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ནས་ཚད

**DRAFT BHUTAN STANDARD**

**Standard for Good Agricultural Practices (GAP): Fruits and Vegetables**

*(First Revision)*



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## **FOREWORD**

This Draft Bhutan Standard (*first revision*) for Good Agricultural Practices: Fruits and Vegetables was adopted by Bhutan Standards Bureau after the draft finalized by the Food and Agriculture Technical Committee TC 02 and approved by the on Date Month Year.

This standard is subjected to systematic review after five years to keep pace with the market trends, industrial and technological developments. Any suggestions and further information may be directed to the concerned Technical Committee.



## **Introduction**

Production of safe food is essential for protecting consumers from the hazards of food borne illnesses and is important both in the domestic food business as well as for increasing competitiveness in export markets. Good Agricultural Practices (GAP) is important as it reinforces responsible farming methods from site selection and land preparation to harvesting and handling. FAO defines GAP as a “Collection of principles to apply for on-farm production and post-production processes, resulting in safe and healthy food and non-food agricultural products, while taking into account economic, social and environmental sustainability”.

The purpose of this document is to lay down Good Agricultural Practices to be implemented by fruits and vegetables producers to improve the safety and quality of produce while at the same time protecting the environment and safeguarding health and safety of the worker.

The revision was initiated as the previous GAP Standard had redundant clauses, which made it challenging for producers and regulatory authorities to apply. Additionally, it was necessary to update it to reflect current market trends, industrial advancements, and technological developments.

The use of this standard remains voluntary and when referenced by regulatory authorities for implementation, the standard become mandatory.



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## DRAFT BHUTAN STANDARD

### Standard for Good Agricultural Practices (GAP): Fruits and Vegetables (First Revision)

#### 1 Scope

This standard applies to requirements for Good Agricultural Practices (GAP) with respect to all types of fresh fruits and vegetables covering activities such as production, harvesting and post-harvest handling of farm produce and pack house operations for produce in case it is packed for sale either for direct human consumption or for further processing for human consumption by food industry.

The standard may be used for all types of production systems, namely conventional production systems where produce are grown in the soil, and hydroponic systems where produce are grown inert media. Production may occur in the open or in a protected environment.

High-risk products such as sprouts and minimally processed produce such as cut fruits and vegetables are not covered by this standard.

#### 2 Normative References

The following documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document including amendments applies:

BTS 139: 2020 SARS 0014: 2018 Bhutan Standard on Food hygiene- General practices- Code of practice.

BTS 268 CODEX STAN 1-1985 Bhutan Standard on Labelling of prepackaged foods

Labour and Employment Act of Bhutan 2007

Biodiversity Act of Bhutan 2022

National Biodiversity Strategy and Action Plan Bhutan 2014

National Environment Policy

Pesticides Act of Bhutan, 2000

Pesticides Rules and Regulation of Bhutan, 2019

Water Act of Bhutan 2011

Water Regulations of Bhutan 2014

#### 3 Terms and Definitions

For the purpose of this standard, the following terms and definition shall apply:

##### 3.1 Buyer

A business or person who buys or receives produce intended for trade.

## **3.2 Contamination**

It is the presence of a constituent, impurity, or some other undesirable element that renders something unsuitable, unfit or harmful.

## **3.3 Crop Period**

The time period that elapses from the instant of its sowing to the instant of its harvesting.

## **3.4 Crop Producer**

The farmer, company or the person legally responsible for the production.

## **3.5 Environmentally sensitive area**

Environmentally sensitive areas (ESAs) are landscape elements or places which are vital to the long-term maintenance of biological diversity, soil, water or other natural resources both on the site and in a regional context. They include wildlife habitat areas, steep slopes, wetlands, and prime agricultural lands.

## **3.6 Fertigation**

Technique of supplying dissolved fertilizers to crops through an irrigation system.

## **3.7 Fertilizer**

Chemical or natural substance or material that is used to provide nutrients to plants.

## **3.8 Field heat**

Field heat can be defined as the difference in temperature between the temperature of the crop harvested and the optimal storage temperature of that product. In general the temperature should be cooled down till it reaches 88% of the existing difference in temperature and its optimal storage temperature.

## **3.9 Good Agricultural Practices (GAP)**

A collection of principles to apply for on-farm production and post-production processes, resulting in safe and healthy food and non-food agricultural products, while taking into account economic, social and environmental sustainability.

## **3.10 Integrated Pest Management (IPM)**

Is the careful consideration of all available pest control techniques and subsequent integration of appropriate measures that discourage the development of pest populations. It combines biological, chemical, physical and crop specific (cultural) management strategies and practices to grow healthy crops and minimize the use of pesticides, reducing or minimizing risks posed by pesticides to human health and the environment for sustainable pest management.

## **3.11 Label**

any tag, brand, mark or pictorial or other descriptive matter, written printed or marked or attached to a container of food.

## **3.12 Mandatory Recall**

Recall initiated by relevant agencies to protect the public from produces that may cause health problems or possible death.

## **3.13 Maximum Residue Limit (MRL)**

Is the highest level of pesticide residue in or on food or feed when pesticides are applied correctly in accordance with Good Agricultural Practice.

**3.14 Non-Compatible Crops**

Crops that have different requirements in temperature, relative humidity and other factors during transport and storage.

**3.15 Obsolete pesticides**

Pesticides that can no longer be used for intended purpose because they have been banned on account of their prolonged impact on the environment and/or because they cannot be used due to age, deterioration or change of specification of currently applied pesticides.

**3.16 Outsourcing**

Practice of hiring competent personnel outside of group to perform tasks or provide services to the group.

**3.17 Packaging**

Packaging is an enclosing of food to protect it from tampering or contamination from physical, chemical, and biological sources.

**3.18 Pest**

A pest is an organism living and growing where they are not wanted and can cause damage to plants, humans, and other creatures, including crops that are grown for food. Pests include insects, disease, weeds, and rodents.

**3.19 Personal Protective Equipment (PPE)**

Refers to protective clothing, helmets, gloves, face shields, goggles, facemasks, safety boots and/or respirators or other desired equipment to protect the wearer from harm.

**3.20 Pesticide**

Any substance or mixture of substances intended for preventing, destroying, mitigating any pest.

**3.21 Planting Material**

Refers to seeds/seedlings/rootstocks/scion/ tuber/rhizome/tissue culture materials/crown or any parts of the plant used for propagation of new plants.

**3.22 Producer Group**

A group of farmers coming together as a single unit and is a legal entity, for implementation against the requirements stipulated in the GAP standard.

**3.23 Plant Protection Product**

The plant protection product includes synthetic pesticides, bio-pesticides, and other plant protection inputs.

**3.24 Scope Crop**

The crop that is identified to be certified under GAP standard.

**3.25 Seed rate**

It is the quantity of seed of a crop that is required to sow a unit area of land for optimum crop production definition

**3.26 Soil amendment**

Any materials added to the soil to improve its physical and chemical properties.

## **3.27 Solarization**

Method of soil-disinfestation based on its solar heating by mulching a soil with a transparent polyethylene during the hot season, thereby controlling soil borne pests.

## **3.28 Soil Fumigants**

Soil fumigants are pesticides that, when applied to soil, form a gas to control pests that live in the soil.

## **3.29 Traceability**

Ability to follow the movement of a fruits and vegetables through specified stage(s) of production, processing and distribution.

## **3.30 Voluntary Recall**

It is a voluntary action by a producer or distributor to protect the public from produces that may cause health problems or possible death.

# **4 Required Documents**

## **4.1 Land Requirements**

**4.1.1** The land under certification shall either be owned by the applicant, or an agreement between the legal owner of land and the applicant shall be in place granting authorization to carry out agricultural operation and certification.

## **4.2 Site map/site details**

**4.2.1** The crop producer shall maintain an up-to-date site map including the location, access to the site, farm layout, extend of the farmland, adjacent activities, degraded and sensitive areas. Each farm and production unit shall be referenced on a farm plan or map.

## **4.3 Traceability and Recall**

**4.3.1** Production sites shall be identified by a name or plot number, recorded on a site map and the record shall be maintained.

**4.3.2** Prepackaged produce shall be clearly labeled to enable traceability of the produce to the farm or site where the produce is grown.

**4.3.3** Records of production, processing and distribution should be maintained for 2 years to facilitate investigation and recall, if required.

**4.3.4** Effective systems and procedures shall be in place to reduce the risk of wrong labeling or mixing of GAP with non-GAP produce.

**4.3.5** A record of sale, information on buyer, date of delivery and destination including the quantity of each consignment shall be maintained.

**4.3.6** Where produce is identified as contaminated or potentially contaminated, the produce shall be separated and prevented from being distributed. If sold, the buyer shall be immediately notified and produce recalled.

**4.3.7** In the event of contamination of produce the relevant agencies shall investigate the cause of contamination and records of incidence and corrective action(s) taken shall be maintained.

**4.3.8** Documents required for assuring the traceability shall be maintained at the farm site.

## **4.4 Record keeping and Duration**

**4.4.1** Farms shall keep up-to-date records of all the requirements of this standard.

**4.4.2** Record keeping system shall be established in which all the essential elements are captured, and all records shall be maintained, and retained for at least 2 years unless stipulated by any specific legislation.

**4.4.3** The crop producer shall maintain records of all trainings received.

#### **4.5 Self-inspection of Farm**

**4.5.1** The crop producer shall have the responsibility to undertake a minimum of one internal self-assessment within the crop period against the requirements of this standard.

**4.5.2** Assessment shall be carried out at least once a year to identify new or emerging hazards related to food safety, environment, health and safety of workers, and produce quality, and actions to correct any deficiencies identified, corrective actions taken and the record shall be maintained.

**4.5.3** The crop producer shall conduct a documented annual internal self-inspection and ensure effective corrective actions are taken in instances of non-conformances.

**4.5.4** The records shall be maintained and produced upon request during the external inspection as per clause 4.4.2.

#### **4.6 Complaints and Redressal**

**4.6.1** All complaints on the produce not in compliance with the requirements in this standard shall be adequately registered and addressed.

**4.6.2** Each farm shall address complaints effectively and a record of the same shall be made available to relevant agencies.

#### **4.7 Visitor Record**

**4.7.1** Any visitors to the farm or place where operations are being carried out in relation to GAP shall follow the practices applicable to farm workers to ensure the safety of the produce as well their own safety.

**4.7.2** A visitor's register should be maintained at the farm site for all times.

#### **4.8 Calibration Record**

**4.8.1** The crop producer shall, wherever applicable, have his/her equipment calibrated as per the legal requirements of the country.

### **5 Production Requirements**

#### **5.1 Site Selection, Site History and Management**

**5.1.1** Site should be chosen with appropriate soil type, drainage, suitable topography for the intended crop.

**5.1.2** Where farms are located on high gradient areas and on highly degraded areas, appropriate soil conservation measures shall be undertaken to prevent further degradation.

**5.1.3** For all production sites, a risk assessment shall be carried out, taking the following into account;

- a) Prior use of the land
- b) Potential impacts for the production by adjacent crops and areas; and
- c) Potential impact of activities carried out at adjacent areas
- d) Site history shall be assessed to identify the risk of contamination.

**5.1.4** Where significant risks are identified, the site shall not be used for production without taking remedial action and the same shall be documented.

**5.1.5** If remedial action is required to manage any risk, a monitoring program shall be in place to make sure that contamination to the produce does not occur and records of the same shall be maintained.

**5.1.6** Pet and farm animals should be kept out of the production site.

**5.1.7** A record shall be maintained on the history of the site for the past 2 years.

### **5.2 Planting Materials**

**5.2.1** Only those varieties that are notified or released by the competent authority shall be grown.

**5.2.2** Planting materials shall be obtained from reliable or certified sources and records on crop type, variety, year of production, and supplier shall be maintained for traceability.

**5.2.3** The planting material shall be practically free of visible signs of pests and diseases.

**5.2.4** If planting material is produced on the farm, a record shall be maintained.

**5.2.5** Any treatment on planting materials shall be as per the requirement of the competent authority and record of the use of fungicides, herbicides, insecticides, bio pesticides with date, trade name, active ingredient, name of the operator, method of application, and dosages shall be maintained.

**5.2.6** The planting materials should be packed well and stored in conditions that are conducive to maintain their viability and handled carefully to avoid quality deterioration.

**5.2.7** The seed rate as recommended by competent authority should be used.

**5.2.8** Planting materials should be stored in their original package or container in their applicable conducive environment. If planting materials are transferred to another container, the new container shall be labeled with crop type, variety and expiry date.

**5.2.9** The containers used for storage of treated planting materials shall be prohibited for holding, packaging and storage of consumable items.

### **5.3 Soil Management**

**5.3.1** The production practices adopted shall be suitable to the soil type and not increase the risk of environmental degradation.

**5.3.2** Soil fertility management practices such as legume based crop rotation and intercropping should be practiced.

**5.3.3** Cultivation practices that minimize soil compaction and erosion should be adopted.

**5.3.4** For the preparation of growing media, preference shall be given to the use of natural substrates such as mixture of sand, top soil, coir dust, cow dung or compost.

**5.3.5** Mulching shall be practiced to maintain favorable soil moisture and soil temperature, and for weed control, Use of organic mulch should be prioritized.

**5.3.6** The soil sterilization shall be carried out in a confined area. Solarization should be the preferred option of sterilization.

**5.3.7** The use of chemical fumigants to sterilize soils, potting media and substrates shall be as recommended by the competent authority and the same shall be justified and recorded.

### **5.4 Fertilizer and Soil Amendments**

**5.4.1** The type, quantity, method, timing and frequency of fertilizer application shall be implemented based on recommended application practices.

**5.4.2** Soil amendments should be based on the recommendations from the competent authority after soil analysis.



**5.4.3** Crop producers shall not use fresh, solid or liquid manure to avoid the risk of chemical and microbiological contamination.

**5.4.4** If fertilizers and amendments are sourced from within the country, only certified products shall be used and the record shall be maintained.

**5.4.5** If the fertilizers and amendments are sourced externally, only certified products and those approved by the competent authority shall be used and the record shall be maintained.

**5.4.6** If a farm produces its own inputs, proper treatment procedures shall be adopted to reduce or eliminate pathogens present in the raw material and to minimize the probability of contaminating the product. Records of treatment procedures, including the raw materials used shall be maintained.

**5.4.7** The composting site should be located at a safe distance from the potential contamination sources like sewage tank and waste disposal area.

**5.4.8** Application of fertilizers shall be recorded and shall include location of application, source, date of application, type and quantity of fertilizer applied, method and frequency of application and name of the operator.

**5.4.9** Fertilizer application equipment shall be kept in a good working condition/sanitized and calibrated to ensure the correct quantity is applied.

**5.4.10** Fertilizer stock records shall be maintained.

**5.4.11** Fertilizers shall be labeled and stored in a safe, secured and designated store so as to maintain the quality of the product and reduce the risk of contamination.

**5.4.12** Human sewage sludge, both treated and untreated, shall not be used.

**5.4.13** Hydroponic/ Aeroponic production systems shall follow recommended practices by competent authority and the record shall be maintained of the nutrient mixing, application and disposal of the nutrient solution.

## **5.5 Water**

**5.5.1** The water available for irrigation/fertigation should be free from harmful contaminants.

**5.5.2** Untreated sewage water shall not be used.

**5.5.3** Water used for agronomy and production shall come from environmental sources that do not cause contamination of hazardous substances on produce. In case of risk, water shall be analyzed by accredited laboratories for hazardous substance contamination and appropriate remedial measures taken and the record shall be maintained.

**5.5.4** Irrigation should be based on crop water requirements, availability of water and soil moisture levels. The irrigation system shall be checked and maintained in good condition to ensure its efficiency and minimize the risk of contamination.

**5.5.5** Water collection, storage and use shall be managed in accordance with the Water Act of Bhutan, Water Regulations of Bhutan, and relevant laws.

**5.5.6** Where significant risks are identified in the stored water after testing, the water shall be used only after treatment.

**5.5.7** A record shall be maintained of irrigation/fertigation use, detailing crop, date, location and duration of irrigation.

**5.5.8** Water used for dissolving fertilizers and pesticides shall have quality that does not decrease the effectiveness of such inputs.

**5.5.9** Crop producer shall maintain irrigation equipment as per the manufacturer's guidelines/ manual.

**5.5.10** Crop producer shall adopt adequate measures to prevent flow of water into the fields from undesirable sources like municipal landfill areas, hospital and industry waste dump areas, domestic waste water, etc.

**5.5.11** Water management plan to optimize water usage and reduce waste should be made available.

**5.5.12** Frequently change water for crop production in the hydroponics system. In case of reuse, there shall be a system to reduce the amount of microbial and/or chemical contamination.

**5.5.13** Waste water from hydroponic system shall be disposed properly.

**5.5.14** Modern irrigation systems should be promoted to improve water use efficiency.

**5.5.15** The quality of water used for post-harvest treatment of produce shall be equivalent to that of drinking water laid out in the Water Act of Bhutan 2011 and relevant laws. Source of water for post-harvest use shall be analyzed at an accredited laboratory at least once a year to ensure it is potable and safe and the record shall be maintained.

### **5.6 Pesticides**

**5.6.1** Non-chemical control measures should be preferred over chemical pest control measures.

**5.6.2** Crop producers shall adopt Integrated Pest Management (IPM) techniques provided by the competent authority.

**5.6.3** The Crop producer shall maintain crop sanitation at all times. The infected plant parts shall be managed appropriately by considering the impact to the environment.

**5.6.4** In the integrated cropping system, the crop producer shall ensure that the pesticides are applied only on targeted crops and avoid contamination to other crops.

**5.6.5** Information and updates on the maximum residue limits (MRL) as specified in the Codex standards or the importing country's standards where the produce is to be traded shall be made available.

**5.6.6** The crop producer shall use only the pesticides that are approved by the Pesticide Board.

**5.6.7** Pesticides shall be purchased only from the registered/licensed supplier that are authorized by the competent authority and the record of purchase, detailing the chemicals used, name of the supplier, date and quantity, date of manufacture and expiry shall be maintained.

**5.6.8** In case the production is for export, crop producers shall further ensure not to use the pesticides prohibited by the importing countries.

**5.6.9** A record of pesticides use for each crop shall be maintained giving details of pesticides, reason for application, treatment location, dosage, method, date of application and name of operator.

**5.6.10** A record of pesticides held in storage shall be maintained including name, date and quantity remaining.

**5.6.11** The crop producer shall not mix pesticides unless it is recommended by the competent authority.

**5.6.12** The application of pesticides (ground and aerial) shall be managed to minimize the risk of spray drift to neighboring properties and environmentally sensitive areas.

**5.6.13** A rotation strategy for chemical application and crop protection measures should be used to avoid pests and disease resistance.

**5.6.14** The dosage as recommended by competent authorities shall be applied and excess pesticides shall not be used.

**5.6.15** Withholding periods for the interval between pesticides application and harvest shall be a minimum of two weeks.

**5.6.16** Pesticides shall be applied during early morning and evening hours for its efficiency and effectiveness and shall be avoided during sunny, windy and rainy conditions.

## **5.7 Spray Equipment**

**5.7.1** The spray equipment shall be calibrated before use.

**5.7.2** Equipment for applying pesticides shall be maintained in good working condition and checked frequently for effective operation by a technically competent person.

**5.7.3** The crop producer shall not use the equipment if there is a leakage or any other technical issue.

**5.7.4** Equipment used for pesticides application shall be properly cleaned and securely stored.

**5.7.5** Water for cleaning the equipment shall be disposed properly to avoid contamination to produce and environment.

**5.7.6** Spray equipment should conform to the recommendation of the competent authority.

## **5.8 Disposal of Surplus Spray Mix**

**5.8.1** Adequate volumes of pesticides shall be formulated to minimize the amount of surplus pesticides.

**5.8.2** Surplus spray mix shall be disposed properly to minimize the risk of environmental harm or it can be sprayed again on the crop as long as the recommended application rate has not been exceeded.

## **5.9 Pesticide Storage**

**5.9.1** Types of pesticides shall be orderly grouped in the specified secure storage to prevent mishandling, contamination and ensure safety.

**5.9.2** The pesticides shall not be stored with food items and animal feed.

**5.9.3** The crop producer shall place hazards and warning signs on designated storage areas.

**5.9.4** Crop producers shall not store pesticides more than what is required for a particular year. Solid pesticides shall be stored on shelves above liquids or stored separately.

**5.9.5** Pesticides should be stored in their original containers with legible labels and instructions from manufacturers. If pesticides are transferred to another container, the new container shall be clearly marked with the brand name, dosage of use, and expiry date.

**5.9.6** Other chemicals such as fuel, cleaning agents, and other non-agricultural substances shall be properly stored to prevent exposure to produce and contamination to the environment.

## **5.10 Obsolete and Empty Pesticide Containers**

**5.10.1** Obsolete pesticides shall be identified clearly, kept in secure places and disposed through official collection systems.

**5.10.2** Empty pesticides containers prior to disposal shall be rinsed at least three times with water and the rinsed water shall be returned to the pesticides spray tank.

**5.10.3** Empty pesticide containers shall be effectively disposed in accordance with guidelines prescribed by the competent authority and shall not be re-used for any purposes.

## **5.11 Safety Instructions**

**5.11.1** The crop producer or operator shall strictly adhere to the safety instruction provided by the competent authority, or the safety instruction written on the pesticides label.

**5.11.2** Pesticides shall be handled and applied by trained workers with appropriate knowledge and skills.

**5.11.3** Safety and emergency instructions shall be provided to workers and displayed in appropriate and readily accessible places.

**5.11.4** Producers shall mark each area of application with appropriate warning signs. The sign board should display all the required information such as name of pesticide sprayed, date of spray and restricted-entry interval of 24 hours.

**5.11.5** A facility along with first-aid measures shall be available and accessible in case of injuries and accidents.

**5.11.6** The operator shall not chew, drink or eat while handling pesticides.

**5.11.7** The operator should use personal protective equipment for application of pesticides and take bath with soap and change clothes right after pesticide application.

## **6 Post-Harvest Management**

### **6.1 Harvesting and Handling**

**6.1.1** A maturity index shall be used to determine the appropriate time to harvest produce.

**6.1.2** The produce shall be harvested following appropriate methods recommended by competent authority.

**6.1.3** Harvesting should be avoided during unfavorable weather condition.

**6.1.4** Harvested produce shall not be placed directly on the ground.

**6.1.5** Newly harvested produce shall not be mixed with any of the previously harvested produce.

**6.1.6** Harvested produce that are damaged, bruised, diseased, pest infested, and of inferior quality shall be separated and removed.

**6.1.7** Harvested produce shall be removed from the field as quickly as possible and placed in the shade, unless sun drying is required.

**6.1.8** Where produce is field packed, the packaged produce shall be stored properly to avoid risk of contamination and quality deterioration.

**6.1.9** Produce shall be graded and packed according to market requirement.

**6.1.10** Protective materials shall be used where required to protect produce from quality deterioration.

**6.1.11** Field heat shall be removed using appropriate cooling methods as recommended by competent authority.

**6.1.12** Measures shall be taken to prevent the presence of pests in and around handling, packing and storage areas.

**6.1.13** If bait or trap is used to control pest, they shall be placed in the area that does not cause risk of contamination to the produce and harm to the workers and the record shall be maintained.

**6.1.14** Pets/Animals shall be prevented from entering into the operation area, particularly the sites of harvest, sorting, packing and storage.

**6.1.15** Specific tests on produce should be included if required by an importing country.

**6.1.16** The post-harvest handling should be done in accordance with BTS 139: 2020 SARS 0014: 2018 Bhutan Standard on Food hygiene- General practices- Code of practice.

**6.2 Equipment, Containers and Materials**

**6.2.1** Equipment and containers used for harvesting and handling operations shall be kept clean and hygienic.

**6.2.2** Equipment, containers and materials that come in direct contact with the produce shall be of food grade quality and easy to clean and disinfect.

**6.2.3** The containers used for storage of chemicals, wastes and other dangerous substances shall be prohibited for holding, packaging and storage of consumable items.

**6.2.4** Equipment, materials and containers shall be kept in designated store separate from chemicals to avoid cross contamination.

**6.2.5** Equipment, materials and containers shall be checked for its soundness and cleanliness before use.

**6.2.6** Equipment, materials and containers that are damaged and can no longer be kept in hygienic condition shall be discarded.

**6.2.7** In case there is risk of contamination arising from equipment, materials and containers, preventive measures shall be implemented and recorded.

**6.2.8** GAP certified produce shall be stored and packed separately from non-certified GAP produce.

**6.2.9** Containers or materials filled with produce shall not be placed in direct contact with the ground, where there is a significant risk of contaminating the produce. Pallets, if used, shall be checked for cleanliness, chemical spills, foreign objects and pest infestation.

**6.3 Structures or Facilities**

**6.3.1** Structures or facilities used for packing and storage of produce shall be constructed and maintained to minimize the produce from getting contaminated.

**6.3.2** Structure shall be clean, cool, hygienic, not exposed to direct sunlight with good ventilation and free of heat accumulation.

**6.3.3** Sewage, waste disposal and proper drainage systems shall be constructed to minimize the risk of contamination.

**6.3.4** Lighting fixtures where produce and materials kept exposed shall be shatter proof or covered with a shatter proof cover.

**6.3.5** Non-toxic, non-reactive and impervious cleaning and sanitation chemicals shall be used to minimize the risk of contamination to the produce.

**6.4 Post-Harvest Treatment**

**6.4.1** Chemicals and waxes used for post-harvest treatment shall be in accordance with national or international standards and the record shall be maintained.

**6.4.2** For crops to be exported, post-harvest treatment shall be as per the requirements of the importing country.

**6.4.3** Records for all post-harvest treatment shall be kept to include crop name, location, date of treatment, reason for treatment, type of post-harvest treatment, dosage, frequency, methods of treatment and name of the operator.

**6.5 Storage and Transport**

**6.5.1** Produce shall be transported separately from goods that are potential sources of contamination.

**6.5.2** Mixing of non-compatible crops during storage and transport should be avoided.

**6.5.3** Produce shall be protected with appropriate cover during transportation and overloading shall be avoided.

**6.5.4** Vehicles used for transporting produce shall be kept clean and maintained in good condition.

**6.5.5** Produce should be transported to the destination as soon as possible before the quality deteriorates.

## **7 Environmental Management**

**7.1** Crop producers shall conform to existing national environmental policy or relevant laws. This covers the concern for air, water, soil, biodiversity and other environmental issues. -

**7.2** Highly degraded areas shall be managed to avoid further degradation.

**7.3** Proper waste management shall be done and documented including identification of waste products generated from the farm.

**7.4** Sewage shall be disposed of properly to avoid risk of contamination.

**7.5** The waste management practices shall be as per the guidelines of the relevant agencies.

**7.6** The potential sources of pollution (e.g., fertilizer, pesticides, farm machinery, etc.) shall be identified, addressed and documented.

**7.7** Adequate precautions shall be taken to ensure that wastes are disposed off properly so as to reduce contamination and health hazards.

**7.8** The premises should have adequate provisions for waste disposal and designated areas to store litter and waste.

**7.9** The use of electricity and fuel should be reviewed to ensure that efficient operation practices are implemented.

**7.10** Machine and equipment shall be maintained in good condition to ensure the efficiency of operation to save energy.

## **8 Worker Health, Safety and Welfare**

### **8.1 Personal Hygiene**

**8.1.1** Those who come directly into contact with produce, particularly after harvest shall maintain their personal hygiene and have preventive measures from contaminating the produce

**8.1.2** Written instructions on personal hygiene practices should be provided to workers and displayed in prominent locations.

**8.1.3** Personal hygiene facilities shall be available and usable to prevent contamination

**8.1.4** Medical check-up of workers shall be done annually, and records kept for 2 years.

**8.1.5** Any serious health issue is to be reported to the appropriate authority and necessary precautions shall be taken to reduce the risk of contamination and transmission.

### **8.2 Working Conditions**

**8.2.1** Working conditions shall be suitable for workers and protective clothing shall be supplied where conditions are hazardous to workers.

**8.2.2** Producers or operators shall wear suitable personal protective equipment (PPE) as recommended by the competent authority.

**8.2.3** Personal protective gear shall be cleaned after every use and stored separately.

**8.2.4** The workers who are handling and applying pesticides or entering newly sprayed sites shall always be equipped with suitable protective gear.

**8.2.5** All farm vehicles, equipment and tools, including electrical and mechanical devices, shall be maintained and inspected on a regular basis for potential hazards to operators.

**8.2.6** Safe manual handling practices shall be followed to minimize the risk of injury from lifting heavy objects and excessive twisting and reaching movements.

### **8.3 Worker Welfare**

**8.3.1** The minimum working conditions including working hours and minimum wages shall comply with the Labour and Employment Act of Bhutan, 2007 and relevant laws.

**8.3.2** A member of management shall be identified as responsible for workers health, safety and welfare.

**8.3.3** Regular two-way communication meetings should take place between management and workers for which records are maintained.

**8.3.4** Workers shall not be exploited because of gender, age or other reasons.

**8.3.5** Where provided by an employer, living quarters and workplace shall be suitable for human habitation and contain basic services and facilities.

## **9 Requirements for Producer Group**

### **9.1 Legal**

**9.1.1** Group shall have documentation to demonstrate that the producer group is a registered entity with competent authority.

**9.1.2** A written signed contract shall be available between each member of the group and the group (legal entity), which shall cover individual details, farm details, obligations (the requirements laid by producer group and the GAP standard) sanctions in case of non-compliance with GAP standard/any other internal requirements.

**9.1.3** The group shall have an internal control system in place for smooth functioning of the group in addition to the implementation of GAP standard by the members.

### **9.2 Internal Control System (ICS)**

**9.2.1** The group shall have developed ICS manual including the scope of certification, the management structure, roles and responsibilities and procedures for member registration.

**9.2.2** The ICS manual shall be periodically verified and updated to ensure compliance with GAP or other requirements of the producer group.

**9.2.3** The group shall ensure that there is a system for updating information, creating awareness on any policies and developments in relation to GAP and shall accordingly implement changes.

### **9.3 Group Structure**

**9.3.1** The organization structure shall define and demonstrate the role and responsibility of the designated personnel.

**9.3.2** The authority matrix for approval and decision-making shall be defined.

### **9.4 Record of Producer Group**

**9.4.1** Group shall maintain detailed record of all members with their current implementation status. These shall include details of producer name, production area, scope crops, details of internal audit and its findings, sanction, withdrawal, complaint and redressal.

### **9.5 Competency of Designated Members**

**9.5.1** The group shall assess knowledge and competency requirements of the designated personnel such as; the chairperson, internal auditor, member secretary, treasurer and marketing personnel and members.

**9.5.2** The group should determine the required training and qualification of designated personnel and the record shall be maintained.

### **9.6 Document Control**

**9.6.1** A system shall be established to control documents such as ICS manual, procedure, record formats to demonstrate effective document control.

### **9.7 Internal Audit**

**9.7.1** Group shall have a system in place to audit the compliance to GAP standard of each member as well the requirements of the ICS.

**9.7.2** The standard operating procedure for internal auditing shall be developed and documented and finding shall be made available.

### **9.8 Non-Compliances, Corrective Actions and Sanctions**

**9.8.1** A procedure for identifying and recording corrective actions shall be available and implemented. This shall include root cause analysis of non-compliance, responsibilities and time frame for corrective action.

**9.8.2** A group shall have procedures for imposing sanctions on members not complying with requirements. The sanctions and infringement shall be well defined. These shall include prompt notification to the Certification Body of suspension or revocation of its registered member.

**9.8.3** All information pertaining to non-compliance, corrective action, and sanctions shall be recorded.

### **9.9 Produce Traceability and Segregation**

**9.9.1** All GAP certified produces shall be traceable to each individual registered producer and their farm. Effective systems and procedures shall be in place to reduce the risk of wrong labeling or mixing of GAP with non-GAP produce.

### **9.10 Complaint Handling**

**9.10.1** Group shall have procedure for handling of all complaints regarding GAP which shall cover complaint receipt, registering, problem identification, causative analysis, solution and follow-up and record shall be maintained, if any.

**9.10.2** There shall be provisions to maintain confidentiality, where applicable.



**9.11 Withdrawal of Certified Produce**

**9.11.1** A system for produce recall and withdrawal shall be in place, which shall be annually reviewed.

**9.12 Pack House**

**9.12.1** Group shall ensure the pack houses be it individually owned or common shall meet GAP requirements and the record shall be maintained.

**9.13 Agreement with Buyer**

**9.13.1** A written agreement should be entered into between the group and each of their buyer (intended for trade) cautioning misuse of GAP certification claim, as applicable.

**9.14 Outsourcing**

**9.14.1** The group may outsource to perform internal auditing activities in case of lack of capacities within the group.

**9.14.2** The group shall have outsourcing procedure in place and the record shall be maintained.

**9.15 Produce quality plan**

**9.15.1** The group shall have produce quality plan and it shall be reviewed and updated timely. The document shall be maintained.

**9.15.2** The members shall adhere to the produce quality plan to meet GAP requirements.

**9.16 Training**

**9.16.1** Crop producer and farm workers shall be trained to have appropriate knowledge in their areas of responsibility related to good agricultural practices and training records shall be kept.

**9.16.2** Crop producer and farm workers shall be trained in safety requirements (Safety Drill), accident and emergency response measures, first-aid practices, safe use of chemicals and personal hygiene. These procedures shall be displayed in the appropriate language for the workforce. Instructions shall be supported by warning signs and symbols where appropriate.

**9.16.3** Crop producers and farm workers shall undergo training in basic food hygiene and safety before handling produce by the competent authority.

**9.16.4** Crop producers and farm workers shall be trained on sustainable soil management.

**9.16.5** Workers shall also be provided appropriate training in areas of their responsibility such as vehicles, tools and equipment operation, handling and application of chemicals.

**9.16.6** Training programs related to environmental education and awareness shall be organized for all personnel working in the farm.

**9.16.7** The training needs shall be reviewed once a year.

**10 Labelling Requirements**

**10.1** The following shall be labeled legibly and indelibly on each package/container to cover GAP and general labeling requirements:

a) Name of the produce

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- b) Grade (quality/size)
- c) Name, address, identification number of the crop producer
- d) Batch code/QR code/bar code or any decipherable code marking
- e) Net quantity
- f) Date of packing
- g) Date of expiry/ best before
- h) Storage condition
- i) Certification Body Mark

**10.2** The labeling shall also be in accordance with BTS 268 CODEX STAN 1-1985 Bhutan Standard on Labelling of prepackaged foods.

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