, personal hygiene supplies, water, packaging materials, "other materials" and any other input or materials used within an operation.

Input/Material	Approved Supplier (Name and Contact Information)

❒ If the person responsible is not able to procure inputs/materials from a supplier on their approved list (i.e., in the case of emergency), the alternate supplier's information will be recorded below:

Date	Input/Material	Supplier (Name and Contact Information)

❒ Annually - The person responsible reviews the list of approved suppliers to ensure all of the information is accurate and up to date.

Confirmation/Update Log:

Date						
Initials						

20. Storage of Product

Forms Required	A, P, Q

RATIONALE:

Proper storage of product will reduce the risk of biological, chemical and physical contamination.

IMPORTANT NOTE	**It is assumed throughout the manual that EACH of the requirements (along with their procedures) are to be considered in terms of food safety. The risks are from those hazards that are in "direct contact with product" OR that may have an "impact on food safety through cross contamination".**

20.1 Storage Conditions for Harvested Product

❍ Product is temperature conditioned, held or stored in harvested product packaging materials, *proceed below.*
If not, proceed to Section 20.2: Storage Conditions for Market Product.

REQUIREMENT	*Harvested product must be held or stored in designated areas and handled under the proper conditions to minimize contamination.*

PROCEDURES:

! ❒ Annually – The person responsible records the storage locations for harvested product on Form (A) Building Sketch and Agricultural Chemical Storage Checklist OR _____

Temperature Conditioning [(Pre-) Cooling]

❍ Harvested product is temperature conditioned on the premises, *proceed below*.
If not, proceed to the next sub-section: Holding.

- The person responsible (pre-) cools harvested product to a predetermined temperature in an environment that:
  - ❒ Does not contaminate product (e.g., clean tarping material is used, proper air flow)
  - ❒ Prevents contact between harvested and market product
  - ❒ Is separate from equipment, fuels, agricultural chemicals and market ready packaging materials

Holding

❍ Harvested product is held on the premises, *proceed below.*
If not, proceed to the next sub-section: Storage.

- The person responsible holds harvested product in an environment that:
  - ❒ Does not contaminate the product or the containers it is in (e.g., clean and well-maintained holding area)
  - ❒ Is separate from other product, equipment, fuels, agricultural chemicals, market ready packaging materials and non-produce items

Storage

❍ Harvested product is put into storage on premises, *proceed below.*
If not, proceed to Section 20.2: Storage Conditions for Market Product.

- The person responsible stores harvested product:
  - ❒ In a predetermined environment (e.g., temperature is appropriate for product)
  - ❒ In an environment that does not contaminate the product or the containers it is in (e.g., clean and well-maintained storage area)
  - ❒ In a manner that prevents cross contamination from non-produce items
  - ❒ Separate from other product, equipment, fuels, agricultural chemicals (FOR COMBINED VEGETABLES ONLY - including treated seed) and market ready packaging materials
  - ❒ At least 8 cm away from any wall

❒ When harvested product is put into storage, the person responsible records all storing information by completing Form (P) Harvesting and Storing Product OR _____

20.2 Storage Conditions for Market Product

❍ Product is temperature conditioned, held or stored in market ready packaging materials, *proceed below.*
If not, proceed to Section 21: Transportation.

REQUIREMENT	*Market product must be held or stored in designated areas and handled under the proper conditions to minimize contamination.*

PROCEDURES:

! ❒ Annually – The person responsible records the storage locations for market product on Form (A) Building Sketch and Agricultural Chemical Storage Checklist OR _____

_____

Temperature Conditioning [(Pre-) Cooling]

❍ Market product is temperature conditioned on the premises, *proceed below*.
If not, proceed to the next sub-section: Holding.

- The person responsible (pre-) cools market product to a predetermined temperature in an environment that:
  - ❒ Does not contaminate product (e.g., clean tarping material is used, proper air flow)
  - ❒ Prevents contact between harvested and market product
  - ❒ Is separate from equipment, fuels, agricultural chemicals and packaging materials

Holding

❍ Market product is held on the premises, *proceed below.*
If not, proceed to the next sub-section: Storage.

- The person responsible holds market product in an environment that:
  - ❒ Does not contaminate the product or the containers it is in (e.g., clean and well-maintained holding area)
  - ❒ Is separate from other product, equipment, fuels, agricultural chemicals, packaging materials and non-produce items

Storage

❍ Market product is put into storage on premises, *proceed below.*
If not, proceed to Section 21: Transportation.

- The person responsible stores market product:
  - ❒ In a predetermined environment (e.g., temperature is appropriate for product)
  - ❒ In an environment that does not contaminate the product or the containers it is in (e.g., clean and well-maintained storage area)
  - ❒ Separate from other product, equipment, fuels, agricultural chemicals (FOR COMBINED VEGETABLES ONLY - including treated seed) and packaging materials
  - ❒ In a manner that prevents cross contamination from non-produce items
  - ❒ At least 8 cm away from any wall
  - ❒ Off the floor/ground

❒ When market product is put into storage, The person responsible records all storing information by completing Form (Q) Packing, Repacking, Storing and Brokerage of Market Product OR _____

Confirmation/Update Log:

Date						
Initials						

21. Transportation

Forms Required	O

RATIONALE:

Transportation vehicles that do not have properly cleaned and/or maintained food contact surfaces may be a potential source of contamination to product. Product release procedures include inspecting outgoing product for signs of contamination before loading onto vehicles.

❍ Product in harvested product packaging materials is transported
❍ Product in market ready packaging materials is transported

*If **ANY** of the above circles has been checked off, proceed below.*
If not, proceed to Section 22: Identification and Traceability.

IMPORTANT NOTE	**It is assumed throughout the manual that EACH of the requirements (along with their procedures) are to be considered in terms of food safety. The risks are from those hazards that are in "direct contact with product" OR that may have an "impact on food safety through cross contamination".**

21.1 Transportation of Product in Harvested Product Packaging Materials

REQUIREMENT	*To minimize the potential for contamination, vehicles transporting product in harvested product packaging materials must have a clean and well-maintained cargo area.*

PROCEDURES:

❒ Before loading each vehicle, the person responsible ensures that an inspection is made of the cargo area of the vehicle to ensure it is appropriate for intended use, clean and well-maintained

❒ The person responsible records information about product being transported to someone else's premises on Form (O) Transporting Product OR _____

21.2 Transportation of Product in Market Ready Packaging Materials

REQUIREMENT	*To minimize the potential for contamination, vehicles transporting product in market ready packaging materials must have a clean and well-maintained cargo area, product must be covered and must be care taken to reduce cross-contamination from products other than greenhouse product.*

PROCEDURES:

- Before loading each vehicle, the person responsible ensures that:
  - ❒ An inspection is made of the cargo area of the vehicle to ensure it is clean and well-maintained (e.g., no holes, splinters, debris, signs of pest intrusion, etc.)
  - ❒ If the product is transported to someone else's premises, the findings are recorded along with any necessary corrective actions on Form (O) Transporting Product OR _____

- ❒ Before loading, the person responsible inspects outgoing product for sources of contamination (e.g., glass, rodent droppings) and if contamination is observed, takes appropriate action (e.g., sorts, removes product, removes contamination, etc.)

- ❒ When loading, the person responsible ensures that product does not come in contact with other products/material being transported that may be a source of contamination (e.g., allergens, non-produce items, etc.)

- ❒ During transportation, the person responsible ensures that covered vehicles are used to transport product in market ready packaging materials, or that the integrity of the load is secured with a protective covering (e.g., tarp, plastic sheeting)

- ❒ The person responsible records information about product being transported to someone else's premises on Form (O) Transporting Product OR _____

Confirmation/Update Log:

Date						
Initials						

22. Identification and Traceability

Forms Required	O, P, Q

RATIONALE:

Product that is identifiable and traceable is easily and quickly traced back to the point of origin. Contaminated product can be distinguished from product that is not, and product loss may be limited in the event of a recall (i.e., one identified lot versus an entire harvest).

IMPORTANT NOTE	**It is assumed throughout the manual that EACH of the requirements (along with their procedures) are to be considered in terms of food safety. The risks are from those hazards that are in "direct contact with product" OR that may have an "impact on food safety through cross contamination".**

22.1 Traceability System

REQUIREMENT	*A traceability system that allows all product to be traced in the event of a recall, must be in place.*

PROCEDURES:

***Note**: As much identification as is practically possible will assist in minimizing financial losses in the event a recall is necessary (i.e., being able to identify a pallet as opposed to a production site). For complete traceability, a Lot ID is assigned to all market product and recorded on Form (Q) Packing, Repacking, Storing and Brokerage of Market Product. Refer to Appendix M -- Traceability and Product Identification – Some Examples.*

- The person responsible for releasing harvested product
  - ❒ Keeps track of harvested product (e.g. harvest dates or date received) through the use of pallet/bin tags or some other form of identification
  - Records row/house/zone/pallet/bin tag information for harvested product on:
    - ❒ Form (P) Harvesting and Storing Product OR _____

      AND

    - ❒ Form (O) Transporting Product OR _____

Choose ONE of the following 2 options below:

- The person responsible for putting product into market ready packaging materials:
  - ❒ Identifies all market product with a Lot code on the packaging materials
  - ❒ Identifies all market product with a Pack ID on the primary or secondary market ready packaging materials or, if no packaging material is used, then on the pallet/skid (e.g., bunched product directly on a lined pallet) as per Section 17: Packaging Materials
  - Records Lot code, Pack ID and Lot ID for market product on:
    - ❒ Form (Q) Packing, Repacking, Storing and Brokerage of Market Product OR _____

      _____

      AND

    - ❒ Form (O) Transporting Product OR _____

OR

- In exceptional cases where market product is put into market ready packaging materials at one operation and delivered unlabelled directly to another operation, the person responsible for production/packing/repacking and releasing the unlabelled market product:
  - ❒ Keeps track of market product through the use of pallet/bin tags or some other form of identification
  - Records pallet/bin tag information for market product on:
    - ❒ Form (Q) Packing, Repacking, Storing and Brokerage of Market Product OR_____
      AND
    - ❒ Form (O) Transporting Product OR _____
  - ❒ Obtains written confirmation from the operation completing the labelling that market product is labelled immediately upon receipt and in accordance with labelling requirements for market product in Section 17: Packaging Materials (File under Tab: Letters of Assurance/Certificates)

Incoming Product (INCLUDES BROKERAGE)

- The person responsible for incoming product:
  - Records incoming information (e.g., Row/House/Zone #/Pallet/Bin Tag/Lot code/Pack ID/Lot ID, etc.) for incoming product on:
    - ❒ Form (P) Harvesting and Storing Product OR _____

      AND/OR
    - ❒ Form (Q) Packing, Repacking, Storing and Brokerage of Market Product OR_____

Outgoing Product (INCLUDES BROKERAGE)

- The person responsible for outgoing product:
  - Records outgoing information (e.g., Row/House/Zone #/Pallet/ Bin Tag/Lot code/Pack ID/Lot ID, etc.) for product on:
    - ❒ Form (O) Transporting Product OR _____

      AND/OR
    - ❒ Form (P) Harvesting and Storing Product OR _____

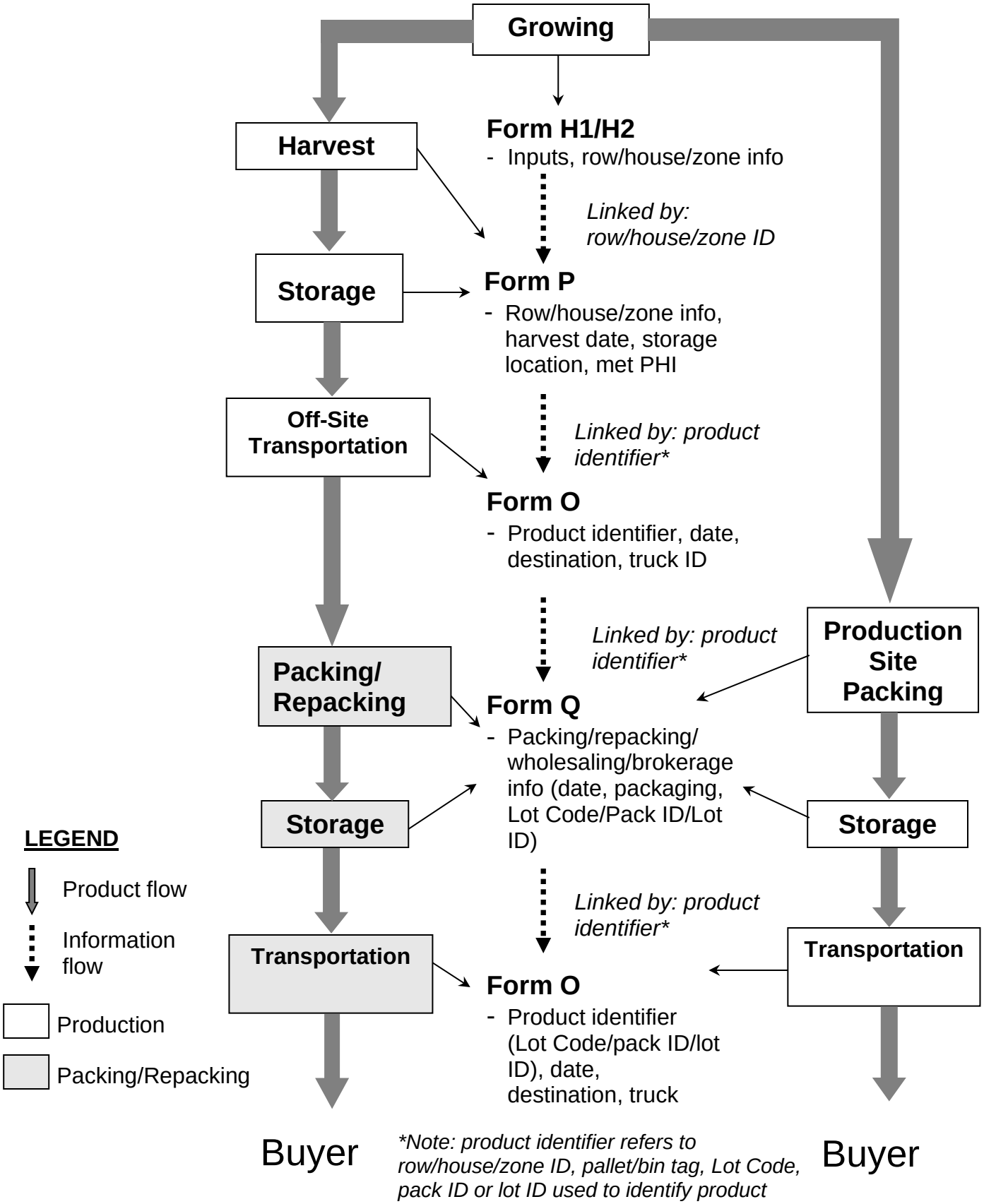
      AND/OR
    - ❒ Form (Q) Packing, Repacking, Storing and Brokerage of Market Product OR

The diagram below shows the basic steps in greenhouse production, packing, repacking, storage, and brokerage, the forms and information recorded at each step and how the records link to the product identification (such as a Lot code/pack ID labelled on a box) for traceability.

Confirmation/Update Log:

Date						
Initials						

Traceability Flow Diagram



*Note: product identifier refers to row/house/zone ID, pallet/bin tag, Lot Code, pack ID or lot ID used to identify product

23. Deviations and Crisis Management

Forms Required	R, S, T, U

RATIONALE:

The key to an effective Food Safety program is identifying, rectifying and documenting major deviations in order to prevent recurrence.

IMPORTANT NOTE	**It is assumed throughout the manual that EACH of the requirements (along with their procedures) are to be considered in terms of food safety. The risks are from those hazards that are in "direct contact with product" OR that may have an "impact on food safety through cross contamination".**

23.1 Minor Deviations and Corrective Action

REQUIREMENT	*A minor deviation must be identified and assessed. Corrective actions must be taken immediately.*

PROCEDURES:

- When an employee identifies a minor deviation, the employee:
  - ❒ Takes immediate corrective action
  - ❒ Communicates the minor deviation and corrective action to the person responsible

23.2 Major Deviations and Corrective Action

REQUIREMENT	*A major deviation must be identified, reported immediately to the person responsible and recorded. Corrective actions must be taken immediately by the person responsible and recorded.*

PROCEDURES:

Note*: See table below for major deviations and corrective actions.*

❒ When an employee identifies a major deviation, the employee immediately reports it to the person responsible

- The person responsible assesses the situation and determines:
  - ❒ The required corrective action
  - ❒ The cause of the major deviation
  - ❒ The required preventative action needed to prevent recurrence of the major deviation
  - ❒ New procedures or modifications to current procedures as required to address the identified major deviation, and trains employees on the new or modified procedures

❒ The person responsible completes Form (R) Deviations and Corrective Actions OR _____

The following are major deviations that may occur at an operation and their respective corrective actions. These represent deviations from the procedures that are identified in the manual with an exclamation mark (Level B Good Agricultural Practices). It is assumed that the deviation can be corrected on the premises and that the product has not left the operation. In certain situations, there may be other appropriate actions and guidance should be sought from qualified experts. These are not all the problems that could occur; see Section 23.3: Crisis Management for further suggestions.

Section	Major Deviations	Specific Examples	Corrective Action(s)
Section 2: Premises	The person responsible uses growing medium that could contaminate product or packaging material	• Contaminated (e.g., by the supplier) growing medium	The person responsible: • Identifies and isolates any contaminated growing medium • Identifies and isolates any contaminated product, packaging material or equipment • Cleans the production site as necessary • Disposes of product and market ready packaging materials if they have come into direct contact with contamination
Section 2: Premises	The person responsible selects a packinghouse or storage area that could contaminate product or packaging material	• Debris or spills on the floor • Animals present • Broken glass or lights • Incorrect lights (not shatterproof or covered) • Leaking of fluid or liquid on to product or packaging	The person responsible: • Identifies and isolates any contaminated product, packaging material or equipment • Cleans and maintains the packinghouse and storage areas (i.e., storage for product and market ready packaging materials) • Selects another storage area if storage area cannot be cleaned (i.e. is not usable) • Replaces lighting (uses shatterproof or covered lighting) • Disposes of product and market ready packaging materials if they have come into direct contact with contamination
Section 4: Manure, Compost/ Compost Tea and Other By-Products	The person responsible receives compost/compost tea that has not been properly composted, or without knowing if it has not been properly composted	• No letter of assurance • Composting records are incomplete or missing • Composting records indicate full composting process has not been achieved	The person responsible: • Refuses, returns or disposes of compost/compost tea and reorders new compost/compost tea • Asks again for letter of assurance and does not spread the compost/compost tea until the letter is received • Continues/ restarts composting process for compost/compost tea made on-site and does not spread compost/compost until the proper process has been completed • Waits 120 days before harvesting product if compost/compost tea was spread without knowing if it was properly composted

Section	Major Deviations	Specific Examples	Corrective Action(s)
	The person responsible spreads manure when the interval between application and harvest is less than 120 days		The person responsible: • Identifies which fields and crops are affected and does not harvest the product until the 120 days has elapsed [refer to Form (H2) Agronomic Inputs (Other)]
Section 6: Agricultural Chemicals	The person responsible applies the incorrect agricultural chemical	• Agricultural chemical used is not registered for the applicable greenhouse product in the country where it is grown	The person responsible: • Identifies which house/zone/product had wrong agricultural chemicals applied • Identifies whether product has been contaminated and if disposal of affected product is required • Obtains expert advice as required and if necessary, disposes of product • Re-trains employees on chemical application
	The person responsible receives the incorrect agricultural chemical from supplier	• Agricultural chemical is not registered for the applicable greenhouse product in the country where it is grown • Containers are damaged and/or labels are illegible	The person responsible: • Returns or refuses and reorders agricultural chemicals • Identifies whether product has been sprayed with wrong agricultural chemicals • Disposes of incorrect chemical • Re-trains employees or takes refresher course on agricultural chemical application
	The person responsible uses a storage location for agricultural chemicals that is not designated only for that purpose and/or is not covered, clean, dry and controlled access	• Leaks or spills from agricultural chemicals because they are not properly stored	The person responsible: • Moves chemicals to a proper storage facility/location or conducts maintenance on agricultural chemical storage • Cleans any spills or leaks resulting from improper storage • Identifies whether product/packaging materials has been contaminated and disposes of any affected product • Re-trains employees on storage location and proper storage of agricultural chemicals
	The person responsible fails to follow the label recommendations and directions when applying agricultural chemicals	• Too much agricultural chemical is applied • Agricultural chemical is mixed incorrectly	The person responsible: • Stops application • Identifies which house/zone/product is affected • Obtains expert advice on the risk of contamination and, if necessary, disposes of product • Retrains employees or takes refresher training on applying agricultural chemicals

Section	Major Deviations	Specific Examples	Corrective Action(s)
			• Identifies whether product has been contaminated and if so, disposes of affected product
Section 7: Water Agricultural	The person responsible uses contaminated water to mix agricultural chemicals used for overhead spray	• Water test results show contamination • Notification from municipality • Adverse event causing contamination of source	The person responsible: • Stops spraying (if possible) • Identifies which house/zone/product is affected • Obtains expert advice on the risk of contamination and, if necessary, disposes of product • Treats water in spray tank before continuing to spray
	The person responsible does not use potable water to fill or replenish ponds for living/floating lettuce/herbs	• Water tests indicate water is contaminated	The person responsible: • Stops using water • Empties the ponds and refills them with potable water OR treats the water for potability • Disposes of product in direct contact with the contaminated water
	The person responsible does not use potable water when required	• Water tests indicate water is contaminated	The person responsible: • Stops using water • Empties the water and refills with potable water OR treats the water for potability • Disposes of product in direct contact with the contaminated water
Section 8: Equipment	The person responsible does not clean or maintain production site equipment regularly (e.g., annually, weekly) or properly (e.g., pressure washer, sanitizer)	• Visible debris or contamination is observed on equipment • Equipment breaks down causing chemical or physical contamination • Lubricants, oils and fuels leak on to food contact surfaces	The person responsible: • Stops activities (harvesting) • Isolates any product in contact with contaminated production site equipment • Cleans and maintains affected equipment • Makes necessary changes to cleaning procedure or schedule • Re-trains employees to adhere to annual/weekly cleaning and maintenance schedule • Disposes of product if it has come into direct contact with contamination.
	The person responsible does not clean or maintain packinghouse equipment regularly (e.g., daily, weekly) or properly (e.g., pressure washer, sanitizer)	• Visible debris or contamination is observed on equipment • Equipment breaks down causing chemical or physical contamination • Lubricants, oils and fuels leak on to food contact surfaces	The person responsible: • Stops activities (sorting, grading packing) • Isolates any product in contact with contaminated equipment • Cleans and maintains affected packinghouse equipment • Makes necessary changes to cleaning procedure or schedule • Re-trains employees to adhere to daily/weekly cleaning and maintenance schedule

Section	Major Deviations	Specific Examples	Corrective Action(s)
			• Disposes of product if it has come into direct contact with contamination.
	The person responsible applies inaccurate rates of agricultural chemicals because he/she did not calibrate spray equipment properly or at all	• Sprayer runs out of chemical too early • Sprayer has too much chemical left over after spraying	The person responsible: • Identifies and isolates affected product • Obtains expert advice on the risk of contamination and, if necessary, does not harvest the product • Re-calibrates equipment • Re-trains employees on calibration schedule and procedures
	The person responsible applies inaccurate rates of water treatment aids because he/she did not calibrate water treatment equipment properly or at all (i.e., ORP/ pH meters)	• Unusually high or lack of chemical (chlorine) odours • Change in rate of usage of treatment aids • Discolouration or pitting of product	The person responsible: • Stops washing/fluming activities • Calibrates equipment • Re-checks ORP/pH • Treats the water and re-tests to check potability OR disposes of the water • Rinses or disposes of any product that has come into direct contact with the contaminated water • Re-trains employees on calibration schedule and procedures
	The person responsible is unsure that the temperature reading on the thermometer is accurate (i.e., that internal temperature of the tomatoes is at least 5.5°C or 10˚F colder than the water), or the person responsible knows thermometer was not calibrated or an inappropriate type of thermometer was used	• Thermometer is not calibrated according to manufacturer's instructions • Thermometer is not the appropriate type for the intended use	The person responsible: • Stops washing or fluming activities • Disposes of any tomatoes that have been submerged • Calibrates the thermometer or uses the appropriate type • Re-trains employees on calibration schedule and procedures
Section 9: Cleaning and Maintenance Materials	The person responsible did not follow instructions for use, or used the wrong product for water treatment	• Using high concentrations • Using wrong product • Product is mixed incorrectly • Label was no intact or read correctly	The person responsible: • Stops washing/fluming activities • Rinses or disposes of any product that has come into direct contact with the contaminated water • Adds water (if too much product was added) • Empties tank and cleans if necessary • Re-trains employees on treatment methods

Section	Major Deviations	Specific Examples	Corrective Action(s)
	The person responsible notices equipment (e.g., gear boxes, hydraulic lines) leaking oils, lubricants onto the sorting/grading equipment (cups, belts, tables)	• Visible contamination is observed on equipment • Equipment breaks down causing chemical or physical contamination • Lubricants, oils and fuels leak on to food contact surfaces	The person responsible: • Stops activities (e.g. sorting, grading) • Isolates any product in contact with contaminated equipment • Cleans and maintains affected equipment • Makes necessary changes to cleaning procedure or schedule • Re-trains employees to adhere to daily/weekly cleaning and maintenance schedule • Disposes of product if it has come into direct contact with contamination.
Section 11: Personal Hygiene Facilities	Personal hygiene facilities are not maintained and cleaned weekly (while in use) and daily (during peak season)	• Washrooms are not properly stocked (paper towels, soap, sanitizer) • Visible debris or contamination in facilities	The person responsible: • Ensures and confirms that hygiene facilities are cleaned and stocked • Instructs employees to re-wash hands • Re-trains employees on weekly/daily cleaning and maintenance schedule • Re-evaluates maintenance schedule • Determines whether any equipment or product has been contaminated • Washes equipment as necessary • Disposes of product if they have come into direct contact with contamination
Section 14: Pest Control Program for Production Sites and Buildings	The person responsible does not have an effective pest control program	Evidence of pest infestation is noticed such as: • Presence of rodents, animals or feces • Chewed boxes, walls or packaging materials • Nests or nesting materials	The person responsible: • Removes all feces, nesting materials rodents or animals • Washes equipment and buildings areas as necessary • Disposes of any product or packaging materials that may be contaminated • Develops and implements a pest control program, hires a third party pest control company or seeks expert advice on improving pest control program • Re-trains employees on use of chemicals • Re-evaluates and revises pest control program where necessary

Section	Major Deviations	Specific Examples	Corrective Action(s)
	The person responsible does not follow the pest control program properly	• Bait inside buildings is not secured in a trap • Pest control products are used improperly and/or not registered for use in the country where they are used	The person responsible: • Removes all bait that is not secured in a trap • Disposes of any product that has come in to contact with bait or other pest control products • Washes any equipment that has come into contact with pest control products or pests • Re-trains employees in pest control and monitoring procedures
Section 15: Water (for Fluming and Cleaning)	The person responsible purchases/selects a water source that is not potable	• Water test results show contamination • Notification from municipality • Adverse event causing contamination of source	The person responsible: • Stops using water • Treats the water and re-tests to check potability before using water • Rinses (with potable water) (except for tomatoes – these must be discarded) or disposes of any product that has come into contact with contaminated water
	The person responsible receives water from a source that is not potable	• Water test results show contamination • Notification from municipality • Adverse event causing contamination of source	The person responsible: • Stops using water • Treats the water and re-tests to check potability before using water • Rinses (with potable water) (except for tomatoes – these must be discarded) or disposes of any product that has come into contact with contaminated water
	The person responsible stores water in an unclean cistern, tank or container or with a damaged lid/no lid	• Water test results show contamination from cistern • Adverse event causing contamination of cistern	The person responsible: • Stops using water • Empties and cleans cistern/tank/container or treats water then cleans cistern/tank/container when tank is empty • Re-tests to check potability before using water • Repairs or replaces lid • Rinses (with potable water) (except for tomatoes – these must be discarded) or disposes of any product that has come into contact with contaminated water • Re-trains employees on water treatment procedures

Section	Major Deviations	Specific Examples	Corrective Action(s)
	The person responsible does not treat water properly (i.e., for potability)	• Free chlorine test strips show that free chlorine in wash or flume water is below 2 ppm • Water tests results show contamination • ORP reading is below 650 mV	The person responsible: • Stops using water • Treats the water and re-tests to check potability before using water • Rinses (with potable water) (except for tomatoes – these must be discarded) or disposes of any product that has come into contact with contaminated water
	The person responsible does not use potable water to fill or replenish flumes/washers	• Water tests indicate water is contaminated	The person responsible: • Stops using water • Empties the flumes/washer, cleans and refills them with potable water OR treats the water for potability • Rinses (with potable water) (except for tomatoes – these must be discarded) or disposes of product in direct contact with the contaminated water
	The person responsible does not treat flume or wash water to keep it potable when it is the last water in contact with product (fails to use a final potable water rinse) FOR LEAFY VEGETABLES ONLY: The person responsible does not treat flume or wash water to keep it potable when it is in contact with all product except for broccoli, cauliflower, cabbage and Brussels sprouts.	• Product is flumed or washed with water that is not kept potable and there is no final rinse step FOR LEAFY VEGETABLES ONLY: Product (other than broccoli, cauliflower, cabbage and Brussels sprouts) are flumed or washed in water that is not kept potable	The person responsible: • Stops washing and identifies product that has come into contact with contaminated water • Empties the flumes/washer and cleans them • Treats the water for potability and re-tests OR implements a final potable water rinse • Rinses (with potable water) or disposes of any product in contact with contaminated water • Disposes of any products that have the potential to internalize water (e.g. tomatoes, cantaloupe/musk melons, celery, spinach, rhubarb, green onions and other leafy greens) and have been immersed in contaminated water. • Re-trains employees on water treatment procedures
	The person responsible flumes or washes product, has no treatment to keep water potable and does not have a final potable water rinse	• There is no final rinse after fluming or washing (when flume/ wash water is not kept potable)	The person responsible: • Stops washing and identifies product that has come into contact with contaminated water • Empties the flumes/washer and cleans them • Implements a final potable water rinse if possible or implements a water treatment system for flume/wash water • Rinses (with potable water) (except for tomatoes – these must be

Section	Major Deviations	Specific Examples	Corrective Action(s)
			discarded) or disposes of any product in contact with contaminated water • Re-trains employees on water treatment procedures
	The person responsible immerses tomatoes in water that is not potable and is not at least 5.5°C or 10°F warmer than the internal temperature of the tomatoes (tomatoes only) (i.e., internal core temperature of the tomatoes is not at least 5.5°C or 10°F colder than the water)	• Hot tomatoes from the greenhouse are flumed in cold water where potability is not maintained	The person responsible: • Stops washing or fluming activities • Empties the flumes/washer and cleans them • Disposes of any tomatoes that have been immersed in contaminated water • In future, cools the tomatoes or warms water so that the water is at least 5.5°C or 10°F warmer than the internal temperature of the tomatoes OR treats water and re-tests to check potability
Section 17: Packaging Materials	The person responsible fails to clean harvested product packaging materials properly annually	• Harvested product packaging materials have dirt, debris, etc.	The person responsible: • Stops harvesting • Cleans packaging materials according to SSOP • Disposes of any product in contact with contaminated packaging materials • Retrains employees on cleaning procedures for packaging materials
	The person responsible fails to clean reusable (non-porous) packaging materials properly before use	• Reusable packaging materials have dirt or debris	The person responsible: • Stops packing • Cleans reusable packaging according to SSOP • Disposes of or rewashes any product in contact with contaminated packaging • Re-trains employees on cleaning procedures for reusable packaging
	FOR MUSHROOMS FOR REPACKING ONLY: The person responsible fails to check or use the appropriate market ready packaging materials	• Non-perforated plastic film is used	The person responsible: • Stops repacking • Ensures the appropriate packaging materials were used • If not, disposes of product or repacks the product using the appropriate packaging materials • Retrains employees on appropriate packaging materials
	The person responsible fails to check market ready packaging materials before use	• Packaging materials are damaged or dirty • The wrong packaging materials are reused e.g., porous packaging materials are reused without a new liner; packaging materials marked as	The person responsible: • Stops packing • Checks packed product for dirty or damaged packaging • Disposes or rewashes any product in contact with contaminated packaging • Disposes of any damaged and unusable packaging

Section	Major Deviations	Specific Examples	Corrective Action(s)
		not for reuse are used	• Washes any reusable packaging • Re-trains employees on procedures for inspecting and using market ready packaging
Section 18: Growing and Harvesting	The person responsible harvests product without allowing the proper interval (of more than 120 days) to elapse between the application of manure and harvest		The person responsible: • Identifies which house/zone/product are affected • Disposes of product
	The person responsible harvests product without allowing the pre-harvest interval to elapse for the application of agricultural chemicals		The person responsible: • Identifies which house/zone/product are affected • Disposes of product
Section 19: Sorting, Grading, Packing, Repacking, Storing and Brokerage	The person responsible receives the harvested/market product from an operation not following a food safety program or without a current/valid certificate		The person responsible: • Refuses the product and reorders the product; or asks for a current/valid certificate and does not pack or sell the product until it is received.
	The person responsible selects/purchases services from an outside service provider that is not following a food safety program or is without a current/valid certificate	• Providers of outside services that are performed on behalf of the operation (e.g., packing, icing, washing, a standalone storage operation, etc.) do not have CanadaGAP or other industry recognized third party food safety audit/certification	The person responsible: • Cancels services or asks for a current/valid certificate and does not continue with the service until it is received

Section	Major Deviations	Specific Examples	Corrective Action(s)
Section 20: Storage of Product	The person responsible selects a storage area that could contaminate product or packaging material	• Garbage, spills or other contaminants in the storage • Lighting not covered or shatterproof • Broken glass or lights in the storage	The person responsible: • Isolates any contaminated product or packaging • Cleans and maintains the storage area (i.e., storage for product and market ready packaging materials) • Replaces broken lights with shatterproof or covered lighting • Selects another storage area if storage area cannot be cleaned (i.e., is not usable) • Disposes of product and market ready packaging materials that have come into direct contact with contamination

23.3 Crisis Management

REQUIREMENT	*A crisis management plan must be established in the event that product needs to be recalled.*

PROCEDURES:

***Note**: Recall procedures and forms are included in Appendix S -- Recall Program. (Further information on recalls is available from CFIA at: https://www.inspection.gc.ca/food-safety-for-industry/recall-procedure/eng/1535516097375/1535516168226)*

❒ Annually – The person responsible reviews *Appendix S -- Recall Program* OR _____ _____and updates recall team name(s) and contact information below:

Recall Team [as of (date) _____]			
Record the names and contact information for each member of the recall team. Include, if possible, work, mobile and after-hours contact numbers. (Note, for some operations the recall team may consist of only one person). Include alternate names in case of sickness, absence, etc.			
	Name	Contact Information	Roles and Responsibilities
Recall Coordinator(s)			
Recall Team Members			

❒ The person responsible keeps lists of all product suppliers and customers with up-to-date contact information

❒ Annually (current season's product) – The person responsible conducts a mock recall to test the effectiveness of the traceability system by completing the forms in *Appendix S: Recall Program* OR _____ (File completed forms under Tab: Recall Program)

Note: *Refer to Appendix R: How to Conduct A Mock Recall – An Example*

- If an abnormal event occurs (e.g., contamination or potential contamination of product, recall, regulatory investigation, etc.), the person responsible follows the following steps to manage the risk:
  - ❒ Stops current activity (if applicable) (e.g., shuts down packing line) to prevent further contamination
  - ❒ Identifies and isolates the product and equipment affected
  - ❒ Notifies authorities/person responsible/certification body/CanadaGAP (as applicable)
  - ❒ Determines whether product has been contaminated
  - ❒ Determines and conducts appropriate course of action (e.g., disposes of product, cleans equipment)
  - ❒ Approves the release of unaffected product
  - ❒ Identify cause of problem and undertakes preventive measures (e.g., preventive maintenance, training of employees)
  - ❒ Records this information on Form (R) Deviations and Corrective Actions OR _____

Note: *This basic procedure can be used in the case of most adverse events such as blood on product, flooding event, portable toilet spilling into the production site, hydraulic line breaks and fluid leaks on to product.*

Example 1: Employee cuts hand during packing/repacking and product is contaminated with blood. The person responsible or employee:

- Stops packing/repacking line
- Holds product on the line
- Sends injured employee for immediate medical attention
- Disposes of product in the vicinity
- Notifies person responsible (if applicable)
- Identifies which product and equipment is contaminated and isolates product to prevent further contamination
- Disposes of all contaminated product and cleans and disinfects all affected equipment
- Approves the release of unaffected product
- Re-trains all employees on workplace safety practices and policies
- Performs required maintenance of equipment if faulty equipment caused injury
- Records information on Form (R) Deviations and Corrective Actions

Example 2: A hydraulic line breaks during harvest and fluid leaks into the production site. The person responsible or employee:

- Stops harvester
- Prevents further leaking of fluid into production site if possible
- Identifies which product (production sites, plantings, rows) and equipment is contaminated
- Notifies person responsible (if applicable)
- Disposes of all contaminated product
- Approves the release of unaffected product
- Repairs and cleans harvester and reviews and updates preventive maintenance schedule
- Records information on Form (R) Deviations and Corrective Actions

❒ In the event that the product has left the premises, food safety has been compromised and the public is at risk, the person responsible initiates the Recall process

❒ The person responsible contacts and informs the certification body (if certified) when a recall occurs

23.4 Complaint Handling

REQUIREMENT	*A complaint handling system must be established to manage complaint data and control and correct shortcomings in food safety.*

PROCEDURES:

❒ The person responsible has a system in place to receive, document and take action in response to complaints (e.g., from customers, consumers etc.)

❒ The person responsible records complaints received on Form (R) Deviations and Corrective Actions OR _____

❒ The person responsible includes a review of all complaints during the annual review of the Food Safety Program (See Section 24: HACCP Plan and Food Safety Program Maintenance and Review)

23.5 Food Defense

Δ Section 23.5 does not apply to certification option A1/A2

REQUIREMENT	*Food defense risks must be addressed and a system to reduce or eliminate identified risks must be in place. Potential threats to food security in all phases of the operation must be identified and assessed.*

PROCEDURES:

❒ Responsibility for food defense/security is assigned to a knowledgeable person(s) [record name(s) here: _____]

- The person responsible ensures that:
  - ❒ All commodity starter products/harvested products/other inputs are from safe and secured sources
  - ❒ All product handling and storage areas are safe and secured
  - ❒ All market product is safe and secured
  - ❒ All transportation is safe and secured

Note: *Refer to the appropriate sections for input/product/transportation requirements. Refer to Section 13: Visitor Policy for more information on controlled access areas. Refer to Form (A) Buildings Sketch and Agricultural Chemical Storage Checklist to ensure all areas have been considered.*

❒ The person responsible assesses potential food defense/security risk factors by completing Form (T) Food Defense OR _____

_____

Note: *Refer to the chart provided in Appendix T: Food Defense: Assessment of Possible Risks and List of Security Measures to help with your assessment.*

❒ The person responsible has information on all employees and visitors that can be found within the following records (e.g., employee records, Form L, etc.): _____

_____

- In case of an intentional threat/incident, the person responsible has procedures for corrective actions in place which include:
  - ❒ Investigating threats (e.g., signs of tampering, malicious, criminal or terrorist actions, etc.)
  - ❒ Alerting the appropriate people (e.g., law enforcement, public health authorities, customers, consumers, etc.)
  - ❒ Recalling product (if necessary)
  - ❒ Evaluating security measures to reduce the risk of reoccurrence

❒ The person responsible reviews all threats/security measures during the annual review of the Food Safety Program (See Section 24: HACCP Plan and Food Safety Program Maintenance and Review)

23.6 Allergens

Δ Section 23.6 does not apply to certification option A1/A2

Allergens that are present on site may be a source of cross-contamination. An assessment of potential allergens will help to determine whether additional control measures are required.

REQUIREMENT	*An allergen program is in place to ensure that cross contamination does not occur.*

PROCEDURES:

❒ The person responsible has procedures in place to avoid cross contamination of product with allergens not present in the product (e.g., from production site, packing/repacking line, vehicle, storage, etc.)

❒ If undeclared allergens are handled (e.g. sorted, graded, packed, trimmed) on equipment used for market product, the equipment is cleaned before it is used for market product (Refer to *Section 8.2 Use, Cleaning, Maintenance, Repair and Inspection* for equipment cleaning and record keeping procedures), and if necessary, precautionary labelling is used.

❒ Sulphites [e.g. sulphur dioxide ($S0_2$)] are not used on market product

❒ The person responsible labels product (e.g., on packaging materials) with allergen information (if applicable) (*Refer to the CFIA website for more information on labelling requirements in Canada*: http://www.inspection.gc.ca/food/labelling/core-requirements/ingredients/allergen-labelling/eng/1332352596437/1332352683099)

❒ The person responsible performs an annual review of the allergen program and makes any updates or changes necessary

❒ Annually – The person responsible assesses potential risks from allergens and records the information Form (S) Allergen Information - Assessment OR _____

23.7 Food Fraud

Δ Section 23.7 does not apply to certification option A1/A2

REQUIREMENT	*Food fraud vulnerabilities must be assessed and a plan must be in place to reduce or eliminate any identified vulnerabilities.*

PROCEDURES:

❒ Responsibility for food fraud is assigned to a knowledgeable person(s) [record name(s) here: _____]

❒ The person responsible assesses potential food fraud vulnerabilities by completing Form (U) Food Fraud Vulnerability Assessment OR _____

_____

❒ The person responsible implements any food fraud mitigation measures identified on Form (U) Food Fraud Vulnerability Assessment

23.8 Food Safety Culture

Δ Section 23.8 does not apply to certification option A1/A2

REQUIREMENT	*Commitment must be made to maintain a strong food safety culture within the operation through communication, training, feedback and performance measurement.*

PROCEDURES:

❒ Responsibility for food safety culture belongs to senior management

- The person responsible creates, assesses, implements and maintains food safety culture by:
  - ❒ Communicating food safety policies and responsibilities frequently and effectively
  - ❒ Engaging and involving all employees
  - ❒ Training and reinforcing food safety
  - ❒ Measuring and assessing performance regularly
  - ❒ Ensuring feedback on food safety related issues is received from all employees
  - ❒ Making a long-term commitment to sustaining and improving food safety
  - ❒ Ensuring consumer focus

❒ The person responsible performs an annual review of the operation's food safety culture and makes changes or improvements as necessary

Confirmation/Update Log:

Date						
Initials						

Forms Required	N/A

24. HACCP Plan and Food Safety Program Maintenance and Review

RATIONALE:

A site-specific HACCP plan ensures that hazards specific to the operation are identified and controlled in a systematic way. The operation's program needs to be maintained continuously to ensure success. An annual review allows the person responsible and senior management of the company to ensure that the CanadaGAP Food Safety Manual is being followed effectively. A review determines if any problems were encountered during the growing/harvesting/storing/packing/repacking season. The result of a review is a more effective and efficient Food Safety program.

IMPORTANT NOTE	**It is assumed throughout the manual that EACH of the requirements (along with their procedures) are to be considered in terms of food safety. The risks are from those hazards that are in "direct contact with product" OR that may have an "impact on food safety through cross contamination".**

FOR REPACKING AND WHOLESALING OPERATIONS ONLY

24.1 Site-Specific HACCP Plan

REQUIREMENT	*A site-specific HACCP plan must be implemented and documented.*

PROCEDURES:

❒ The person responsible documents and implements a site-specific HACCP plan for the operation *(Refer to* Appendix V: Repacking and Wholesale Generic HACCP Model Workbook – An Example*: for information and resources to help with the development of a site-specific HACCP plan)*

❒ The person responsible annually reviews the site-specific HACCP plan to ensure it is scientifically correct, complete and has been updated to reflect current conditions and changes

FOR ALL OPERATIONS

24.2 Protocols

REQUIREMENT	*Your food safety program must be continuously maintained. A protocol must be in place to review the CanadaGAP Food Safety Manual annually to ensure complete and effective implementation. Senior management must demonstrate its commitment to the continuing suitability, adequacy and effectiveness and improvement of the company's food safety system, including related policies and procedures.*

PROCEDURES:

❒ The person responsible maintains the operation's food safety program on an ongoing basis.

❒ The person responsible reviews previous audit findings (if applicable) and determines whether there are opportunities for continuous improvement

❒ The person responsible ensures that the most current updated pages issued by CanadaGAP are used when reviewing the CanadaGAP Food Safety Manual for Greenhouse Product

***Note**: Revisions are available on the CanadaGAP web site (www.canadagap.ca).*

❒ The person responsible annually reviews the CanadaGAP Food Safety Manual for Greenhouse Product by completing and updating the applicable sections and forms of the Manual

❒ The person responsible annually reviews the major deviations and complaints and makes any necessary changes to food safety policies and procedures

❒ Annually - The person responsible conducts a pre-audit by performing an internal audit of the entire operation by completing the CanadaGAP Self-Assessment Checklist or Audit Checklist (File under Tab: _____), or by using an outside party (Download checklists at www.canadagap.ca)

❒ The person responsible reviews the internal audit findings and makes any necessary changes to food safety policies and procedures

❒ The person responsible records that the CanadaGAP Manual has been annually reviewed by initialling the Confirmation/Update Log at the end of each section and below

Confirmation/Update Log:

Date						
Initials						