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Draft Sri Lanka Standard  
Requirements for Good Agricultural Practices (GAP)  
Part 8 : Vanilla & cardamom  
(DSLS 1523 - 8 :.....)

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This draft should not be regarded or used as a Sri Lanka Standard.

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Comments to be sent to: SRI LANKA STANDARDS INSTITUTION, 17, VICTORIA PLACE,  
ELVITIGALA MAWATHA, COLOMBO 08.



**Draft Sri Lanka Standard**  
**REQUIREMENTS FOR GOOD AGRICULTURAL PRACTICES (GAP)**  
**PART 8: VANILLA AND CARDAMOM**

**DSL5 1523 PART 8:**

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**Draft Sri Lanka Standard**  
**REQUIREMENTS FOR GOOD AGRICULTURAL PRACTICES (GAP)**  
**PART 8: VANILLA AND CARDAMOM**

## **FOREWORD**

This Standard was approved by the Sectoral Committee on Agriculture and was authorized for adoption and publication as a Sri Lanka Standard by the Council of the Sri Lanka Standards Institution on .....

Vanilla and cardamom are spice crops with a high potential for production and export. Many importing countries and local buyers are now necessitating producers to implement Good Agricultural Practices (GAP) as a pre-requisite for procurement to ensure quality and safety of the produce. To build trust and recognition of the produce to be accepted both in the domestic and international markets by considering the environment, health and food safety of consumers, quality of produce and welfare of the workers, therefore it is appropriate to establish the GAP Standard for vanilla and cardamom. The GAP stands on four pillars of economic feasibility, environmental sustainability, social acceptability, and food safety and quality. Therefore, GAP is a guideline for the management of crop produce, from planting material preparation, planting, agronomy, and harvesting to post harvest handling. The aim is to ensure safety in the crop produce for both domestic and international trade while minimizing environmental damage.

This Standard is subjected to the provisions under the Food Act No. 26 of 1980, the Plant Protection Act No. 35 of 1999, the Promotion of Export Agriculture Act No. 46 of 1992, the Consumer Affairs Authority Act No. 9 of 2003, the National Environmental Act No. 47 of 1980, the Soil Conservation Act No. 25 of 1951, the Fauna and Flora Protection Ordinance No. 02 of 1937, the Forest Ordinance No. 16 of 1907, the Control of Pesticides Act No. 33 of 1980, the Employment of Women, Young Person and Children Act No. 47 of 1956 and the regulations framed thereunder, and any other regulatory and statutory requirements wherever applicable.

In the preparation of this Standard the valuable assistance derived from the publications of the Codex Alimentarius Commission and International Organization for Standardization is gratefully acknowledged.

## **1 SCOPE**

**1.1** This Standard prescribes the GAP to be applied for the production and processing within the farm site of vanilla and cardamom for their sustainable production that is legally compliant, environmentally sound, socially acceptable and economically viable to ensure safe and quality produce or product that is suitable for utilization and/or consumption.

**1.2** This Standard does not absolve any product, person(s), corporate entities and organizations from fulfilling criteria laid down in the Standards for product(s) that use(s) the SLS mark.

**1.3** All materials containing or produced from Genetically Modified Organisms (GMOs)

are not compatible with this Standard.

## 2 REFERENCES

SLS 143	Code of practice for general principles of food hygiene
SLS 166	Cardamom pods (capsules) or seeds
SLS 614	Specification for potable water
SLS 1465	Code of practice for application of pesticides
SLS ISO 19932-1	Equipment for crop protection - Knapsack sprayers - Part 1: Safety and environmental requirements
SLS ISO 27065	Protective clothing – Performance requirements for protective clothing worn by operators applying pesticides and re-entry workers
SLS ISO 5565-1	Vanilla ( <i>Vanilla fragrans</i> ) Part 1: Specification

## 3 DEFINITIONS

For the purpose of this Standard the following definitions shall apply:

- 3.1 crop producers:** Entities involved in commercial production of crops including individuals, groups and companies.
- 3.2 economically viable:** Production that gives positive returns on a sustainable basis.
- 3.3 environmentally sound:** Farm practices with minimum effect on the environment.
- 3.4 good agricultural practices (GAP):** Collection of scientific principles to apply for on-farm production and post-production processes, resulting in safe and quality food, spices, beverages and non-food agricultural products, while considering economic, social and environmental sustainability.
- 3.5 integrated pest management (IPM):** An ecosystem-based pest management strategy that uses a combination of available environmentally- friendly techniques and methods in a manner as compatible as possible to maintain pest population at levels below those causing economic injury, which uses pesticides as the last resort.
- 3.6 inter-cropping:** Cropping system in which two or more crops are grown in combination on a single land area.
- 3.7 legally compliant:** Adherence to all existing legal, regulatory and statutory requirements.
- 3.8 pre-harvest interval (PHI):** The minimum time between the last application of pesticides to a crop and the harvesting of that crop.
- 3.9 processing:** Operations which may consist of handling, post-harvest handling including collection and transport, packaging, storing and labelling of vanilla and cardamom products.
- 3.10 produce:** Vanilla and cardamom that are produced according to this Standard.
- 3.11 production:** Any primary operation involved in producing of Vanilla and cardamom

including cultivation and harvesting of the product.

**3.12 product:** Product that has been produced, processed, and/or handled in compliance with this Standard.

**3.13 quality produce:** Produce that is safe for consumption and/or suitable for utilization.

**3.20 socially acceptable:** Meeting concerns on the welfare and safety of persons working or living within the farm and/or surrounding the farms.

**3.21 sustainable production:** A holistic, systems-oriented approach to farming that is efficient in resource management and focuses on the interrelationship of social, economic and environmental processes.

**3.22 traceability:** The ability to trace the history, application, use and location of an item or its characteristics through recorded data.

## 4 REQUIREMENTS

### 4.1 Document requirements

#### 4.1.1 *Traceability*

The produce shall be traceable to the farm where it has been originally produced.

#### 4.1.2 *Site map*

The crop producer shall maintain an up-to date site map including the location, access to the site, farm lay out, land extent of the farm and adjacent activities.

#### 4.1.3 *At the farm site*

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

### 4.2 Record keeping

**4.2.1** Farms shall keep up-to-date records.

**4.2.2** All records shall be maintained and retained for at least 2 years unless stipulated by any specific legislation, or otherwise.

**4.2.3** The farm records shall be accessible and audited.

**4.2.4** Record keeping system shall be established in which all the essential elements are captured including following details;

- a) Name of the farmer;
- b) Address of the farm site;
- c) Year and the season;
- d) The crop, the variety, the origin of the planting materials and the date of planting;
- e) The type, amount, the mode-of-application and the date of application of fertilizer;

- f) The common name, commercial or brand name, amount or dosage, the name of the operator, the mode-of-application, and the date of application of pesticides;
- g) The date, number of trees/plants harvested, quantity and type of the product; and
- j) Land extent and cropping pattern.

#### **4.3 Internal audit**

**4.3.1** Internal audit shall be carried out at least once a year based on the requirements of this Standard. It shall be completed and documented.

**4.3.2** Corrective actions shall be implemented and documented.

#### **4.4 Complaint handling**

Records of complaints on all produce not in compliance with requirements in this Standard and their remedial actions shall be made available on-site.

### **5 PRIMARY PRODUCTION REQUIREMENTS**

#### **5.1 Environmental hygiene**

**5.1.1** Source plants shall be protected from contamination by human, animal, domestic, industrial and agricultural wastes, which may be present at levels likely to be a risk to environmental health.

**5.1.2** Adequate precautions shall be taken to ensure that these wastes are disposed of in a manner that will not contaminate plants, animals and humans, and not constitute a health hazard to consumers of the final product.

#### **5.2 Location of the production site**

**5.2.1** Planting site shall not be located in an environment causing contamination of the produce with hazardous substances that affects safety of consumer. In case of risk, soil shall be tested by a laboratory for hazardous substance contamination. Analytical results shall be kept as evidence.

**5.2.2** Consideration of production site location should include an evaluation of the slope and the potential for runoff from nearby fields, the flood risk as well as hydrological features of nearby sites in relation to the production site.

**5.2.3** The crop producer shall implement measures to prevent or minimize contamination of source plants at the production site.

**5.2.4** All procedures associated with primary production shall be carried out under hygienic conditions to minimize contamination and potential sources of contamination of produce or products.

### **5.3 Planting materials**

**5.3.1** Planting materials shall conform to the specifications of the Department of Export Agriculture (DEA).

**5.3.2** Choice of planting materials shall meet requirements as agreed between crop producers and customers wherever possible, recommended and/ or certified by the DEA.

**5.3.3** Where seed planting materials are used, seed source should be known and a record of the variety/type name, variety purity, batch number and seed vendor should be kept. Where available, seed certification records should be retained

**5.3.4** Where vegetative planting materials are used, records shall be obtained from the registered nursery and maintained.

**5.3.5** Propagative parts shall be obtained from reliable sources and be able to trace to their sources of origin.

**5.3.6** Where propagation material produced within the farm, records of mother plants, date of establishment, method of propagation, material used for preparation of bed mix with soil (well decomposed cattle manure), method of bed sterilization and date, materials used as mulch, agro-chemicals used and date of application, type of fertilizer used, date of application and agronomic practices shall be recorded.

**5.3.7** Planting materials shall be free from pests.

**5.3.8** Where protected varieties are used, the farm shall respect intellectual property rights legislation on plant variety protection.

**5.3.9** Varieties/types used for planting in the farm should preferably possess resistance or tolerance to major pests, so as to minimize utilization of pesticides.

**5.3.10** If chemical treatments are carried out on planting materials, such treatments shall be justified and recorded.

### **5.4 Site history**

**5.4.1** A recording system shall be established on the history of the site, the layout of fields and their crop history.

**5.4.2** For all new planting 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.

**5.4.3** The information of the risk assessment shall be recorded.



## **5.5 Minimum grace period for GAP certification**

**5.5.1** Minimum grace period from conventional farming to GAP production shall be 06 months or elapse of one annual harvest for both crops.

**5.5.2** The grace period shall not be applicable when the crop is established in a land which has not been used for agriculture or industrial purpose for a long time (more than 1 year).

## **5.6 Site selection and management**

**5.6.1** The farm management shall demonstrate that it has legal rights to the cultivation of the land and all necessary regulatory approvals.

**5.6.2** Farms shall not be located on steep slopes which may be detrimental to the environment. Crops shall not be cultivated above 60 degree of slope of the land.

**5.6.3** Where farms are located on sloping lands (within the permissible level), appropriate soil conservation measures shall be undertaken to prevent soil erosion and silt deposition into drains and other waterways. Since these two crops do not need a very deep soil, appropriate land preparation shall be carried out with minimum disturbance to the soil in order to minimize soil erosion.

**5.6.4** The farm shall not be established adjacent to natural forest reserves. The minimum distance from the natural water streams shall be maintained according to the national Laws.

**5.6.5** The required catchment area shall be protected when the farm is located near to the reservoirs or natural water bodies.

**5.6.6** A visual identification or reference system for each field shall be established.

**5.6.7** Suitable shade trees shall be planted to meet the appropriate sunshine requirements.

## **5.7 Production management**

**5.7.1** Soil used for planting should be well drained.

**5.7.2** Preventive measures for attack of soil borne pests shall be in place without posing any threat to worker safety, produce quality, consumer safety and environment.

### **5.7.3 *Shade management***

Appropriate shade levels shall be maintained according to the DEA recommendations. Shade management shall be followed for better growth and flower initiation.

### **5.7.4 *Stress management***

Stress period shall be applied for induction of flower initiation in accordance with DEA recommended practices.

### **5.7.5 *Pollination management***

Manual pollination for vanilla shall be carried out during the flowering period to improve the productivity.

**5.7.5 Pollinator management**

Optimum environmental conditions shall be maintained to protect population of pollinators for cardamom.

**5.8 Inter-cropping**

Where inter-cropping is practiced, the recommendations or regulations applicable on other crops shall be followed.

**5.9 Soil and substrate management****5.9.1 Soil type mapping**

A soil map shall be developed and recorded for the farm, which can then be used during land preparations, inter-cropping and replanting programmes, where necessary.

**5.9.2 Soil structure**

Cultivation practices that improve or maintain soil structure and those avoid soil compaction shall be selected.

**5.9.3 Soil conservation**

Cultivation practices and soil conservation techniques that minimizes soil degradation shall be adopted as recommended by the DEA.

**5.9.4 Soil sterilization**

Where sterilization of soils, substrates or growing media is used for destroying harmful living organisms it shall be justified and recorded. Soil solarization, burning paddy husk/ coconut husk may be used for soil sterilization as recommended by the regulatory authority, under the supervision of the competent authority.

**5.9.5 Growing media, mulch and shading materials**

**5.9.5.1** Preference and priority shall be given to the use of natural substrates.

**5.9.5.2** Mulching shall be practiced to maintain favorable soil moisture and soil temperature, and for weed control.

**5.9.5.3** No shelter, mulch, soil or any substrate shall be obtained from natural forest reserves.

**5.9.5.4** Usage of a mixture containing sand, top soil, coir dust, cow dung or compost shall be encouraged for preparation of growing media as recommended by DEA.

**5.9.5.5** Sterilization methods as recommended by the DEA shall be followed prior to the use of above as a growing media.

**5.9.5.6** Where chemical compounds are used to sterilize the potting media, records shall be

kept and maintained.

**5.9.5.7** The location of sterilization shall be kept confined. Solarization shall be the preferred option of sterilization.

## **5.10 Fertilizer management**

### **5.10.1 Nutrient requirement**

**5.10.1.1** A soil care plan shall be developed to ensure that optimize the nutrient use efficiency.

**5.10.1.2** The application of fertilizers shall be based on nutrient levels of the soil or substrates wherever possible and requirements of the crop.

**5.10.1.3** Soil testing and treatments shall be followed as per the DEA recommendations.

### **5.10.2 Fertilizer utilization**

**5.10.2.1** Application of fertilizers shall be in accordance with the recommendations of the DEA and fertilizers shall conform to the relevant Sri Lanka Standard Specifications.

**5.10.2.2** The type, quantity, method, timing and frequency of fertilizer application shall be carefully observed so as to maximize benefits and optimize the nutrient use efficiency.

**5.10.2.3** Crop producers shall not use untreated solid or liquid manure.

**5.10.2.4** In cases where the farm produces its own organic 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 kept. The location of the composting site shall also consider the slope and its proximity to crop production sites in order to prevent cross contamination from run-off or leaching. Composting area shall be located at the lowest catena of the crop production site.

**5.10.2.5** Organic and inorganic fertilizers shall be used appropriately, optimizing yield and minimizing negative impacts on human health, the environment and the quality of the produce.

### **5.10.3 Records of application**

All applications of soil and liquid fertilizers shall be recorded. Records shall include location of application, origin and composition of fertilizers, date of application, type and quantity of fertilizer applied, method and frequency of application and name of the operator.

### **5.10.4 Application machinery**

Fertilizer application machinery shall be kept in good working condition and calibrated to ensure the correct quantity is applied.

**5.10.5** *Fertilizer source and storage*

**5.10.5.1** Fertilizer stock records shall be kept up-to-date and made available for inspection.

**5.10.5.2** Fertilizers shall be clearly labeled and stored in a way not contaminating the environment.

**5.10.5.3** Fertilizers shall not be stored in close contact with pesticides. If this is not possible, fertilizers and pesticides shall be physically separated and labeled accordingly.

**5.10.5.4** Fertilizers shall be stored in a covered, clean, dry location where there is no risk of contamination of water sources. Fertilizers shall not be stored in direct contact with the ground.

**5.10.5.5** Fertilizers shall not be stored with nursery stocks.

**5.10.5.6** Fertilizers shall not be stored with farm produce or products.

**5.10.5.7** Records of sources and nutrient content of fertilizers used shall be kept and made available for inspection.

**5.10.6** *Organic fertilizer*

**5.10.6.1** Organic fertilizer shall be stored and handled in an appropriate manner to reduce the risk of contamination of farm produce or products and the environment.

**5.10.6.2** Sewage sludge shall not be used.

**5.10.6.3** Take precautions to avoid pollution by heavy metals or by nitrate leaching, the levels of nutrients, heavy metals and other potential pollutants in the organic fertilizer shall be confirmed before application. A proper account shall also be taken of the nutrient contents in organic fertilizers.

**5.10.6.4** The use of organic fertilizers in cultivation shall be based on Integrated Plant Nutrient System (IPNS).

**5.10.6.5** The source of organic fertilizers shall be recorded.

**5.10.6.6** Operators shall maintain purchase, handling, treatment and processing records.

**5.11** **Irrigation and fertigation**

**5.11.1** *Planning*

Crop producers shall have acquired plans in their irrigation or fertigation systems based on historical and scientific data.

**5.11.2** *Method*

**5.11.2.1** The most efficient and commercially viable water delivery system shall be used to ensure the best utilization of nutrient and water resources as well as to protect water sources

and avoidance of pollution.

**5.11.2.2** Due consideration shall be given to a water management plan to optimize water and nutrient usage and reduce wastage.

**5.11.2.3** All crop producers shall maintain water usage records of irrigation and fertigation.

**5.11.3** *Quality of water*

**5.11.3.1** Water sources shall be analyzed at least once a year for microbial, chemical and inorganic pollutants. The analysis results shall comply with the microbiological requirements and chemical residual limits of the **SLS 614**.

**5.11.4** *Supply of water*

**5.11.4.1** On-farm water requirements shall be derived from sustainable sources.

**5.11.4.2** Crop producers shall seek advice from relevant authorities on water sourcing.

**5.11.4.3** On-farm water sources shall be managed to ensure water-use efficiency and sustainability.

**5.12** **Crop protection**

**5.12.1** The use of pesticides in crop production shall be minimized. Non-chemical control measures are preferred over chemical treatments.

**5.12.2** Wherever possible, crop producer shall apply recognized Integrated Pest Management (IPM) techniques. Crop producers shall seek advice on IPM from the DEA.

**5.12.3** Infected plant parts shall be burned outside the planting area by considering the impact to environment.

**5.12.4** Weeds shall be controlled to the level that it does not have an adverse effect on the growth of crop.

**5.12.5** Measures to reduce risk of diseases shall be in place.

**5.12.6** *Choice of pesticides*

**5.12.6.1** The records of plant protection products shall be kept and maintained for inspection.

**5.12.6.2** Crop producers shall only use the pesticides that are officially recommended by DEA and registered under the Control of Pesticides Act No. 33 of 1980, as amended for use on the crop that is to be protected.

**5.12.6.3** Crop producers should select the least hazardous pesticides out of the recommended list and shall not use the dosage exceeding the recommendation.

**5.12.6.4** Instructions on the pesticide label shall be followed to ensure effective application

and to avoid risks to operators, consumers and the environment.

**5.12.6.5** A pesticide-rotation strategy (mode-of-action) should be adopted to avoid reliance on any pesticide.

**5.12.6.6** For crops to be exported, crop producers shall not use pesticides that are banned or disallowed in importing countries.

**5.12.6.7** Crop sanitation and quarantine activities shall be adopted at all times.

**5.12.6.8** Pesticides applied for other crops in the integrated cropping systems shall be carried out avoiding any direct contamination of the target crops.

**5.12.7** *Records of application*

All applications of pesticides shall be recorded to include the name of crop, location and date of application, reason for application, name of pesticide (common name and the trade name) used, dosage, method of application and name of the operator.

**5.12.8** *Safety, training and instructions*

**5.12.8.1** Operators shall be trained on safety measures and proper application of pesticides in accordance with the **SLS 1465**.

**5.12.8.2** Each area of application shall be field-marked with appropriate warning signs of the re-entry period.

**5.12.9** *Personal protective equipment*

**5.12.9.1** Operators shall be equipped with suitable personal protective equipment (PPE) in accordance with the **SLS ISO 27065** as appropriate to the danger posed to the applicator.

**5.12.9.2** Personal protective gears shall be cleaned after use, minimizing the environmental contamination and stored separately from pesticides.

**5.12.10** *Pre-harvest interval*

Crop producers shall be strictly adhered to pre-harvest intervals prescribed in pesticide product labels.

**5.12.11** *Spray equipment*

**5.12.11.1** Spray equipment shall conform to the relevant Sri Lanka Standard Specifications and be kept in good working condition.

**5.12.11.2** Calibration shall be carried out as and when necessary to ensure accurate delivery of the required quantity of pesticide.

**5.12.11.3** Equipment used for chemical application should be properly cleaned and securely stored.

**5.12.12** *Disposal of surplus spray mix*

Surplus spray mix and tank washings shall be disposed of with utmost care (This can be sprayed on the treated part of the crop as long as the recommended dosage has not been exceeded or on designated fallow land away from water sources). Records shall be kept of such spraying.

**5.12.13** *Pesticide storage*

**5.12.13.1** Pesticides shall be stored in accordance with the national regulations.

**5.12.13.2** Pesticides shall be stored in a secured, water-resistant, well-ventilated and well-lit location away from other materials.

**5.12.13.3** All shelves shall be made of non-absorbent materials.

**5.12.13.4** The pesticide store shall be able to retain spillage.

**5.12.13.5** There shall be adequate facilities for measuring and mixing of pesticides.

**5.12.13.6** There shall be emergency facilities to deal with contamination and accidental spillage.

**5.12.13.7** Keys and access to the store shall be limited to workers with adequate knowledge on the handling of pesticides.

**5.12.13.8** A procedure to handle accidents, a list of emergency telephone numbers and the location of the nearest telephone shall be available within the immediate vicinity of the store. Similar information shall also be available next to the designated telephone.

**5.12.13.9** An inventory of the pesticides in store shall be kept and readily available for inspection.

**5.12.13.10** All pesticides shall be stored in their original packaging.

**5.12.13.11** Only the pesticides that are recommended and registered for use on crops on the farm shall be stored.

**5.12.13.12** Solid pesticides shall be stored on shelves above liquids or stored separately.

**5.12.13.13** Hazard and warning signs of potential dangers shall be placed on access doors.

**5.12.14** *Empty pesticide containers*

**5.12.14.1** Empty pesticide containers shall not be re-used. The disposal of empty pesticide containers shall be in a manner that prevents exposure to humans and contamination of the environment.

**5.12.14.2** Official collection and disposal systems shall be used, if available.

**5.12.14.3** Empty containers shall be rinsed at least three times with water and the washings are returned to the spray tank before disposing.

**5.12.14.4** Unless participating in established recycling programmes or with expressed permission from the authorities, rinsed containers shall be pierced and dented to prevent re-use.

**5.12.14.5** Empty containers shall be kept secure until they are disposed.

**5.12.14.6** Disposal or destruction of containers shall be in accordance with the national Laws.

### **5.13 Harvesting**

**5.13.1** Vanilla and cardamom shall be harvested at the appropriate maturity time with appropriate method.

**5.13.2** Harvested produce shall not be placed in direct contact with the ground.

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

**5.13.4** Harvested produce that are heavily bruised, damaged, diseased and inferior quality shall be separated.

**5.13.5** Equipment and containers used for harvesting and vehicles used for transporting the produce shall be kept clean and hygienic.

**5.13.6** Containers used for harvesting shall be made from non-toxic materials. These containers shall be designed and constructed to ensure that, these can be cleaned, disinfected and maintained in working condition to avoid contamination. When using reusable harvesting containers and tools, a cleaning and disinfection schedule shall be in place to prevent contamination. A record of cleaning shall be available. Containers that are damaged and can no longer be kept in a hygienic condition shall be discarded.

**5.13.7** As far as practicable, harvesting containers shall only be used for storing harvested produce. If these containers are used for other purposes, they shall be cleaned and disinfected as necessary prior to use for storing any product or produce.

**5.13.8** Used fertilizer bags shall not be used for collecting harvest and for covering of product or produce.

**5.13.9** Chemical, biological and physical contaminations from the handlers shall be prevented.

### **5.14 Post-harvest handling**

**5.14.1** The post-harvest handling should be done in accordance with good hygienic practices as described in the **SLS 143**.



**5.14.2** All product packing and storage sites shall have adequate pest control measures, particularly in the working and storage areas for packaging materials, pesticides and fertilizers.

**5.14.3** Precautions shall be taken to minimize rapid weight loss after harvesting with appropriate storage practices.

**5.14.4** *Post-harvest treatment*

**5.14.4.1** Use of additives as post-harvest treatments should be minimized.

**5.14.4.2** When additives are used, they shall be in accordance with the national Laws. In addition, where pesticides are involved, they shall be officially registered for post-harvest use under the Control of Pesticides Act No. 33 of 1980, as amended.

**5.14.4.3** For crops to be exported, crop producers, post-production processors, packers and exporters shall not use chemical compounds including pesticides that are banned or disallowed in importing countries.

**5.14.4.4** Crop producers, post-production processors, packers and exporters shall be able to demonstrate their competence and knowledge with regard to the post-harvest treatment, post-harvest handling procedures, storage and transportation.

**5.14.4.5** 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.

**5.14.5** *Curing*

Specific curing practices shall be followed in between harvesting and drying for both produce in order to maintain better quality in accordance with recommended practices by the DEA.

**5.14.5** *Drying*

**5.14.5.1** Drying vanilla and cardamom shall commence upon completion in accordance with recommended practices by the DEA.

**5.14.5.2** If dried naturally, produce shall be dried in accordance with DEA recommendations.

**5.14.5.3** Suitable precautions shall be taken as appropriate to protect product from contamination and damage by domestic animals, rodents, birds, mites, insects or other objectionable substances during drying, handling and storage.

**5.14.5.4** Drying time and temperature shall be maintained by using optimal drying conditions to attain required moisture level to avoid fungal growth and toxin production.

**5.14.5.5** In the case of using driers, all contact surfaces should be made out of food-grade material and stainless-steel material during the drying process.

**5.14.5.6** Fuel stores shall be located with adequate distance away from the drying area.

**5.14.6** *Post-harvest washing*

**5.14.6.1** Potable water conforms to the **SLS 614** shall be used for washing of produce.

**5.14.6.2** Source of water for post-harvest washing shall be analyzed at least once a year for microbial, chemical and inorganic pollutants to ensure that it is potable and safe complying with the **SLS 614**.

**5.14.7** *Pesticide residue analysis of produce*

**5.14.7.1** The frequency of pesticide residue analysis shall be based on risk assessment, taking into consideration of the types of pesticides used, frequency of applications, intended market assessments, national and international regulations.

**5.14.7.2** Crop producers and/or suppliers shall provide evidence of pesticide residue testing as recommended by the DEA.

**5.14.7.3** The test results shall be traceable to the crop producer and to the production site.

**5.14.7.4** The laboratories used for pesticide residue testing shall be accredited by a competent accreditation authority.

**5.14.7.5** Preventive and corrective action plans shall be in place in the event when a Maximum Residue Limit (MRL) is exceeded where necessary.

**5.14.8** *Storage*

Storage site shall be clean, cool, dry and hygienic, not be exposed to direct sunlight with good ventilation, free of heat accumulation, and be able to prevent contamination by hazardous substances.

**5.15 Grading and Packaging on farm**

**5.15.1** Cardamom produce shall be graded in accordance with the **SLS 166** and vanilla according to the **SLS ISO 5565-1**.

**5.15.2** Packaging materials shall be stored in clean storage areas to avoid contamination by physical and chemical hazards as well as pests. It shall be protected from rodents, birds and other animals.

**5.15.3** Where produce is field packed, packaging shall not be left in the field overnight where risk of contamination exists.

**5.15.4** Packing material should be made out of virgin material. The crop producer should obtain food-grade certificate from the supplier with Material Safety Data Sheet (MSDS).

**5.15.5** Bags or containers used to store chemicals and feeds shall not be re-used.

**5.15.6** Re-usable crates, boxes, containers and also vehicles used to transport harvested produce shall be cleaned to ensure that they are free from foreign materials, soil, dirt, manure,

crop residue, decaying produce, lubricant, and any other contaminant which may be detrimental to the quality of the produce and/or consumers' health.

## **5.15 Waste and pollution management, recycling and re-use**

**5.16.1** All possible waste products and sources of pollution shall be identified in all areas of the production.

**5.16.2** Having identified wastes and pollutants, a plan shall be developed and implemented, to prevent or reduce wastage and pollution. Whenever possible, crop debris and waste shall be composted and re-used for soil conditioning, and shall not be burnt or used for land filling as a mean of recycling.

**5.16.3** Sufficient area of garbage disposal or clearly specified disposal area shall be provided. In addition, reduction of waste generated from the production activities shall be practiced.

## **6 WORKER HEALTH, SAFETY AND WELFARE**

### **6.1 Action plan**

There shall be an action plan to promote safe and good working conditions. Workers who are handling produce shall be medically screened as per the legal requirements.

### **6.2 Training**

**6.2.1** Training shall be given to workers operating dangerous or sophisticated equipment and handling of chemicals.

**6.2.2** Workers shall undergo training in basic hygiene and food safety before handling produce. The aspects of hygiene shall include personal cleanliness, clothing cleanliness and personal behavior. Workers shall be made aware of the requirement to notify management when they contract any communicable disease which may render them unfit to work in the vicinity of produce destined for human consumption.

**6.2.3** Records of training for each employee shall be kept.

**6.2.4** Accident and emergency procedures shall be available with clear instructions to all workers. These procedures shall be displayed in the appropriate language for the workforce. Instructions shall be supported by warning signs and symbols where appropriate.

### **6.3 Facilities and equipment**

**6.3.1** First-aid boxes and other safety equipment shall be made available at permanent sites on the farm. All workers shall be informed of these locations and the personnel-in-charge of safety.

**6.3.2** All hazards shall be clearly identified by warning signs and symbols where appropriate.

## **6.4 Pesticide handling**

Workers undertaking pesticide applications on the farm shall receive regular health checks in line with guidelines based on regulatory requirements.

## **6.5 Workers' hygiene**

**6.5.1** Hygiene protocol for workers shall be put in place in order to prevent physical, microbiological and chemical contamination of the produce.

**6.5.2** Workers shall have access to cleaned toilet and washing facilities in the vicinity of their work.

**6.5.3** Workers shall receive basic training in hygiene requirements for handling of the produce. The training program shall outline the need for hand cleaning, the covering of skin cuts, hair and the confinement of smoking, eating and drinking in permitted areas.

## **6.6 Welfare**

**6.6.1** All employment conditions shall comply with National Employment Regulations.

**6.6.2** If on-site living quarters are provided, they shall be habitable and have basic amenities and facilities.

## **7 SOCIAL JUSTICE**

**7.1** The certification body shall not certify the GAP production in the case of clear social injustice or any violation of basic human rights.

**7.2** Farm shall not engage in or support the use of child labor. Farm shall comply with Sri Lankan child labor Laws regarding minimum working age.

**7.3** Employees shall have equal opportunities, treatment and equal wages when performing the same level of work, regardless of colour, sex, religion, race, political opinion, nationality, extraction or origin.

**7.4** The operator shall provide adequate health and safety measures for employees, casual workers and contractors to prevent accidents and injuries to health arising out of, linked with or occurring in the course of work, by minimizing, so far as is reasonably practical, the causes of hazards inherent in the working environment.

## **8 ENVIRONMENTAL ISSUES**

### **8.1 Impact of farming on the environment**

Crop producers shall conform to existing environmental legislation. This covers the concern for air, water, soil, biodiversity and other environmental issues.

## **8.2 Wildlife and biodiversity conservation**

**8.2.1** Crop producers shall always be conscious of the need to conserve wildlife, biodiversity, high conservation value areas and the enhancement of agricultural biodiversity.

**8.2.2** Where Environmental Impact Assessment (EIA) is required, consideration for the conservation of wildlife and biodiversity shall include the following areas:

- a) Conduct a baseline audit to understand existing animal and plant diversity on the farm. Conservation organizations may be requested to conduct surveys to measure biodiversity and identify areas of concern.
- b) Take action to avoid damage and deterioration of habitats on the farm; and
- c) Create an action plan to enhance habitats and increase biodiversity on the farm complying with the national legislation.

## **8.3 Unproductive sites**

Crop producers are encouraged to convert unproductive sites in their farms into conservation areas for natural flora and fauna.

## **9 PACKAGING REQUIREMENTS**

**9.1** Crop producers shall not use packaging material that may contaminate GAP produce or products.

**9.2** The use of packing material containing Polyvinyl chloride (PVC) shall be prohibited.

**9.3** Packaging materials, storage containers or bins that contain a synthetic pesticide, preservative, fumigant or their residues shall be prohibited.

**9.4** Recycled materials shall not be used for packaging of GAP produce or products.

**9.5** Agricultural produce from conventional agriculture shall not be packed together with GAP-certified and GAP-labeled products.

## **10 MARKING AND/OR LABELLING REQUIREMENTS**

**10.1** The following shall be marked or labeled legibly and indelibly on each package/container:

- a) Name of the produce or product;
- b) Grade (quality/ size);
- c) Name and address of the crop producer;
- d) QR code, bar code, batch code or any decipherable code marking;
- e) Net mass in g or kg;

- f) Date of manufacture/ harvest;
- g) Date of expiry/ best before;
- j) Instruction for usage; and
- k) Storage condition.

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