GLOBALG.A.P.

GLOBALG.A.P.
Generic HACCP Food Safety Plan for Crops
General Guidance

ENGLISH VERSION 5.4

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1 INTRODUCTION

As defined by the Codex Alimentarius, the Hazard Analysis and Critical Control Point (HACCP) system is a science-based and systematic approach that identifies specific hazards and measures for their control to ensure the safety of food. Furthermore, section 1.1. of the Codex Alimentarius states “HACCP is a tool to assess hazards and establish control systems that focus on prevention rather than relying mainly on end-product testing.”

Managing risk through the identification and mitigation of defined HACCP is widely recognized as an effective strategy for food production and processing operations.
HACCP is an organized system designed to identify hazards and produce a structured plan to reduce potential risks. The emphasis of HACCP in food production systems is to help prevent food safety problems by focusing on controllable elements in the food production process and carrying out corrective actions in a timely manner. The HACCP plan is a working document that should be referenced, regularly reviewed, and updated whenever there is a significant change in a process that may alter hazards into the operation.

Contamination of food products may be biological (e.g., *Salmonella* or *E. coli*), chemical (e.g., allergens or pesticide residue), physical (e.g., metal or glass), and radiological. A HACCP system identifies potential contaminants and considers the consequences for food safety if a contaminant was present.

Hazard Analysis

Examples of contamination:

Physical	Chemical	Microbiological	Radiological
Metal	Plant protectant residues	Pathogenic bacteria	Contaminated soils
Glass	Cleaning products	Parasites	
Hard plastic	Post-harvest treatments	Viruses	
	Allergens	Fungi	

HACCP systems identify the points in the production and handling process where hazards may occur. Steps within the process that are considered critical in preventing, reducing, or eliminating hazards are labelled as **Critical Control Points (CCPs)**, and monitoring is carried out for each defined control. Critical limits are set for each CCP, defining what is and is not acceptable, and control measures are established with instructions on actions to be taken when critical limits have been exceeded.

To design a HACCP system, the method established and recommended internationally by the Codex Alimentarius working group is based on twelve stages. The first five steps are the prerequisite stages, while the other steps correspond to the seven core HACCP principles.

1) Forming a HACCP team
2) Product description
3) Identification of intended use
4) Process flow diagram
5) Confirmation of process flow diagram on site
6) Conduct a hazard analysis
7) Determine the CCPs
8) Establish critical limits
9) Establish a monitoring system
10) Establish corrective actions
11) Establish verification procedures to confirm HACCP system functions appropriately
12) Establish documentation and records concerning all procedures.

The system is proactive, alerting operators to take mitigating actions before problems escalate.

Standard Operating Procedures (SSOPs) are generally regarded as one of the prerequisites for HACCP plan development. Good hygiene practices and prevention of cross contamination are two significant factors that must be addressed for an effective HACCP plan. Also important are good sanitation and hygienic equipment design. The objective is to manage primary production to reduce the likelihood of introducing a hazard that may adversely affect the product. Recordkeeping and training is required.

2 PURPOSE AND SCOPE OF A HACCP PLAN

2.1 PURPOSE

This generic HACCP plan was prepared as a reference document using the Codex Alimentarius Commission guidelines for the application of the HACCP method. The purpose is to:

demonstrate that the GLOBALG.A.P. Integrated Farm Assurance Standard for Crops incorporates the Codex Alimentarius HACCP elements in the assessment framework.

2.2 SCOPE

1) The scope of the HACCP plan is defined per product, product category and relevant processes associated with the product. Guidance applicable to operations growing and handling fresh fruit and vegetables, combinable crops and hop are described below. The processes involved in an operation may include land preparation, purchase of plant propagation materials, growing, harvesting, handling, and packing. There may be some processes that are specific to particular product and are not included in this sample HACCP plan.

2) The description and intended use of the products grown by the operation are discussed in greater detail, with a supporting flow diagram outlining the relationship between the specific production stages and their respective control points are listed in tables. There may be some processes that are specific to particular produce and are not included in this generic HACCP plan. It is assumed that the business employs a responsible person to oversee the food safety program and identifies staff with key responsibilities impacting food safety and specific control points.

3) Food safety hazards are defined as biological, chemical, physical, and radiological contamination of produce. There may be some hazards that are specific to a particular geographic location or different types of produce that may not be specifically covered in this sample outline of a HACCP plan. The operation must include potential hazards applicable to its own unique operation.

3 HACCP TEAM

The analysis and identification of risks have been performed internally by the GLOBALG.A.P. Technical Team consisting of the Chief Standards Officer, Senior Technical Manager and Technical Key Account Managers. The Crops Technical Committee evaluated the plan and the development of the standard is based on the hazard analysis report as well as their expertise and practical experience as well as industry requirements.

4 PRODUCT DESCRIPTION AND INTENDED USE

4.1 PRODUCT DESCRIPTION

Product descriptions may vary according to the type of produce covered in the food safety program. The requirements for harvesting, handling, packing, and storage are described in documentation available as part of the food safety program and may be supported by requirements issued by the buyer, accepted industry standards, product grading specifications, or other applicable documentation.

The food safety information collected as part of many fresh produce operations with HACCP plans includes:

1) Testing product for maximum residue limits (MRL) resulting from agronomic chemical applications and the presence of metals in compliance with maximum permissible concentration (MPC) are important elements of a HACCP plan, and may be required by buyers.

2) Evaluation of detectable microbiological contamination at key stages of the operation should be recorded. Records should include frequency of testing and corrective actions associated with exceedance values.

3) Evaluation of methods to reduce biological, chemical, physical, and radiological hazards at key points in the operation should be completed. While general quality specifications may be included in written specifications for the product, only food safety information is relevant to the HACCP procedures. In some instances, quality issues may also result in an increased risk to food safety.

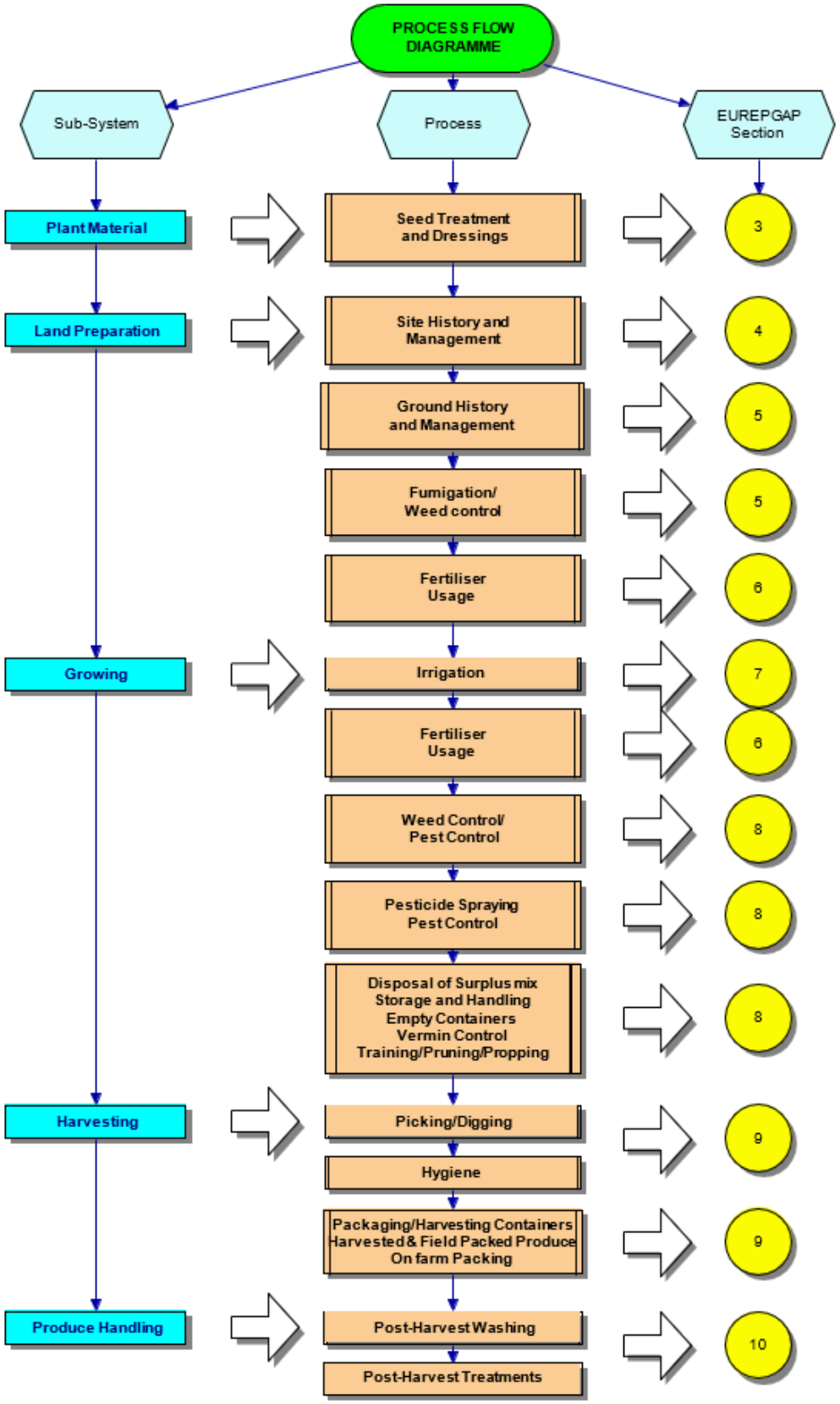
4) Reference to Product categories based on risk is incorporated.

4.2 INTENDED USE

Produce may be defined as a ready to eat food products or may undergo further processing. Produce may follow various paths through the food supply chain before reaching the final consumer. Possible avenues include:

1) Wholesalers, retailers, and food service businesses for sale to consumers.
2) Processors and food service businesses for preparation of food products.

4.3 PROCESS FLOW DIAGRAM



5 HAZARD ANALYSIS

5.1 ANALYSIS

Each process in the flow diagram should be analyzed, taking into consideration these elements:

1. Potential hazards for the produce should be identified and a schematic of the operation layout used to assess the risk for each unique operation by looking at various movement patterns including raw material, inputs, product, process, equipment, environmental risks, water usage, and waste flow. Written specifications shall be established, implemented and maintained for all inputs to the process, including services that are purchased or provided and have an effect on food safety.
    a. Specific process stages that pose a risk to directly or indirectly contaminate the finished product should be identified. The HACCP may consider if the commodity is a ready to eat product or not. Regardless of intended end use, mitigating steps should be noted that are crucial in preventing contamination events.
    b. As a producer may not always know the end use of the product at the point of sale, it is important to control risks appropriate to the highest risk scenario for each individual commodity. For example, a producer may send some apples to a processor for making into juice, and other apples will be sold at a local market. The HACCP must include an analysis of hazards for the possible end uses.
2. Appropriate labeling and product segregation should be used when applicable and when cross-contamination is a possibility.
3. The potential causes or source of the hazard should be identified.
4. An assessment should be conducted to determine the significance of the identified hazards.
5. Control measures should be established for the identified hazards.

5.2 POTENTIAL HAZARDS

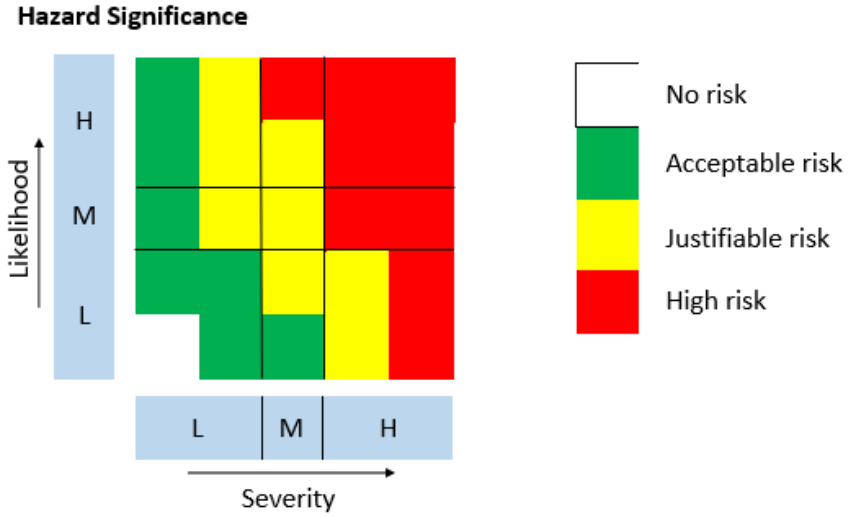
The potential hazards are categorized according to the type of contamination, which include biological, chemical, physical and radiological hazards. There may be hazards that are specific to particular types of produce and are not described in the sample HACCP outline below, but which need to be assessed as part of the risk assessment for each individual operation.

5.2.1 Source of Hazards

The sources of hazards may include, but are not limited to, the raw materials, equipment, storage conditions, growing and handling practices, on-farm transport, and sanitation.

5.2.2 Hazard Significance

The significance of a hazard is assessed by considering the severity and likelihood of the hazard occurring. The line of reasoning used to determine the severity score should be documented. The overall risk rating may be determined using a risk assessment tool with a scale of high (H), moderate (M) and low (L). As each operation is unique, a producer must determine what specific hazards are a high, moderate or low risk for their operation, based on the likelihood of occurrence and implications to human health.



Severity of occurrence of incident:
L (very low to low) – very little effect (acceptable)
M (medium) – medium effect (unacceptable)
H (high) – strong effect (unacceptable)

Likelihood of occurrence of incident:
L (very low to low) - risk is cogitable, occurrence is rather impossible
M (medium) – risk is cogitable, occurrence is possible
H (high) - risk is known, information is experienced/documented

5.3 CONTROL MEASURES

The control measures are established to prevent, reduce, or eliminate potential hazards.

6 HAZARD ANALYSIS REPORT

6.1 SUB-SYSTEM: PLANT MATERIAL

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
Chemical Treatments	Chemical	Incorrect rate of seed treatment applied. Seed treatment applications not approved by product labels in country of use.	H	L	M	Many seeds are purchased pretreated from a commercial distributor with a defined calibration process. Carryover risk to end product is variable, depending on the crop.	Appropriate identification procedures are in place and records for identifying products purchased from different sources available for all registered products and a list of approved suppliers (IFA All Farm Base module). Purchased propagation material (seed, rootstocks, seedlings, plantlets, cuttings) accompanied by information of chemical treatments done by the supplier (IFA Crops Base module). Propagation material sourcing is also covered in the Hop sub-scope. Plant protection product treatments recorded for in-house nursery propagation materials applied during the plant propagation period (IFA Crops Base module, Hop sub-scope); There is a record kept for training activities and attendees (IFA Crops Base module) All workers handling and/or administering veterinary medicines, chemicals, disinfectants, plant protection products, biocides, and/or other hazardous substances and all workers operating dangerous or complex equipment as defined in the risk analysis have evidence of competence or details of other such qualifications (IFA All Farm Base module).

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
							Plant health quality control systems are operational for in-house nursery propagation (IFA Crops Base).
Management of substrates for planting in the producer's own nurseries.	Biological	Transmission of soil diseases because mishandling of substrates used in the nursery itself or poor disinfection of the substrate	H	L	M	Not having disinfected substrates can lead to the diffusion of diseases from the substrate to the soil where the seedling will be planted	It is required to have information on the origin of the substrates used, quantities used and a control system that includes integrated management of pests and diseases in the nursery. (IFA Crops Base) It is required to include a record of identification of the mother plants, their origin. Also of the substrate used. (IFA Crops Base)

6.2 SUB-SYSTEM: LAND PREPARATION

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
Site History and Site Management	Chemical Residue from agrochemical treatments to prior crops grown on land.	Residues agrochemical chemicals from previous land use. Spray drift from adjacent blocks/farms.	H	M	M	Previous land use is known, and spray records from prior seasons are maintained.	There is a reference system for each field, orchard, greenhouse, yard, plot, livestock building/pen, and/or other area/location used in production. Compliance shall include visual identification in the form of a physical sign at each farm area/location; or a farm map, identifying the location of water sources, storage/handling facilities, ponds, stables, etc. and that could be cross-referenced to the identification system. (IFA All Farm Base and Fruit and Vegetables modules, Hop sub-scope) A management plan addresses the risks identified and describes the hazard control procedures that justify that the site in question is suitable for production.

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
							A recording system is established for each unit of production or other area/location to provide a record of the livestock/aquaculture production and/or agronomic activities undertaken at those locations. Records provide a history of GLOBALG.A.P. production of all production areas (IFA All Farm Base and Fruits and Vegetables module). Risk assessments shall take into account: Potential physical, chemical (including allergens) and biological hazards - Site history (for sites that are new to agricultural production, history of five years is advised and a minimum of one year shall be known) (IFA All Farm Base module). IFA All Farm Base annexes offer guidance on risk assessments, which is also applicable to Hop sub-scope IFA Fruit and Vegetables annex includes guidance regarding flooding.
Site History and Site Management	Chemical Soil tests may indicate heavy metals present in levels excess of Maximum Permissible Concentrations (MPC).	Residual from previous use of fertilizers with high levels of heavy metals may have occurred. Other historic soil treatments may have unwittingly introduced heavy metals, such as contaminated compost	M	L	L	Fertilizers, composts, and other soil amendments are purchased from a reputable source. Biosolids are not used. Chemical composition and test records for fertilizers and soil amendments are kept on file.	A site management plan addresses the risks identified and describes the hazard control procedures that justify that the site in question is suitable for production. A recording system is established for each unit of production or other area/location to provide a record of the livestock/aquaculture production and/or agronomic activities undertaken at those locations. Records provide a history of GLOBALG.A.P. production of all production areas. (IFA All Farm Base and Fruit and Vegetables modules).

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
		materials.					Risk assessments take into account: Potential physical, chemical (including allergens) and biological hazards. Site history (for sites that are new to agricultural production, history of five years is advised and a minimum of one year is known) (IFA All Farm Base module). Where applicable, soil maps have been prepared for the farm. The types of soil are identified for each site, based on a soil profile or soil analysis or local (regional) cartographic soil-type map. (IFA Crops Base module).
	Chemical Oil, grease, hydraulic fluid, and fuel contamination	Equipment used for land preparation may have leaking hoses, failing hydraulic systems, engine oil loss, or other sources of contamination.	H	L	M	There is a low risk of many crops to be contaminated from leaks from equipment, providing routine maintenance is occurring accompanied by visible inspections during operation.	Equipment sensitive to food safety (e.g., plant protection product sprayers, irrigation/fertigation equipment, post-harvest product application equipment) maintained in a good state of repair, routinely verified and, where applicable, calibrated at least annually, and are records of measures taken within the previous 12 months available (IFA Crops Base module). Equipment sensitive to the environment and other equipment used on the farming activities (e.g., fertilizer spreaders, equipment used for weighing and temperature control) routinely verified and, where applicable, calibrated at least annually. The equipment used is kept in a good state of repair with documented evidence of up-to-date maintenance sheets for all repairs, oil changes, etc. undertaken. (IFA Crops Base module).

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
	Physical Foreign objects	Glass, metal, wire, garbage, etc. may be present in field	M	M	M	Visual checks and site assessment procedures are in place from the point of the pre-plant site selection through harvesting. Part of the pre-plant inspection includes an assessment of the production area. Employees are training to look for and remove foreign objects during the production season and harvest.	Workers receive specific training in hygiene before harvesting and handling produce. There is evidence that the workers received specific induction and annual training regarding the hygiene procedures for the harvesting and product handling activities. Workers are trained using written (in appropriate languages) and/or pictorial instructions to prevent physical (e.g., snails, stones, insects, knives, fruit residues, watches, mobile phones, etc.), microbiological and chemical contamination of the product during harvesting. Training records and evidence of attendance are available. (IFA Fruit and Vegetables module). Control of foreign material is required (Hop sub-scope). A site management plan that establishes strategies to minimize the risks identified in the risk assessment (IFA All Farm Base module) has been developed and implemented. A management plan addresses the risks identified and describes the hazard control procedures that justify that the site in question is suitable for production. This plan is appropriate to the farm operations, and there is evidence of its implementation and effectiveness. (IFA All Farm Base module) A hygiene risk assessment is performed for the harvest, pre-farm gate transport process, and post-harvest activities including product handling.

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
							There is a documented hygiene risk assessment covering physical, chemical and microbiological contaminants, spillage of bodily fluids (e.g., vomiting, bleeding), and human transmissible diseases, customized to the products and processes. It covers all harvest and product handling activities carried out by the producer, as well as personnel, personal effects, equipment, clothing, packaging material and product storage (also short-term storage at farm). The hygiene risk assessment is tailored to the activities of the farm, the crops, and the technical level of the business and is reviewed every time risks change and at least annually (IFA Fruit and Vegetables module).
Site History and Site Management	Biological Presence of pathogenic bacteria in water source due to upstream livestock activity.	Biological contamination of water source from feces of livestock and sewage/effluent.	H	L	H	The risk level would depend on risk analysis of the water source, type of crop grown, and agricultural practices. Fields located near livestock operations may need to be more frequently tested for water quality. Alternative water sources or water treatments may be necessary to mitigate the risk.	There is a reference system for each field, orchard, greenhouse, yard, plot, livestock building/pen, and/or other area/location used in production. Compliance shall include visual identification in the form of a physical sign at each farm area/location; or a farm map, identifying the location of water sources, storage/handling facilities, ponds, stables, etc. and that could be cross-referenced to the identification system. (IFA All Farm Base and Fruit and Vegetables modules). A management plan addresses the risks identified and describes the hazard control procedures that justify that the site in question is suitable for production.

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
							A recording system is established for each unit of production or other area/location to provide a record of the livestock/aquaculture production and/or agronomic activities undertaken at those locations. Records provide a history of GLOBALG.A.P. production of all production areas. (IFA All Farm Base and Fruit and Vegetables modules). Risk assessments take into account: Potential physical, chemical (including allergens) and biological hazards; Site history (for sites that are new to agricultural production, history of five years is advised and a minimum of one year is known) (IFA All Farm Base module). See All Farm Base module annexes for guidance on risk assessments. Fruit and Vegetables Annex includes guidance regarding flooding. Analyses are carried out by an appropriate laboratory accredited against ISO 17025 or equivalent standard and capable of performing microbiological analyses, or by laboratories approved for water testing by the local competent authorities. (IFA Fruit and Vegetables module). Untreated sewage is not used for irrigation/fertigation or other pre-harvest activities. (IFA Crops Base module). The producer prevents the use of human sewage sludge on the far. No treated or untreated human sewage sludge is used on the farm for the production of GLOBALG.A.P. registered crops. (IFA Crops Base module).

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
	Biological Contamination of soil by human pathogens	Biological contamination present after previous crop has been harvested i.e. residues due to drainage, location of field toilets – (human pathogens),	M	L	L	Toilets are provided at locations away from water sources. Crop rotation practices are followed.	Analyses are carried out by an appropriate laboratory accredited against ISO 17025 or equivalent standard and capable of performing microbiological analyses, or by laboratories approved for water testing by the local competent authorities. (IFA Fruit and Vegetables module). Water used on final product should be tested using an accredited lab (Hop sub-scope). Pre-planting interval complied with prior to planting. Pre-planting interval is recorded. (IFA Fruit and Vegetables module). Where feasible, there is crop rotation for annual crops to improve soil structure and minimize soil borne pests and diseases. Verified from planting date and/or plant protection product application records. Records exist for the previous 2-year rotation. (IFA Crops Base module). Harvest workers have access to clean toilets in the vicinity of their work. Field sanitation units are designed, constructed, and located in a manner that minimizes the potential risk for product contamination and allows direct accessibility for servicing. Fixed or mobile toilets (including pit latrines) are constructed of materials that are easy to clean and they are in a good state of hygiene. Toilets are in a reasonable proximity (e.g., 500m or 7 minutes) to place of work. Toilets are appropriately maintained and stocked. (IFA Fruit and Vegetables module, Hop sub-scope).

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
Soil Fumigation	Chemical Off-gassing of fumigant detected with approved instruments.	Incorrect application methods, which may include incorrect rate, improper water sealing, improper soil incorporation, or faulty equipment.	H	L	M	Written justification exists for fumigation. Trained fumigation operator supervises the application.	There is written evidence and justification for the use of soil fumigants including location, date, active ingredient, doses, method of application and operator. The use of methyl bromide as a soil fumigant is not permitted. (IFA Fruit and Vegetables module, Hop sub-scope) There is a record kept for training activities and attendees (IFA All Farm Base module) All workers handling and/or administering veterinary medicines, chemicals, disinfectants, plant protection products, biocides and/or other hazardous substances and all workers operating dangerous or complex equipment as defined in the risk analysis have evidence of competence or details of other such qualifications (IFA All Farm Base module) A recording system is established for each unit of production or other area/location to provide a record of the livestock/aquaculture production and/or agronomic activities undertaken at those locations. Records provide a history of GLOBALG.A.P. production of all production areas. (IFA Fruit and Vegetables module, Hop sub-scope).

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
	Biological Contamination pathogenic bacteria	Use of contaminated substrate.	H	L	M	Preferred suppliers have been identified. Protocols to prevent excessive wildlife intrusion exist.	Appropriate identification procedures are in place and records for identifying products purchased from different sources available for all registered products and a list of approved suppliers (IFA All Farm Base module). When producer participates in substrate recycling programs for substrates, records, quantities recycled and dates are recorded. (IFA Fruit and Vegetables module). Risk assessments take into account potential physical, chemical (including allergens), and biological hazards. For sites that are new to agricultural production, history of five years is advised and a minimum of one year are known) (IFA All Farm Base module).
Fertilizer Use	Chemical Heavy metals in excess of Maximum Permissible Concentration (MPC)	Using fertilizers and animal manures with excessive levels of heavy metals.	M	L	L	Products with excessive levels of heavy metals not used.	Analysis is carried out (or recognized standard values are used), which take into account the contents of NPK nutrients (nitrogen (N), phosphorus (P), potassium (K)) in organic fertilizer applied in order to avoid soil contamination (IFA Crops Base module). Recommendations for the application of fertilizers (organic or inorganic) are provided by competent and qualified persons (IFA Crops Base module). Records of all applications of soil and foliar fertilizers, both organic and inorganic, include the following criteria: Field, orchard or greenhouse reference and crop.

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
							Records are kept of all fertilizer applications, detailing the geographical area and the name or reference of the field, orchard, or greenhouse where the registered product crop is located. Records are also kept for hydroponic situations and where fertigation is used. (IFA Crops Base module). Documented evidence detailing chemical content, including heavy metals, is available for all inorganic fertilizers used on crops grown under GLOBALG.A.P. within the last 12-month period. (IFA Crops Base module). Before using a fertilizer of organic origin requires a risk assessment that covers; Type of organic fertilizer, treatment method to obtain the fertilizer, microbial contamination, weed content/seeds, heavy metal content, timing for the application. (IFA Crops Base module)

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
Application Machinery	Chemical Improper delivery rate of fertilizers and in furrow agrochemicals.	Application machinery used not calibrated.	L	L	L	Fertilizers in many cropping systems are applied prior to planting or early in the production season, before fruit or vegetable set. In-furrow treatments are often leached or degraded before harvest begins.	Equipment sensitive to the environment and other equipment used on the farming activities (e.g., fertilizer spreaders, equipment used for weighing and temperature control) routinely verified and, where applicable, is calibrated at least annually. The equipment used is kept in a good state of repair with documented evidence of up-to-date maintenance sheets for all repairs, oil changes, etc. undertaken. (IFA Crops Base module).
Fertilizer Storage	Chemical Contamination of crop protectant chemicals with fertilizers	Lack of segregation in storage area for crop protectant materials and fertilizers. Improper fertilizer storage.	H	L	H	Storage areas checked routinely and inventories taken during inspections. Fertilizers are labeled and staff trained in proper fertilizer storage procedures, according to their job duties.	Fertilizers shall not be stored with harvested products (IFA Crops Base module). All fertilizers are stored separately from plant protection products. The minimum requirement is to prevent physical cross-contamination between fertilizers (organic and inorganic) and plant protection products by using a physical barrier (wall, sheeting, etc.). Fertilizers that are applied together with plant protection products (i.e., micronutrients or foliar fertilizers) are packed in a closed container and can be stored with plant protection products. (IFA Crops Base module). It is necessary to take measures in the storage of fertilizers to reduce the risk of contamination to the environment and water sources. Liquid fertilizer storage/tanks must be surrounded by a waterproof barrier that can contain 110% of the largest container volume. (IFA Crops Base module).

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
Organic Fertilizer	Biological Contamination by human and animal pathogens	Microbes in fresh manure and untreated organic fertilizer.	H	H	H	Animal manure is either not used or treated via appropriate composting before use.	No treated or untreated human sewage sludge is used on the farm for the production of GLOBALG.A.P. registered crops. (IFA Crops Base module). Appropriate identification procedures are in place and records for identifying products purchased from different sources available for all registered products and a list of approved suppliers (IFA All Farm Base module). Organic fertilizers are stored in a designated area. Appropriate measures, adequate according to the risk assessment in have been taken to prevent the contamination of water sources (e.g., concrete foundation and walls, specially built leak-proof container, etc.) or shall be stored at least 25 meters from water sources. (IFA Crops Base module). Documented evidence is available to demonstrate that a food safety and environmental risk assessment for the use of organic fertilizer has been done, and that at least the following have been considered: type of organic fertilizer; method of treatment to obtain the organic fertilizer; microbial contamination (plant and human pathogens); weed/seed content; heavy metal content; timing of application and placement of organic fertilizer (e.g., direct contact to edible part of crop, ground between crops, etc.). (IFA Crops Base module).

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
	Physical Foreign objects	Glass, metal, plastic from contaminated animal manure	M	M	M	Hazard removed from field by staff trained to manage hazards. Subsequent control points support foreign object removal during handling and packing.	Appropriate identification procedures are in place and records for identifying products purchased from different sources available for all registered products and a list of approved suppliers (IFA All Farm Base module). Workers have received specific induction and annual training regarding the hygiene procedures for the harvesting and product handling activities. Workers are trained using written (in appropriate languages) and/or pictorial instructions to prevent physical (e.g., snails, stones, insects, knives, fruit residues, watches, mobile phones, etc.), microbiological, and chemical contamination of the product during harvesting. Training records and evidence of attendance is available. (IFA Fruit and Vegetables module).

6.3 SUB-SYSTEM: GROWING

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
Irrigation	Biological Contamination by human and animal pathogens	Biological contamination of water source from feces of livestock and sewage/effluent.	H	M	H	Livestock and sewage are excluded from water source. Water not applied directly onto many crops or close to harvest but high risk if untreated sewage is used. Level would depend on risk analysis of water source, type of crop grown, agricultural practices and end user. Water sources and site risk analysis in place.	There is a reference system for each field, orchard, greenhouse, yard, plot, livestock building/pen, and/or other area/location used in production. Compliance includes visual identification in the form of a physical sign at each farm area/location; or a farm map, identifying the location of water sources, storage/handling facilities, ponds, stables, etc. and that could be cross-referenced to the identification system (IFA All Farm Base and Crops Base modules). A risk assessment covering the microbiological quality of the water used in all pre-harvest operations is established. A management plan addresses the risks identified and describes the hazard control procedures that justify that the site in question is suitable for production. A recording system is established for each unit of production or other area/location to provide a record of the livestock/aquaculture production and/or agronomic activities undertaken at those locations. Records provide a history of GLOBALG.A.P. production of all production areas (IFA All Farm Base and Crops Base modules).

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
							Analyses are carried out by an appropriate laboratory accredited against ISO 17025 or equivalent standard and capable of performing microbiological analyses, or by laboratories approved for water testing by the local competent authorities. (IFA All Farm Base and Crops Base modules). Untreated sewage is not used for irrigation/fertigation or other pre-harvest activities. (IFA Crops Base module). The producer prevents the use of human sewage sludge on the farm. No treated or untreated human sewage sludge is used on the farm for the production of GLOBALG.A.P. registered crops. (IFA Crops Base module). Any ice or water used in relation to harvest or cooling meets microbial standards for drinking water and handled under sanitary conditions to prevent produce contamination. The only exception is in the case of cranberry fields that are harvested by flooding, where producers shall at a minimum guarantee that the water is not a source of microbiological contamination (IFA Crops Base module).

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
	Chemical contamination of irrigation water source	Registered and unregistered chemicals in water source (underground, surface) – dumping, accidental spillage or seepage.	H	M	M	Any spill to a water source is immediately reported and managed according to prevailing regulations. Spray applications are avoided near open water sources. Backflow devices are present on chemigation systems.	A risk assessment on physical and chemical pollution of water used on pre-harvest activities (e.g., irrigation/fertigation, washings, spraying) been completed and reviewed by the management within the last 12 months. The risk assessment shall be reviewed by the management every year and updated any time there is a change made to the system or a situation occurs that could introduce an opportunity to contaminate the system. The risk assessment shall address potential physical (e.g., excessive sediment load, rubbish, plastic bags, bottles) and chemical hazards and hazard control procedures for the water distribution system. (IFA Crops Base module). There is a written procedure for water testing during the production and harvest season, which includes frequency of sampling, who is taking the samples, where the sample is taken, how the sample is collected, the type of test, and the acceptance criteria (IFA Crops Base module). If according to the risk assessment and current sector specific standards there is a risk of contamination, the laboratory analysis provides a record of the relevant identified chemical and physical contaminants. Analysis results from an appropriate laboratory accredited against ISO 17025 or equivalent standard, or laboratories approved for water testing by the local competent authorities are available (IFA Crops Base modules).

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
	Heavy metals in excess of Maximum Permissible Concentrations	Run-off of fertilizers and animal manures with excessive levels of heavy metals.	M	L	L	Products with excessive levels of heavy metals not used.	Analysis results from an appropriate laboratory accredited against ISO 17025 or equivalent standard, or laboratories approved for water testing by the local competent authorities are available (IFA Crops Base modules). All fertilizers are stored in a manner that poses minimum risk of contamination to water sources. Liquid fertilizer stores/tanks are surrounded by an impermeable barrier to contain a capacity to 110% of the volume of the largest container, if there is no applicable legislation. (IFA Crops Base modules). No treated or untreated human sewage sludge is used on the farm for the production of GLOBALG.A.P. registered crops. No N/A. (Crops Base modules). Organic fertilizers are stored in a designated area. Appropriate measures, adequate according to the risk assessment have been taken to prevent the contamination of water sources (e.g., concrete foundation and walls, specially built leak-proof container, etc.) or shall be stored at least 25 meters from water sources (IFA Crops Base modules).

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
Fertilizer Use	Chemical Heavy metals in excess of Maximum Permissible Concentrations	Using fertilizers and animal manures with excessive levels of heavy metals.	M	L	M	Products with excessive levels of heavy metals not used.	All workers handling and/or administering veterinary medicines, chemicals, disinfectants, plant protection products, biocides and/or other hazardous substances and all workers operating dangerous or complex equipment as defined in the risk analysis have evidence of competence or details of other such qualifications (IFA All Farm Base module). Where the fertilizer records show that the technically responsible person determining quantity and type of the fertilizer (organic or inorganic) is an external adviser, training and technical competence is demonstrated via official qualifications, specific training courses, etc., unless employed for that purpose by a competent organization (e.g., official advisory services).Where the fertilizer records show that the technically responsible person determining quantity and type of fertilizer (organic or inorganic) the producer or designated employee, experience is complemented by technical knowledge (e.g., access to product technical literature, specific training course attendance, etc.) and/or the use of tools (software, on farm detection methods, etc.) (IFA Crops Base modules). Equipment sensitive to food safety (e.g., plant protection product sprayers, equipment, post-harvest product application equipment) maintained in a good state of repair, routinely verified and, where applicable, calibrated at least annually, and are records of measures taken within the previous 12 months available (IFA Crops Base modules).

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
							Analysis results from an appropriate laboratory accredited against ISO 17025 or equivalent standard, or laboratories approved for water testing by the local competent authorities are available (IFA Crops Base module). The types of soil are identified for each site, based on a soil profile or soil analysis or local (regional) cartographic soil-type map (IFA Crops Base module). A recording system is established for each unit of production or other area/location to provide a record of the livestock/aquaculture production and/or agronomic activities undertaken at those locations. Records provide a history of GLOBALG.A.P. production of all production areas. (IFA All Farm Base and Crops Base modules). An analysis from the supply is carried out or recognized standard values are used, which take into account the contents of NPK nutrients (nitrogen (N), phosphorus (P), potassium (K)) in organic fertilizer applied in order to avoid soil contamination (IFA Crops Base module).
Application Machinery	Chemical contamination due to inconsistent delivery rate.	Application machinery not properly maintained and calibrated.	L	M	L	Calibration of fertilizer delivery systems occurs at defined intervals, and records are kept.	Equipment sensitive to the environment and other equipment used on the farming activities (e.g., fertilizer spreaders, equipment used for weighing and temperature control) are routinely verified and, where applicable, calibrated at least annually.

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
							The equipment used is kept in a good state of repair with documented evidence of up-to-date maintenance sheets for all repairs, oil changes, etc. undertaken. (IFA Crops Base module).
Organic Fertilizer	Biological Contamination by human and animal pathogens (root and ground crops)	Microbes in fresh manure and untreated organic fertilizer.	M	H	H	Animal manure fertilizer is either not used or composted before use.	No treated or untreated human sewage sludge is used on the farm for the production of GLOBALG.A.P. registered crops. (IFA Crops Base module). A risk assessment is established and documented which considers the source, characteristics and intended use of organic fertilizer. Appropriate identification procedures are in place and records for identifying products purchased from different sources available for all registered products and a list of approved suppliers (IFA All Farm Base module). Organic fertilizers are stored in a designated area. Appropriate measures, adequate according to the risk assessment in have been taken to prevent the contamination of water sources (e.g., concrete foundation and walls, specially built leak-proof container, etc.) or shall be stored at least 25 meters from water sources (IFA Crops Base module). Documented evidence is available to demonstrate that a food safety and environmental risk assessment for the use of organic fertilizer has been done (IFA Crops Base module).

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
Crop protection Choice of Plant Protection Products (PPP) (herbicide, insecticides and fungicides)	Chemical Residue in excess of MRL	Unregistered chemical used for target crop. Pre-harvest interval not observed. Personnel not properly trained for application procedures.	H	L	H	Competent person makes the selection of plant protection products. Pre-harvest interval observed and referenced with product label Laboratory testing for MRL is part of the food safety plan, and recorded results kept on file.	The pre-harvest interval has been recorded for all plant protection product applications where a pre- harvest interval is stated on the product label or, if not on label, as stated by an official source (IFA Crops Base module). The producer or the producer's customer has available, a list of current applicable MRLs for all market(s) in which produce is intended to be traded (domestic and/or international). The MRLs are identified by either demonstrating communication with clients confirming the intended market(s), or by selecting the specific country(ies) (or group of countries) in which produce is intending to be traded and presenting evidence of compliance with a residue screening system that meets the current applicable MRLs of that country. Where a group of countries is targeted together for trading, the residue screening system meets the strictest current applicable MRLs in the group. Refer to Annex CB. 4 Residue Analysis. (IFA Crops Base module). Where the plant protection product records show that the technically responsible person making the choice of the plant protection products is an external qualified adviser, technical competence is demonstrated via official qualifications or specific training course attendance certificates.

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
							Where the plant protection product records show that the technically responsible person making the choice of plant protection products is the producer or designated employee, experience is complemented by technical knowledge that can be demonstrated via technical documentation (e.g., product technical literature, specific training course attendance, etc.) (IFA Crops Base module). When residue tests are required as a result of a risk assessment, the criteria relating to sampling procedures, accredited labs, etc., shall be followed. Analysis results have to be traceable back to the specific producer and production site where the sample comes from (IFA Crops Base module).
Application Equipment	Chemical Residue in excess of MRL	Incorrect application – incorrect rate or mixing, faulty equipment.	M	L	M	The people who operate the application equipment and perform the mixing are competent for this task. Application equipment are exposed to excessive use and have a wear over time may present deterioration of their parts.	The application machinery type (e.g., knapsack, high volume, U.L.V., via the irrigation system, dusting, fogger, aerial, or another method) for all the plant protection products applied (if there are various units, these are identified individually) is detailed in all plant protection product application records. If it is always the same unit of application machinery (e.g., only 1 boom sprayer), it is acceptable to record the details only once (IFA Crops Base module). Where the plant protection product records show that the technically responsible person making the choice of the plant protection products is an external qualified adviser, technical competence is demonstrated via official qualifications or specific training course attendance certificates.

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
							Where the plant protection product records show that the technically responsible person making the choice of plant protection products is the producer or designated employee, experience is complemented by technical knowledge that can be demonstrated via technical documentation (e.g., product technical literature, specific training course attendance, etc.) (IFA Crops Base module).
Disposal of Surplus Agrochemical Application Mix	Chemical Residue in excess of MRL	Incorrect rate applied, exceeding the labeled rate. Spray drift.	H	L	M	Agrochemicals are recycled or disposed of appropriately, and containers managed according to prevailing regulations.	Applying surplus spray and tank washings to the crop is a first priority under the condition that the overall label dose rate is not exceeded. Surplus mix or tank washings shall be disposed of in a manner that does compromise neither food safety nor the environment. Records are kept (IFA Crops Base module). The producer takes active measures to avoid the risk of pesticide drift from adjacent plots e.g., by making agreements and organizing communication with producers from neighboring plots in order to eliminate the risk for undesired pesticide drift, by planting vegetative buffers at the edges of cropped fields, and by increasing pesticide sampling on such fields (IFA Crops Base module). The producer takes active measures to avoid the risk of pesticide drift from own plots to neighboring production areas. This may include, but is not limited to, knowledge of what the neighbors are growing, maintenance of spray equipment, etc. (IFA Crops Base module).

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
Empty Plant Protection Product Containers	Chemical Container waste present on farm	Use of empty plant protection product for unapproved use or storage of other materials.	L	H	M	Containers stored in safe location away from produce and not re-used.	There is a designated secure store point for all empty plant protection product containers prior to disposal that is isolated from the crop and packaging materials (i.e., permanently marked via signage and locked (IFA Crops Base module). If there is an official collection system, the producer must have records that prove the correct disposal of this waste (IFA Crops Base module)
Expired plant protection products	Chemical	Use of obsolete plant protection product on crop.	H	L	M	Containers stored in safe location away from produce and not re-used. Inventory identifies expired materials until appropriate disposal or recycle arrangements are made.	There are records that indicate that obsolete plant protection products have been disposed of via officially authorized channels. When this is not possible, obsolete plant protection products are securely maintained and identifiable (IFA Crops Base module).

6.4 SUB-SYSTEM: HARVESTING

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
Harvest equipment	Chemical e.g. Oil, grease, hydraulic fluid, fuel as well as allergens	Equipment is in poor repair, resulting in leaks and possible sources of contamination. Equipment in contact with allergen-containing materials	H	L	L	Contaminated produce removed by harvesting and packing staff. It is presented if the containers used for the harvest have been used for other tasks different from this, have been stored inappropriately so that they can come in contact with phytosanitary products or other contaminants such as oils, fuels, among others.	Equipment sensitive to the environment and other equipment used on the farming activities (e.g., fertilizer spreaders, equipment used for weighing and temperature control) routinely verified and, where applicable, calibrated at least annually. The equipment used is kept in a good state of repair with documented evidence of up-to-date maintenance sheets for all repairs, oil changes, etc. undertaken (IFA Crops Base module). Workers receive specific induction and annual training regarding the hygiene procedures for the harvesting and product handling activities. Workers are trained using written (in appropriate languages) and/or pictorial instructions to prevent physical (e.g., snails, stones, insects, knives, fruit residues, watches, mobile phones, etc.), microbiological and chemical contamination of the product during harvesting. Training records and evidence of attendance are available (IFA Fruit and Vegetables module). Hygiene training required by Hop sub-scope as well.

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
							When the producer makes use of subcontractors, he/she oversees their activities in order to ensure that those activities relevant to GLOBALG.A.P. CPCC comply with the corresponding requirements (IFA All Farm Base module). Where applicable, soil maps been prepared for the farm. The types of soil are identified for each site, based on a soil profile or soil analysis or local (regional) cartographic soil-type map. (IFA Crops Base module).
	Biological Contamination	Contamination of harvest containers with soil and water.	H	M	H	Containers inspected before use and cleaned as per the risk assessment. It is presented if the containers used for the harvest are not cleaned and disinfected regularly before and after they have been used. The water used to clean the containers with the presence of bacteria such as E. coli and total coliforms can affect both the product and the health of workers.	Workers receive specific induction and annual training regarding the hygiene procedures for the harvesting and product handling activities. Workers are trained using written (in appropriate languages) and/or pictorial instructions to prevent physical (e.g., snails, stones, insects, knives, fruit residues, watches, mobile phones, etc.), microbiological and chemical contamination of the product during harvesting. Training records and evidence of attendance are available (IFA Fruit and Vegetables module).

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
							The operation shall nominate the farm manager or other competent person as responsible for the implementation of the hygiene procedures by all workers and visitors. When the risk assessment determines that specific clothing (e.g., smocks, aprons, sleeves, gloves, footwear) shall be used, it shall be cleaned when it becomes soiled to the point of becoming a risk of contamination and shall be effectively maintained and stored. Visual evidence shows that no violations of the hygiene instructions and procedures occur (IFA Fruit and Vegetables module). There is a documented hygiene risk assessment covering physical, chemical and microbiological contaminants, spillage of bodily fluids (e.g., vomiting, bleeding), and human transmissible diseases, customized to the products and processes. It shall cover all harvest and product handling activities carried out by the producer, as well as personnel, personal effects, equipment, clothing, packaging material and product storage (also short-term storage at farm).

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
							The hygiene risk assessment shall be tailored to the activities of the farm, the crops, and the technical level of the business and be reviewed every time risks change and at least annually (IFA Fruit and Vegetables module). Hygiene training required by Hop sub-scope. Analysis results from an appropriate laboratory accredited against ISO 17025 or equivalent standard, or laboratories approved for water testing by the local competent authorities are available (IFA Crops Base module).
	Biological	Lack of specific hygiene training.	H	M	H	Hygiene training is conducted and records of training kept. Toilet paper disposed of outside of toilet area. When workers circulating in crop areas, harvest areas have inadequate attitudes (e.g., throwing spits, bringing food to areas, presenting infectious-contagious diseases, wounds, not using the bathroom and/or not washing hands properly). There may be a risk of contamination also if	Are signs that communicate the primary hygiene instructions to workers and visitors, including at least instructions to workers, to wash their hands before returning to work clearly displayed? Signs with the main hygiene instructions shall be visibly displayed in the relevant locations and include clear instructions that hands shall be washed before handling produce. Workers handling ready to eat products shall wash their hands prior to start of work, after each visit to a toilet, after handling contaminated material, after smoking or eating, after breaks, prior to returning to work, and at any other time when their hands may have become a source of contamination.

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
						workers do not always wear clean clothes during the harvest and handling of the product.	Smoking, eating, chewing, and drinking are confined to designated areas away from crops awaiting harvest and are never permitted in the produce handling or storage areas, unless indicated otherwise by the hygiene risk assessment. (Drinking water is the exception). (Fruit and Vegetables, Hop modules)
Packaging/ Harvesting Containers on Farm	Physical Foreign objects	Wood splinters, nails, metal from damaged containers/equipment. Glass, metal, rubbish in containers from previous use. Staff throwing glass containers and rubbish onto ground or into containers. Collection tools in poor condition can give off parts that remain in the harvested product. The inadequate cleaning of the tools after being used, can put at risk the quality of the work and the safety of the product.	M	L	L	Contamination usually external with slight chance of hazard being embedded in produce. Hazard removed by harvesting and packing staff.	All harvested produce (regardless stored bulk or packed) shall be protected from contamination. In the case of produce packed and handled directly in the field, it shall all be removed from the field during the day (not stored on the field overnight in open-air conditions), in accordance with the harvest hygiene risk assessment results. Food safety requirements shall be complied with if produce is stored on a short time basis at the farm (IFA Fruit and Vegetables module). Reusable harvesting containers, harvesting tools (e.g., scissors, knives, pruning shears, etc.) and harvesting equipment (e.g., machinery) are cleaned and maintained. A documented cleaning (and, when indicated by the risk assessment, disinfection) schedule is in place to prevent produce contamination.

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
							Produce containers are only used to contain harvested product (i.e., no agricultural chemicals, lubricants, oil, cleaning chemicals, plant or other debris, lunch bags, tools, etc.) (IFA Fruit and Vegetables module).
	Chemical Residues of chemicals (including allergens)	Spillage/leakage from chemicals transported with produce. Chemical and fertilizer spills on pallets and in vehicle from previous use. Lubricants, oil, cleaning chemicals lunch bags etc. Cross-contact with allergen containing materials	H	L	M	Pallets and vehicle checked before use. Produce harvested into containers is protected from contamination.	Packaging material used shall be appropriate for the food safety of the products packed. To prevent product contamination, packing materials (including re-useable crates) shall be stored in a clean and hygienic area (IFA Fruit and Vegetables module). Transportation of finished bales to protect from risk covered in Hop sub-scope. To avoid chemical contamination of produce, cleaning agents, lubricants etc. shall be kept in a designated secure area, away from produce (IFA Fruit and Vegetables module).
	Biological Contamination from human and animal pathogens	Alternative use of produce containers	H	L	M	Produce harvested into containers is protected from contamination.	All harvested produce (regardless stored bulk or packed) shall be protected from contamination.

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
						It is presented if the containers, collection areas/Storage/distribution points used to harvest are not cleaned and disinfected regularly before and after they have been used. The water used to clean the containers with the presence of bacteria such as E. coli and total coliforms can affect both the product and the health of workers.	In the case of produce packed and handled directly in the field, it shall all be removed from the field during the day (not stored on the field overnight in open-air conditions), in accordance with the harvest hygiene risk assessment results. Food safety requirements shall be complied with if produce is stored on a short time basis at the farm (IFA Fruit and Vegetables module). All collection/storage/distribution points of packed produce, also those in the field, maintained in clean and hygienic conditions To prevent contamination, all on-and off-farm storage and produce handling facilities and equipment (i.e., process lines and machinery, walls, floors, storage areas, etc.) shall be cleaned and/or maintained according to a documented cleaning and maintenance schedule that includes defined minimum frequency. Records of cleaning and maintenance shall be kept (IFA Fruit and Vegetables module). Are packing materials appropriate for use, and are they used and stored in clean and hygienic conditions so as to prevent them from becoming a source of contamination?

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
							Packaging material used shall be appropriate for the food safety of the products packed. To prevent product contamination, packing materials (including re-useable crates) shall be stored in a clean and hygienic area (IFA Fruit and Vegetables module). Analysis results from an appropriate laboratory
Produce packed at point of harvest	Chemical Contamination of the packing material (including allergens)	Packing material is not stored appropriately	M	L	M	Packing material is protected from contamination.	Are the harvest containers used exclusively for produce and are these containers, the tools used for harvesting and the harvest equipment appropriate for their intended use and cleaned, maintained and able to protect the product from contamination? Reusable harvesting containers, harvesting tools (e.g., scissors, knives, pruning shears, etc.) and harvesting equipment (e.g., machinery) are cleaned and maintained. A documented cleaning (and, when indicated by the risk assessment, disinfection) schedule is in place to prevent produce contamination.

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
							Produce containers are only used to contain harvested product (i.e., no agricultural chemicals, lubricants, oil, cleaning chemicals, plant or other debris, lunch bags, tools, etc.) (IFA Fruit and Vegetables module). Transportation of finished hop bales covered in Hop sub-scope.
	Biological Contamination from human and animal pathogens	Ice used at point of harvest is not potable Inappropriate handling practices Poor personal hygiene	H	L	H	Ice not always used. Ice most of the time handled in a hygienic way	Any ice or water used in relation to harvest or cooling shall meet microbial standards for drinking water and shall be handled under sanitary conditions to prevent produce contamination. The only exception is in the case of cranberry fields that are harvested by flooding, where producers shall at a minimum guarantee that the water is not a source of microbiological contamination (IFA Fruit and Vegetables module). Hop sub-scope addresses water used during harvest handling processes. Documented hygiene procedures and instructions for the harvest and post-harvest processes including product handling (also when they take place directly on the field, orchard or greenhouse) designed to prevent contamination of crop, crop production areas, food contact surfaces and harvested product.

6.5 SUB-SYSTEM: PRODUCE HANDLING

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
Produce Handling Hygiene	Biological Contamination from human pathogens	Inappropriate handling practices Poor personal hygiene.	H	L	H	Personal hygiene standards followed.	Hygiene risk assessment performed for the harvest, pre-farm gate transport process, and post-harvest activities including product handling. There is a documented hygiene risk assessment covering physical, chemical and microbiological contaminants, spillage of bodily fluids (e.g., vomiting, bleeding), and human transmissible diseases, customized to the products and processes. It shall cover all harvest and product handling activities carried out by the producer, as well as personnel, personal effects, equipment, clothing, packaging material and product storage (also short-term storage at farm). The hygiene risk assessment shall be tailored to the activities of the farm, the crops, and the technical level of the business and be reviewed every time risks change and at least annually. (IFA Fruit and Vegetables module). Hygiene requirements also found in Hop sub-scope.

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
							Documented hygiene procedures and instructions for the harvest and post-harvest processes including product handling (also when they take place directly on the field, orchard or greenhouse) designed to prevent contamination of crop, crop production areas, food contact surfaces and harvested product. Based on the risk assessment, there are documented hygiene procedures for the harvesting and post-harvesting processes. Procedures shall include evaluating whether workers are fit to return to work after illness (IFA Fruit and Vegetables module). Are the hygiene procedures and instructions for the harvest and post-harvest activities, including product handling, implemented? The operation shall nominate the farm manager or other competent person as responsible for the implementation of the hygiene procedures by all workers and visitors. When the risk assessment determines that specific clothing (e.g., smocks, aprons, sleeves, gloves, footwear) shall be used, it shall be cleaned when it becomes soiled to the point of becoming a risk of contamination and shall be effectively maintained and stored.

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
							Visual evidence shows that no violations of the hygiene instructions and procedures occur (IFA Fruit and Vegetables module). There shall be evidence that the workers received specific induction and annual training regarding the hygiene procedures for the harvesting and product handling activities. Workers shall be trained using written (in appropriate languages) and/or pictorial instructions to prevent physical (e.g., snails, stones, insects, knives, fruit residues, watches, mobile phones, etc.), microbiological and chemical contamination of the product during harvesting. Training records and evidence of attendance shall be available (IFA Fruit and Vegetables module).
Post-harvest washing	Biological Contamination from human pathogens	Fecal contamination of water source either directly from animals or indirectly from run-off or seepage. Re-circulating water without filtering	H	L	H	Low if water assessment identifies low risk – produce has non-edible skin or contamination is highly unlikely. High if water assessment identifies high risk – significant loss of sales if food poisoning occurs.	The water has been declared suitable by the competent authorities and/or a water analysis has been carried out at the point of entry into the washing machinery within the last 12 months. The levels of the parameters analyzed are within accepted WHO thresholds or are accepted as safe for the food industry by the competent authorities (IFA Fruit and Vegetables module).

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
							Where water is re-circulated for final produce washing, it is filtered and disinfected, and pH, concentration and exposure levels to disinfectant are routinely monitored. Records are maintained. Filtering shall be done using an effective system for solids and suspensions that have a documented routine cleaning schedule according to usage rates and water volume. Where recording of automatic filter backwash events and changes in dosage rates by automated sanitizer injectors may be impossible, a written procedure/policy shall explain the process (IFA Fruit and Vegetables module). Washing and handling areas may be addressed in the environmental monitoring program, if the risk assessment has determined it to be necessary.

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
Packing and other applications of compressed air, compressed gas, and steam	Biological Contamination or chemical contamination (oil, etc.)	Contamination of air by proximity to contaminated areas or improperly maintained equipment (e.g., machinery discharges oil into air or steam line)	H	L	M	Fresh fruit and vegetables are only rarely packed in air-tight bags, as some air exchange with the environment is required for ethylene gas to escape. If managed properly, steam should present a low contamination risk, as long as the water has reached a temperature adequate for rendering microorganisms unviable.	Producers should ensure that their compressed air and gas systems are managed and maintained in a manner that prevents contamination. Testing of the air and gas systems may be required per individual risk assessment. Steam systems should use water from tested sources only and be included in water-use risk assessments for the produce handling process.
Post-harvest washing	Chemical (including allergens) Chemical Residue in excess MRL	Unregistered chemical used for post-harvest treatment. Personnel not properly trained in application procedures	H	L	H	Competent person makes the selection of plant protection products. Application equipment are exposed to excessive use and have a wear over time may present deterioration of their parts.	The application machinery type (if there are various units, these are identified individually) is detailed in all post-harvest treatment application records. If it is always the same unit of application machinery (e.g., only 1 boom sprayer), it is acceptable to record the details only once (IFA Crops Base module). Where the plant protection product records show that the technically responsible person making the choice of the plant protection products is an external qualified adviser, technical competence is demonstrated via official qualifications or specific training course attendance certificates.

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
							Where the plant protection product records show that the technically responsible person making the choice of plant protection products is the producer or designated employee, experience is complemented by technical knowledge that can be demonstrated via technical documentation
Storage areas	Biological Bird droppings in area	Contamination of packaging, brushes, rollers, belts with bird droppings	H	L	M	Regular equipment cleaning carried out. Screens used to prevent bird intrusion.	Producers shall implement measures to control pest populations in the packing and storing areas appropriate to the farm condition (IFA Fruit and Vegetables module, Hop sub-scope). Has a hygiene risk assessment been performed for the harvest, pre-farm gate transport process, and post-harvest activities including product handling? There is a documented hygiene risk assessment covering physical, chemical and microbiological contaminants, spillage of bodily fluids (e.g., vomiting, bleeding), and human transmissible diseases, customized to the products and processes. It shall cover all harvest and product handling activities carried out by the producer, as well as personnel, personal effects, equipment, clothing, packaging material and product storage (also short-term storage at farm).

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
							The hygiene risk assessment shall be tailored to the activities of the farm, the crops, and the technical level of the business and be reviewed every time risks change and at least annually (IFA Fruit and Vegetables module). Are the harvest containers used exclusively for produce and are these containers, the tools used for harvesting and the harvest equipment appropriate for their intended use and cleaned, maintained and able to protect the product from contamination? Reusable harvesting containers, harvesting tools (e.g., scissors, knives, pruning shears, etc.) and harvesting equipment (e.g., machinery) are cleaned and maintained. A documented cleaning (and, when indicated by the risk assessment, disinfection) schedule is in place to prevent produce contamination. Produce containers are only used to contain harvested product (i.e., no agricultural chemicals, lubricants, oil, cleaning chemicals, plant or other debris, lunch bags, tools, etc.) (IFA Fruit and Vegetables module).

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
							The environmental monitoring program may include management of storage areas if deemed appropriate by the risk assessment.
Packing and storage area	Chemical Residues (including allergens)	Incorrect cleaning procedures. Incorrect storage of cleaning chemicals Cross-contact with allergen-containing materials	M	L	L	Use of food grade chemicals and/or registered for use of cleaning of food contact areas. Appropriate segregation where relevant	Reusable harvesting containers, harvesting tools (e.g., scissors, knives, pruning shears, etc.) and harvesting equipment (e.g., machinery) are cleaned and maintained. A documented cleaning (and, when indicated by the risk assessment, disinfection) schedule is in place to prevent produce contamination. Produce containers are only used to contain harvested product (i.e., no agricultural chemicals, lubricants, oil, cleaning chemicals, plant or other debris, lunch bags, tools, etc.) (IFA Fruit and Vegetables module). Transport and handling of hop bales covered in Hop sub-scope. Documented evidence exists (i.e., specific label mention or technical data sheet) authorizing use for the food industry of cleaning agents, lubricants etc. that may come into contact with produce (IFA Fruit and Vegetables module). To avoid chemical contamination of produce, cleaning agents, lubricants etc. shall be kept in a designated secure area, away from produce (IFA Fruit and Vegetables module).

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
	Oil, grease	Oil leaks, broken seals, excessive use of grease.	M	L	L	Contaminated produce removed by grading and packing staff.	Collection/storage/distribution points of packed produce, also those in the field, maintained in clean and hygienic conditions. To prevent contamination, all on- and off-farm storage and produce handling facilities and equipment (i.e., process lines and machinery, walls, floors, storage areas, etc.) shall be cleaned and/or maintained according to a documented cleaning and maintenance schedule that includes defined minimum frequency. Records of cleaning and maintenance shall be kept (IFA Fruit and Vegetables module). A record is kept for training activities, including the topic covered, the trainer, the date and a list of the attendees. Evidence of attendance is required (IFA Fruit and Vegetables module). Hygiene training required by Hop sub-scope.
	Physical Foreign objects	Nails and splinters from damaged pallets.	M	L	L	Pallets checked before use and repaired or rejected. Packaging container protects most produce.	Are packing materials appropriate for use, and are they used and stored in clean and hygienic conditions so as to prevent them from becoming a source of contamination? Packaging material used shall be appropriate for the food safety of the products packed.

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
							To prevent product contamination, packing materials (including re-useable crates) shall be stored in a clean and hygienic area (IFA Fruit and Vegetables module). All harvested produce (regardless stored bulk or packed) shall be protected from contamination. In the case of produce packed and handled directly in the field, it shall all be removed from the field during the day (not stored on the field overnight in open-air conditions), in accordance with the harvest hygiene risk assessment results. Food safety requirements shall be complied with if produce is stored on a short time basis at the farm (IFA Fruit and Vegetables module).
	Foreign objects	Metal shavings and paint flakes from equipment. Glass and hard plastic from broken lights. Presence of other foreign objects (stones, twigs) previously not detected by staff.	M	L	L	Some equipment allows foreign objects to fall through. Contamination usually external. Breaking of lights unlikely, due to location and protective cages.	Equipment sensitive to food safety (e.g., plant protection product sprayers, irrigation/fertigation equipment, post-harvest product application equipment) is maintained in a good state of repair, routinely verified and, where applicable, calibrated at least annually, and are records of measures taken within the previous 12 months available The equipment is kept in a good state of repair with documented evidence of up-to-date maintenance sheets for all repairs, oil changes, etc. undertaken (IFA Crops Base module).

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
							Written procedures exist for handling glass and/or clear hard plastic breakages, which could be a source of physical contamination and/or damage the product (e.g., in greenhouses, produce handling, preparation and storage areas) (IFA Fruit and Vegetables module).

6.6 SUB-SYSTEM: WASTE AND POLLUTION MANAGEMENT, RECYCLING AND RE-USE

Process	Potential Hazard	Cause	Severity	Likelihood	Significance	Reason for Significance rating	Control Measures
Identification of waste and pollutants	Biological Contamination	Insufficient waste management and removal Excessive waste is breeding place for vermin and pathogens	M	M	M	Identification and frequent removal of waste	Visual assessment shall show that there is no evidence of waste/litter in the immediate vicinity of the production site(s) or storage buildings. Incidental and insignificant litter and waste on the designated areas are acceptable as well as the waste from the current day's work. All other litter and waste shall be cleared up, including fuel spills (IFA All Farm Base module). Organic waste material is composted and used for soil conditioning. The composting method ensures that there is no risk of pest, disease or weed carry-over (IFA All Farm Base module).

7 HACCP TABLE

After having completed the comprehensive hazard analysis, a HACCP table is compiled for all the critical control points identified. These are the points from the hazard analysis results that were rated as having a high significance and have verifiable control measures to mitigate the risk.

The HACCP table document processes that are critical control points (CCPs), the following information:

1) Potential hazards
2) Control measures
3) Critical limits and monitoring procedures for control measures
4) Records

A critical control point is a process where a food safety hazard of high significance can occur and control of the hazard is necessary for food safety.

Critical Control Point	Potential Hazard	Control Measure	Critical Limit	Monitoring Procedure	Corrective Action	Records
Site History	Biological Presence of human pathogens in water source	Risk analysis is performed, covering soil, water, prior use	No critical risk to food safety, operator health and environment.	This is done for each new site. Records are kept. Corrective action is set out for potential negative impact.	Site is not used when a non-controllable risk that is critical to health and/or environment is identified.	Soil analysis Water analysis Water use rights
Fertilizer Storage	Chemical Contamination of fresh produce	Chemicals are stored separate from fresh produce and plant propagation material.	Chemical store is dedicated to storage of chemicals.	Inventory of chemicals needed for crops in rotation is available – checked regularly.	Review storage areas. Retrain personnel involved with pesticides on regulations.	Inventory Policy
Organic Fertilizer	Biological Contamination by human pathogens (root and ground crops)	Human sewage sludge is not used on the farm	Under no circumstances are human sewage sludge used on the farm	Microbial analysis of organic fertilizer.	Organic fertilizer is not used if it is of human origin	Microbial analysis
Irrigation	Biological Contamination by human pathogens	Untreated human sewage water is not used on the farm for irrigation	Treated human sewage water complies with regulations.	Microbial analysis of irrigation water.	Human sewage water must be treated before use.	Microbial analysis before and after treatments.

Critical Control Point	Potential Hazard	Control Measure	Critical Limit	Monitoring Procedure	Corrective Action	Records
Pesticide Spraying	Chemical Residue in excess of MRL	Observing the pre-harvest interval as per product label instructions	The prescribed pre-harvest interval as per product label instructions	Observing the pre-harvest interval as per product label instructions and as per PPP application record entries	Delay harvesting until pre-harvest interval is observed.	PPP application record entries
		Person responsible for chemical application (owner) and spray operator is trained in chemical use.	Only trained person applies pesticides.	Each year owner checks that his/her farm chemical user training certificate is current and spray operator is trained.	Owner and/or sprayer attend refresher course. Retrain spray operator.	Training course certificate. Farm operation records.
		Chemical used are approved and applied according to directions.	Only approved chemicals are used and always applied according to directions.	At the start of each season, owner checks that pesticides are approved and mixing procedures are correct.	Pesticide not used if approval withdrawn. If mixing incorrect, retrain spray operator.	Current list of chemicals approved. Current list of banned chemicals.
		Chemicals applied according to directions.	Chemicals always applied according to directions.	At the start of each season, owner checks that mixing procedures are correct.	If mixing incorrect, retrain spray operator.	Label instructions for each chemical used. Equipment calibration record.
		Equipment is calibrated regularly/annually.	Equipment calibrated at least annually.	Owner annually checks calibration record.	Calibrate equipment.	Equipment calibration record.
Harvesting - Hygiene	Biological Contamination from human pathogens	Hygiene risk analysis	Observe Hygiene Rules Hand washing procedures	Supervisor checks Containers visual inspection	Re-training in terms of general hygiene protocol when working with fresh produce	Hand washing log Training certificates

Critical Control Point	Potential Hazard	Control Measure	Critical Limit	Monitoring Procedure	Corrective Action	Records
Produce Handling hygiene	Biological Contamination from human pathogens	Hygiene risk analysis	Observe Hygiene Rules No jewelry. Length of fingernails Smoking, eating and chewing - only in dedicated areas	Supervisor checks Induction training	Re-training if necessary Disciplinary action	Handwashing log Training certificates Attendance records of training
Post-harvest Washing	Microbial Contamination from human pathogens	Wash water treated.	Microbial limits adhered to for water used for washing (via suggested levels for chlorine and pH) Defined by prevailing regulation and product label.	Supervisor checks chlorine level and pH of wash water for each treatment run.	Adjust product concentrations as per label (addition of chlorine / adjustment of pH) Delivery equipment adjusted or repaired.	Treatment Record.
Post-harvest chemical treatment	Chemical Residue in excess of MRL	Person responsible for chemical application (owner) is trained in chemical use.	Treatment application as per prescribed product instruction label Only trained person applies chemicals.	Observe prescribed product instruction label Each year, owner checks that his/her farm chemical user training certificate is current.	Adjust product concentrations as per instruction label Owner and/or chemical user attend refresher course.	Training course certificate.
Post-harvest chemical treatment	Chemical Residue in excess of MRL	Chemicals used are approved.	Only approved chemicals are used.	At the start of each season, owner checks that chemicals are approved.	Chemical not used if approval withdrawn.	Post-harvest chemical record.
		Chemicals applied according to directions.	Chemicals always applied according to directions.	At the start of each season, owner checks that mixing procedures are correct.	If mixing incorrect, retrain spray operator. Mixing procedure amended if chemical directions change.	Label instructions for each chemical used.
		Operation of equipment is checked regularly.	Equipment always operates effectively.	Owner checks operation of equipment for each treatment run.	Equipment adjusted or repaired.	Maintenance schedule.

8 VERIFICATION SCHEDULE

Activity	Description	Frequency	Responsibility	Records
Internal audit	Verify that activities comply with documented requirements.	Once/year	Owner/team	Audit report
	Identify areas of poor performance and opportunities for improvement.			
Site inspection program	Self-assessment including a program of site inspections to ensure site and equipment are routinely maintained	Once/year	Owner/team	Self-assessment (could be combined with internal audit)
Review hazards and risks	Review risk management systems and HACCP plan	Once/year or after changes	Owner/team	Hazards analysis report
Validate critical limits	Check that critical limits are appropriate.	Once/year	Owner/team	"HACCP" table
Review monitoring and corrective action records	All records to be checked to ensure system is followed and limits adhered to.	Per activity	Owner/team	Records
Water testing	Water testing for microbial and chemical quality as required	Once/year/per identified risk	Owner/team	Test results
Chemical residue testing	Product testing for chemical residues	Once/year As per testing schedule	Owner/team	Test results
Traceability test	Test the traceability system	Once/year	Owner/team	Traceability test record

9 SUPPORT PROGRAMS

9.1 PRODUCT IDENTIFICATION AND TRACEABILITY

Each batch of harvested produce is clearly marked with block/farm ID and a record is kept of the harvest date and block/farm ID.

Produce ready for delivery to customers can be traced back to, and tracked from the registered farmer or, at packhouse level, group of registered farms *(IFA Crops Base module).*

9.2 TRAINING

Person responsible for advice on quantity and type of fertilizer has a certificate/diploma to demonstrate competence *(IFA Crops Base module).*

All personnel who physically handle or apply plant protection products can demonstrate competence *(IFA All Farm Base module).*

Staff are trained to achieve the product and handling specifications.
Staff are instructed in personal hygiene practices *(IFA All Farm Base and Crops Base modules).*

9.3 SITE AND PREMISES

Prior use of the growing area is checked to ensure that the soil is not a source of contamination. If unsure the soil is tested for potential hazards.

A risk assessment that takes into account type of soil, erosion, quality and level of groundwater, availability of sustainable water sources, and impact on adjacent area should be available *(IFA All Farm Base module).*

A management plan is established that addresses the strategies to minimize the risks identified in the risk assessment. Such management plan is implemented, maintained and reviewed regularly to ensure sustainability and effectiveness.

Every field, orchard, vineyard or greenhouse is physically identifiable *(IFA All Farm Base module)*.

Soil fumigation should be justified and alternatives should be assessed *(IFA Fruit and Vegetables module)*.
Premises used for handling, packing, and storage are suitable for the preparation of safe produce *(IFA Fruit and Vegetables module)*.

Where the risk assessment indicated potential food allergen cross-contamination, the products are labeled accordingly to identify such allergens.

9.4 EQUIPMENT AND MATERIALS

Equipment and materials that come in contact with produce are checked, calibrated and maintained to prevent physical and chemical contamination *(IFA Crops Base and Fruit and Vegetables modules)*.

Equipment should be designed in a manner as to be easily cleaned.

Maintenance activities with regard to equipment should not pose a risk to food safety.

9.5 CLEANING

An appropriate housekeeping, cleaning and disinfection programme shall be established, implemented, maintained and monitored. Its effectiveness in eliminating food safety risks shall be measured. A risk-based environmental monitoring program is established.

Written instructions are followed for the cleaning of produce containers, equipment that comes in contact with produce, and areas where produce is handled, packed and stored *(IFA Fruit and Vegetables module)*.

Where the risk of microbial contamination is high, produce containers and equipment that comes in contact with produce are regularly sanitized (*IFA Fruit and Vegetables module)*.
Correct procedures are followed for the storage, handling and disposal of cleaning chemicals *(IFA Fruit and Vegetables module)*.

Cleaning chemicals used according to label specifications. Cleaning facilities, equipment and chemical materials shall be suitable for their intended use *(IFA Fruit and Vegetables module)*.

Cleaning is done after produce has been packed to eliminate cross-contamination. Cleaning activities should not present a food safety risk *(IFA Fruit and Vegetables module)*.

9.6 PEST CONTROL

Written instructions are followed for pest control to minimize the presence of pests in and around handling, packing and storage areas *(IFA Fruit and Vegetables module)*.

Baits and traps are located where they will not contaminate produce and instructions are followed for chemicals used for pest control (*IFA Fruit and Vegetables module*).

A detailed map exists of location of bait stations, traps and fly-catchers (IFA Fruit and Vegetables module). Records are kept for replacement of bait *(IFA Fruit and Vegetables module).*

9.7 CALIBRATION

Equipment used to measure and apply chemicals is calibrated according to manufacturer instructions or training guides and a record is maintained *(IFA Crops Base module)*.

9.8 PERSONAL HYGIENE

Clean toilets and hand washing facilities are readily accessible to staff (within at least 500 m from where they are working) *(IFA Fruit and Vegetables module)*.

Verbal instructions on personal hygiene practices are provided to staff and reinforced with written instructions that are easy to understand *(IFA All Farm Base and Fruit and Vegetables modules)*.

9.9 STORAGE AND TRANSPORT

Correct procedures are followed for storage, handling and disposal of chemicals to prevent contamination of produce. Activities during storage and transport shall prevent cross-contamination of produce from agricultural inputs, cleaning agents, or personnel who come directly into contact with other sites, animals or produce. The risk assessment shall define what workers should do with products that fall to the ground or are dropped, excluding produce that grows in the ground *(IFA Crops Base module).*

Packaging containers and materials are stored in a dry, well-ventilated area and checked for cleanliness and pest infestation before use *(IFA Fruit and Vegetables module)*.

Pallets are checked before use for possible contamination from soil, chemical spills, foreign objects and pests. If unsuitable they are rejected, cleaned or covered with protective material *(IFA Fruit and Vegetables module)*.

Operators transporting produce carry out practices to prevent contamination of produce during delivery to the on-farm packhouse. In case of produce packed in the field, it shall be removed from the field during the day and not stored in the field overnight *(IFA Fruit and Vegetables module)*.

If ice, water, steam or compressed gas is used during any operation relating to harvest, handling or cooling, it meets the relevant microbial standards and is handled under sanitary conditions to prevent produce contamination.

Stock rotation procedures are in place where relevant to the industry.

9.10 PURCHASING

Materials and services that can affect produce food safety are contracted from approved suppliers *(IFA All Farm Base module).*

Clear specifications are provided when purchasing materials and services that can affect produce food safety. All externally purchased products, materials, and services which have an effect on food safety conform to specified requirements or specification as well as food safety and regulatory requirements. Materials and services need to comply with the requirements of the standard.

Purchased inorganic fertilizers are accompanied by documentary evidence of chemical content *(IFA Crops Base module).*

Invoices of the registered plant protection products used are kept *(IFA Crops Base module).*

All outsourced processes, products and materials impacting food safety are identified, documented, and controlled.

A procedure for the evaluation, approval and continued monitoring of suppliers which have an effect on food safety is established, with a procedure established for securing product and services in emergency. Results of evaluations, rejections and follow up actions shall be recorded.

9.11 FOOD DEFENSE

A risk assessment for food defense and associated procedures are in place to address identified food defense risks. Potential threats to food safety in all phases of the operation are identified.

9.12 FOOD FRAUD

A food fraud vulnerability risk assessment is documented to identify potential vulnerability to food fraud.

10 DEFINITIONS

1) CONTROL:

a) To manage the conditions of an operation to maintain compliance with established criteria.
b) The state where correct procedures are being followed and criteria are being met.

2) CONTROL MEASURE:

Any action or activity that can be used to prevent, eliminate or reduce a significant hazard.

3) CONTROL POINT:

Any step at which biological, chemical (including allergens), physical and radiological factors can be controlled.

4) CORRECTIVE ACTION:

Procedures followed when a deviation occurs.

5) CRITERION:

A requirement on which a judgment or decision can be based.

6) 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.

7) CRITICAL LIMIT:

A maximum and/or minimum value to which a biological, chemical or physical parameter must be controlled at a CCP to prevent, eliminate or reduce to an acceptable level the occurrence of a food safety hazard.

8) DEVIATION:

Failure to meet a critical limit.

9) HACCP: (HAZARD ANALYSIS CRITICAL CONTROL POINTS)

A systematic approach to the identification, evaluation, and control of food safety hazards.

10) HACCP PLAN:

The written document which is based upon the principles of HACCP and which delineates the procedures to be followed.

11) HACCP SYSTEM:

The result of the implementation of the HACCP Plan.

12) HACCP TEAM:

The group of people who are responsible for developing, implementing and maintaining the HACCP system.

13) HAZARD:

A biological, chemical, or physical agent that is reasonably likely to cause illness or injury in the absence of its control.

14) HAZARD ANALYSIS:

The process of collecting and evaluating information on hazards associated with the food under consideration to decide which are significant and must be addressed in the HACCP plan.

15) MONITOR:

To conduct a planned sequence of observations or measurements to assess whether a CCP is under control and to produce an accurate record for future use in verification.

16) RISK:

A function of the probability of an adverse health effect and the severity of that effect, consequential to a hazard(s) in food.

17) SEVERITY:

The seriousness of the effect(s) of a hazard.

18) VERIFICATION:

Those activities, other than monitoring, that determine the validity of the HACCP plan and that the system is operating according to the plan.

VERSION/EDITION UPDATE REGISTER

New Document	Replaced Document	Date of Publication	Description of Modifications
HACCP for Crops Version 5.3	HACCP for Crops Version 5.2	December 2019	Inserted HACCP information for hop production
HACCP for Crops Version 5.4	HACCP for Crops Version 5.3	April 2020	Added language for GFSI compliance, including references to compressed gases, compressed air, steam, and environmental testing.
HACCP for Crops Version 5.4	HACCP for Crops Version 5.4	December 2020	Modification of wording and updates to the hazard analysis, HACCP table, and verification schedule for better understanding and GFSI compliance