

GOOD AGRICULTURAL PRACTICES – BASIC REQUIREMENTS

0. FOREWORD

0.1 Agriculture is the mainstay of Indian economy. India's basic strength lies in agriculture. But its vast potential has not been fully exploited. While World Trade Organization (WTO) poses some challenges, it also offers tremendous worldwide market opportunities for Indian agriculture produce. This market potential can be realized by reforming agriculture and making its produce internationally competitive in quality and food safety.

0.2 To enable farm produce to be internationally competitive innovative farming practices incorporating the concept of globally accepted Good Agricultural Practices (GAP) within the framework of commercial agricultural production for long term improvement and sustainability is essential. GAP in addition to improving the yield and quality of the products, also has environmental and social dimensions. Implementation of GAP would promote optimum utilization of resources such as pesticides, fertilizers, and water and eco-friendly agriculture. Its social dimension would be to protect the agricultural workers' health from improper use of chemicals and pesticides. It is a particularly opportune time to promote GAP when second generation of reforms in agriculture which would have a major impact on Indian agriculture, are planned by the Indian Government.

0.3 There are different systems and standards available for control measures in value addition through processing of food meant for human consumption. Although grade standards on size, shape, colour and local preferences are available for most of the fruits and vegetables marketed and consumed in India, their quality in terms of maturity standards, residues of pesticides and other contaminants, microbial loads, etc. have not been adequately addressed. The Indian Good Agricultural Practices (INDGAP) takes into account not only the quality and quantity of the produce obtained from a unit area but also the care is taken in integrating pre-harvest practices like soil & water management, nutrient management and pest management, harvesting, post harvest handling and other logistics. It is therefore necessary to have a comprehensive view while defining control and compliance systems for different farm produce covering horticulture, floriculture, food grains, etc. The areas where appropriate control measures need to be strengthened are farms producing raw material such as food grains, fresh fruits and vegetables, floriculture, etc. to ensure sustained supply of produce of the desirable quality.

0.4 With the opening up of the world market, there is a flow of trade in these agricultural products. It is, therefore, necessary to define certain minimum standards with a well-defined certification and accreditation mechanism for the implementation of INDGAP to facilitate national and international trade in farm produce. Implementation of INDGAP is voluntary and non-discriminatory to the growers.

0.5 For the purposes of preparing this document, Global GAP standards and related ISO standards and guides have been taken into consideration.

1. SCOPE

This standard covers Good Agricultural Practices (GAP)- basic requirements for all farming practices in sustainable manner for maintaining quality and food safety of agricultural produce.

2. DEFINITIONS

For common understanding by the stakeholder in uniform manner, applicable terms have been defined and are given in Annex A

3. REQUIREMENTS

3.1 The requirement for good agricultural practices on different aspects from site selection to packaging storage and dispatch of produce for processing are given in Table 01.

4. APPRAISALS AND ASSESMENT

4.1The requirements stated in Table 01 shall be evaluated to establish that growers comply with those requirements. An appraisal and assessment system has been developed. On evaluation of deficiencies that may appear in evaluation need to be resolved to establish compliance to the requirements. These deficiencies have been classified as:

Critical:

When evidence shows that the grower has not complied with requirements in its documentation and implementation and which raises doubts on the operation and practice of GAP calling for an early correction and corrective actions within the time frame.

Major:

When evidence suggests major break down in the implementation in certain elements of the criteria calling for the early corrective actions within a time frame

Minor:

When evidence shows an isolated non-compliance to the GAP criteria and has negligible impact on the operation of the system and its results.

Note: Multiple Minor NCs with related impact on the operation of the system in one particular area may result in major NC

4.2 To develop a self assessment method against the criteria, a checklist has been developed and is given in Table 02. This will bring uniformity in evaluation of the system. This also indicates when a violation of a particular criteria leads to critical, major or minor nonconformities.

TABLE 01 REQUIREMENTS AND EVALUATION CRITERIA

Clauses	Item	Level of compliance	Control criteria	Compliance criteria
1	SITE SELECTION <i>(One of the key features of sustainable farming is the continuous integration of site-specific knowledge and practical experiences into future management planning and practices.)</i>			
1.1	Risk assessment for new site	Major	Is site free from toxic elements such as industrial wastes and effluents?	The information on soil condition and site on water logging, industrial waste and effluents
1.2	Water availability	Major	Is the site having access to reliable source of irrigation water (where applicable/relevant)?	There should be sufficient source of irrigation water.
1.3	Risk Management Plan	Major	Has a management plan been developed setting out strategies to minimize all identified risks? Are the results of this analysis recorded and used to justify that the site in question is suitable?	A management plan for mitigation of risk should be implemented to meet the objectives
1.4	Meteorological data collection	Minor	Has the meteorological data collated for preceding three years taken into account while judging the suitability of the site.	Three years meteorological data should be available with the farm management
2	SOIL CONDITIONS/MANAGEMENT <i>(Soil is the basis of all agricultural production, and the conservation and improvement of this valuable resource is essential. Good soil husbandry ensures long-term fertility of soil, aids yield and profitability.)</i>			
2.1	Mapping of Soil	Major	Has the soil map prepared for the farm	The type of soil is identified for each site, based on a soil profile or soil analysis.
2.2	Soil Health	Major	Is the soil optimal to the selected crop with reference to its water holding capacity and fertility?	Data on physico-chemical properties of soil-texture and structure be available
2.3	Soil test and nutrition profile	Major	If soils with low fertility levels use soil amendments as per the specific site and requirement of species, are the latest soil test report on physico-chemical parameters and nutrient profile to decide the nature and quantity of soil amendments available?	The soil analysis report from an independent lab should be available. Technical expertise for the quantity, quality and type of soil amendments to be used
2.4	Water suitability	Major	Has the quality of irrigation water been adequately understood and classified in the context of both soil type and the target crop in terms of total salt concentration, Sodium absorption ratio, Bicarbonate and Boron concentration etc.	The information on quality including salt concentration of water for each target crop

2.5	Water quality	Major	Irrigation water is required to conform to standards of heavy metals and residual pesticides.?	Analytical report on irrigation water should be available especially of heavy metals and pesticide residues
2.6	Shade availability	Major	When shade-loving crop is planned for, availability of shade across the field should be ascertained.	Study of cropping pattern and inter-cultivation practices should be introduced
3	SEEDS AND PROPAGATION MATERIAL (The choice of propagation material plays an important role in the production process and by using the correct varieties can help reduce the number of fertilizer and plant protection product applications.)			
3.1	Planting material identification	Critical	Do seed/planting material accompanied with the following information:- a) Name, nomenclature and trade name) b) Botanical name c) Variety?	Details of seed/ propagation material be available including varietal/botanical description
3.2	Sowing Record keeping	Major	Does the producer keep records on sowing/planting methods, seed/planting rate, sowing/planting date?	Records of sowing/ planting method, rate and date must be kept and be available.
3.3	Seed			
3.3.1	Seed Purity	Critical	The seeds chosen for cultivation purposes must meet the botanical and varietal purity.	A record/certificate of the seed quality is kept and available and states variety purity, variety name, batch number and seed vendor.
3.3.2	Seed quality	Critical	Are the seeds chosen for cultivation purposes physically free from pests, diseases, weeds, and foreign and inert matter?	Records should show that seeds chosen were free from pest and diseases
3.3.3	Seed producing record	Major	Does the producer keep records on sowing/ planting methods, seed/planting rate, sowing /planting date?	Records of sowing/ planting method, rate and date must be kept and be available.
3.3.4	Seed treatment protocol	Major	Are prescribed seed treatment protocols for the target species, completed well in advance to match the planting season.	Seed treatment records be available including type of plant protection chemical used and diseases identified, where applicable
3.3.5	Seedling transplanting plan	Major	When the process for seedling production under nursery conditions, is it initiated as per the recommended agronomic practices for the target species and carried out reasonably well before the actual schedule of field transplantation and only	Information of type of seed used and agronomic practices applied should be available

			healthy seedlings transplanted.	
3.4	Stem cutting			
3.4.1	Authentic cutting material	Critical	Are sources of cuttings authenticated when root induction in stem cuttings under nursery conditions for transplantation into the field for both botanical identity and quality of vegetative propagules?	When the grower takes the responsibility of root induction in stem cuttings under nursery conditions for eventual transplantation into the field, records on the source of cuttings authentication for both botanical identity and quality of vegetative propagules be available.
3.4.2	Healthy rooted material	Major	Are only healthy stem cutting giving desired rooting used?	The stem cuttings collected for root induction should be of uniform dimensions in terms of length and diameter and should be in tune with the requirements laid down for the target species
4	CROP MANAGEMENT FOR CULTIVATION			
4.1	Field preparation			
4.1.1	Soil tilth	Major	Is soil brought to the desired tilth to facilitate favourable environment for growing seed and seedling?	Soil preparation for planting requires proper tilth condition for favourable growth of plants
4.1.2	Soil preparation	Major	Do field operation performed provide better environment, soil structure and texture, and keep it free from weeds for initial 20-30 days?	Field operations performed should have recorded information for weed control
4.2	Sowing and transplanting			
4.2.1	Seed rate	Minor	Are recommended rate of seedlings per unit of land area adhered to?	A chart of rate seedling per unit of land should be prepared and available the farm
4.2.2	Seed sowing depth	Major	Is placement of seeds taking place at the appropriate depth in the moist zone of the soil?	A plan for depth of seed placement should be prepared for uniform use
4.2.3	Spacing	Minor	Are seedlings where used transplanted following the spacing norms in terms of row-to-row and plant-to-plant distance governed by the needs of target crop as	Authorized data on row to row and plant to plant distance of saplings /seeds must be available. Agro-techniques available may be used

			envisaged in the agronomic protocol for target species?	
4.2.4	Seedling transplanting stage	Major	Are the seedling at optimum stage of transplanting uprooted and transplanted immediately thereafter?	An authentic data and information should be available on stage up rooting of seedlings for different crops
4.2.5	Plant population	Minor	Replenishment of plant populations to compensate mortality losses should be carried out within a reasonable timeframe and in consideration of the gestation period of the target crop.	Guidelines as when to compensate for population mortality
4.2.6	Seed quality document	Minor	Is there a document that guarantees seed quality (free from injurious pests, diseases, virus, etc.)?	A record/certificate of the seed quality is kept and available and states variety purity, variety name, batch number and seed vendor.
4.3	Manures and Fertilizers			
4.3.1	Source of Manures/ fertilizers	Major	Source of information/material about manures and fertilizers used Parameters used to accept or qualify the manure in case source is from outside.	Where the fertilizer records show that the technically responsible person making the choice of the fertilizer (organic or inorganic) is an external adviser, training and technical competence must be demonstrated.
4.3.2	Organic manure preference	Minor	Is use of organic manure preferred for growing plants supplemented by mineral nutrition through inorganic source in consideration of the nutritional needs of the target crop vis-à-vis the soil characteristics?	Mineral supplements must be based on complete soil analysis in a competent laboratory for the target crops
4.3.3	Manure use	Minor	Is use of compost, vermi-compost, green leafy manure and biofertilizers considered desirable?	These organic modes of supplementation of organic manure/fertilizer should be implemented
4.3.4	Nutritional care	Major	Are specialized nutritional care for distinct purposes such as root production or enhancement of leafy bio-mass etc opted for in the light of recommended agronomic practices for target species?	These practices must be based on scientific information and guided by specialists.
4.4	Irrigation			
4.4.1	Water requirement	Major	How is the total water requirement of the crop	There should be a water management plan to

	Estimation		estimated in the light of available agronomic protocol? How the irrigation cycles is planned for and implemented to ensure optimal plant growth.	optimize water usage and reduce wastage. Records should be maintained for irrigation/fertigation and water usage.
4.4.2	Water optimization	Major	Is there a water management plan to optimise water usage and reduce waste in terms of method of irrigation?	The idea is to avoid wasting water. The irrigation system used should be the most efficient available for the crop and accepted. A documented plan is available which outlines the steps and actions to be taken to implement the management plan.
4.4.3	Water harvesting and conservation	Minor	How water harvesting and water conservation methods are followed, wherever possible	Water conservation measures should be followed
4.4.4	Water testing	Major	Is the quality of water considered in the light of prevailing soil conditions and soil and water analysis taken into account for this purpose.	Test report of water and soil from an accredited lab should be available
4.4.5	Water drainage	Major	How soils having the problem of drainage are dealt with in specific manner so as to provide outlet for excess water?	Written soil water management practice should be available. The impounding of water through heavy rains should not be allowed.
4.5	Weeding and intercultural operations			
4.5.1	Control of Initial flush of weeds	Major	How initial flush of weeds are controlled effectively to ensure a weed free environment to young plants?.	A documented plan should be available for weed control. The weeding and hoeing cycles should be so arranged as to keep the field free from weeds
4.5.2	Inter culture operations optimization	Major	Is the prescribed schedule of all inter-cultural operations such as weeding, hoeing, topping, nipping of buds, pruning, shading and earthing up etc. adhered to in a manner to optimize overall productivity.	Depending on the nature of crop, inter-cultivation practices should be used to reduce the incidence of weeds
4.5.3	Rare use of herbicides	Major	Are use of herbicides avoided as far as possible? In case of their inevitable usage, are available evidence of safety to the target crop considered adequately?	Systemic weedicides should not be used. Biological control measures preferred
4.6	Crop protection			
4.6.1	Pest management Preventive and control measures	Major	Is there a comprehensive preventive and control measures enumerated in the agronomic protocol used for pest management to minimize loss of the final	A comprehensive pest control procedure should be in place

			crop and its quality.	
4.6.2	Bio control agents	Major	Is crop protection plans limited to the use of bio-control agents and bio-pesticides?	Biological route is preferred and plans for this should be available
4.6.3	Pest Management protocols	Critical	Integrated Pest Management protocols shall be in place in absence of the protocols at 4.6.1 and 4.6.2.	IPM practices are encouraged.
4.6.4	Smallest Effective dosage	Major	How under compulsive circumstances care is taken to use smallest effective dosage of pesticides on the basis of crop protection protocols prescribed for the target species	Specialist advice should be available for use of pesticides their dosages, time of application and mode of application
4.6.5	Residue analysis	Critical	When chemical pesticides are used for crop protection, is residue analysis of final product carried out through appropriate testing agencies following standard procedures?	A written procedure for pesticide use be available defining the dose, time and mode of application to reduce pesticide residue in plant body
5	HARVEST AND POST HARVEST MANAGEMENT			
5.1	Harvesting			
5.1.1	maturity determination	Major	How the harvesting season is determined and followed on the basis of qualitative parameters set for the end product of the constituents rather than the total vegetative yield?	The grower must demonstrate the basis for determining the maturity of crop for harvesting
5.1.2	Harvesting devises and careful harvesting	Major	How are cutting devices employed for harvesting selected to minimize the contamination by soil particles? How while harvesting, care is taken to avoid incidental and concurrent harvest of weeds?	Clear instruction should be available for farm worker to use proper cutting devices and avoid harvest of rogue plants
5.1.3	Harvesting containers	Major	How are the containers used for harvested materials kept clean? How care is taken to ensure freedom from the risks of cross contamination by other species, weeds and such other extraneous matter?	A documented procedure should exist for cleaning containers and avoiding mixed up and contamination of produce
5.2	Primary processing			
5.2.1	washing and cleaning methods	Major	Are the washing and cleaning methods for freshly harvested materials laid down in consideration of the target plant material?	The procedure for this purpose should be present to ensure removal of soil particles adhering to the materials. Particularly for frits and vegetables

5.2.2	Produce Drying and handling	Major	Is the freshly harvested produce not be stored as such and the drying process initiated in a continuum? How is the length of storage minimized and handled in a manner to prevent degradation or rotting?	Proper drying techniques and technology be adopted for drying and storage of harvested crop produce
5.2.3	Processing Area conditions	Major	How processing area or sites are kept clean, well ventilated, and have the facilities for protection against sunlight, dust, rain, rodents, insects and livestock?.	Processing area must be clean preferable pucca platform with proper shade
5.2.4	Drying and Temperature requirements	Critical	Are the drying procedure and the temperature employed for this purpose in conformity with the quality needs of the farm produce?	It should be ensured that agronomic package prescribing specific procedures for this phase is complied with. In high humidity conditions, it may be necessary to dry the produce appropriately
5.2.5	Sorting procedure	Major	Whether sorting procedure is carried out after completion of drying phase and before the material is packed?	Proper instruction for sorting should be in place and it should be done after drying and before packing
5.3	Packaging, storage and transportation			
5.3.1	Packaging Material	Major	Is the selection of packaging material based on the quality requirements and possible length of storage before consumption/processing and kept clean, dry and undamaged?	Norms for packaging material should be fixed for different types of crop produce
5.3.2	Container filling	Major	While packaging, are mechanical damages and undue compacting of the dried plant material that may result in undesirable quality changes avoided? Is care taken to avoid overfilling of the containers?	Proper norms be in place to define packaging practices to avoid damage or deterioration of the packed material
5.3.3	Storage conditions	Major	Is the storage area kept dry and protected from insects and rodents and such other factors that may be detrimental to the quality of the product?.	Storage area must be kept clean and free from insect pests
5.3.4	Separate storage	Major	Are different varieties stored separately to avoid varietal mixing?	Practices for separating varieties be clear to handlers
5.3.5	Multiple commodities storage	Minor	When multiple commodities/varieties are handled in the same storage area, is care exercised to prevent product mix up and cross contamination.	Proper segregation be exercised to keep different products separate to avoid mix up

6.1	Identification			
6.1.1	Product Labeling	Major	Are produce legibly labeled inscribing on every pack with the product name, month and year of harvest and the name of farmer/farming agency? If the material was tested before, an appropriate label may be used indicating quality approval	Each produce must be legibly marked with details following trade practices/legal requirements
6.2	Traceability			
6.2.1	Traceability Record	Critical	Is registered product traceable back to and trackable from the registered farm (and other relevant registered areas) where it has been grown?	There is a documented identification and traceability system that allows registered product to be traced back to the registered farm and tracked forward to the immediate customer. Harvest information must link a batch to the production records or the farms of specific producers.
7	PERSONNEL AND EQUIPMENT			
7.1	Trained Personnel	Major	Key resource persons engaged at the site (such as farm owner/ supervisor) must be conversant with all aspects related to the target crop such as, quality requirements of the end product, crop husbandry etc.	Personnel should be trained and training records must be available
7.2	safety and hygiene awareness	Major	The personnel should have basic exposure to subject matters like safety and hygiene	Special training on safety should be imparted to personnel
7.3	Calibrations	Major	The machinery used in fertilizer and pesticide application must be calibrated at prescribed schedules and calibration certificates / records should be maintained.	Calibration schedule should be available and calibration record in line with the schedule from the weights and measures or from an accredited calibration agency
7.4	Equipments cleanliness and placement	Major	Equipments must be clean and mounted where applicable, in an easily accessible manner. Scheduled servicing procedures must be adhered to keep them in working order	Equipment and machinery used should have maintenance schedule
7.5	Specific parts cleaning	Major	Additional care should be taken for cleaning those machine parts that get into direct contact with the harvested produce	Special care should be taken for equipment that comes directly in contact with plant produce

7.6	Safe Material equipments	Critical	The material used for the equipment, particularly that coming into direct contact, should be safe. Equipments that pose a risk of hazardous metallic contamination of the harvested crop should be avoided	Quality of material for equipment should of such that it does not contaminate plant material in contact with it
8	WORKERS HEALTH, SAFETY AND WELFARE <i>(People are key to the safe and efficient operation of any farm. Farm staff and contractors as well as producers themselves stand for the quality of the produce and for environmental protection)</i>			
8.1	Risk Assessments			
8.1.1	Risk assessment of working conditions	Major	Does the farm have a written risk assessment for safe and healthy working conditions?	The written risk assessment can be a generic one but it must be appropriate for conditions on the farm. The risk assessment must be reviewed and updated when changes in the organization.
8.1.2	safety and hygiene policy	Major	Does the farm have a written health, safety and hygiene policy and procedures?	The health, safety and hygiene policy must at least include the points identified in the risk assessment. This could include accident and emergency procedures, hygiene procedures, dealing with any identified risks in the working situation, etc.The policy must be reviewed and updated when the risk assessment changes.
8.2	Training			
8.2.1	Competence Training	Major	Do all workers handling and/or administering plant chemicals, disinfectants, plant protection products, biocides or other hazardous substances and all workers operating dangerous or complex equipment have certificates of competence, and/or details of other such qualifications?	Records must identify workers who carry out such tasks, and show certificates of training or proof of competence.
8.2.2	Health and safety training	Major	Have all workers received adequate health and safety training and are they instructed according to the risk assessment?	Workers can demonstrate competency in responsibilities and tasks through visual observation. If at time of inspection there are no activities, there must be evidence of instructions.
8.2.3	First aid training	Major	Is there always an appropriate number of persons (at	There is always at least one person trained in First

	and deployment of trained person		least one person) trained in first aid present on each farm whenever on-farm activities are being carried out?	Aid present on the farm whenever on-farm activities are being carried out.
8.3	Hazards and First Aid			
8.3.1	Emergency procedures, display and communication	Major	Do accident and emergency procedures exist; are they visually displayed and communicated to all persons associated with the farm activities?	Permanent accident procedures must be clearly displayed in accessible and visible location(s). These instructions are available in the predominant language(s) of the workforce and/or pictograms. The procedures must identify, where appropriate the following: <ul style="list-style-type: none"> - farm's map reference or farm address - contact person(s) - location of the nearest means of communication (telephone, radio) - an up-to-date list of relevant phone numbers (police, ambulance, hospital, fire-brigade, access to emergency health care on site or by means of transport, electricity and water supplier); - how and where to contact the local medical services, Hospital and other emergency services. - location of fire extinguisher; - emergency exits; - emergency cut-offs for electricity, gas and watersupplies. - how to report accidents or dangerous incidents.
8.3.2	Warning Signs	Minor	Are potential hazards clearly identified by warning signs and placed where appropriate?	Permanent and legible signs must indicate potential hazards, e.g.waste pits, fuel tanks, workshops, access doors of the plant protection product / fertiliser / any other chemical storage facilities as well as the treated crop etc. Warning signs must be present.
8.4	Protective Clothing/Equipment			
	Availability of	Major	Are workers (including subcontractors) equipped	Complete sets of protective clothing, (e.g. rubber

	protective clothing		with suitable protective clothing in accordance with legal requirements and/or label instructions or as authorized by a competent authority?	boots, waterproof clothing, protective overalls, rubber gloves, face masks, etc.) which enable label instructions and/or legal requirements and/or requirements as authorized by a competent authority to be complied with are available, used and in a good state of repair.
9	RECORD KEEPING AND INTERNAL SELF-ASSESSMENT/ INTERNAL INSPECTION <i>(Important details of farming practices should be recorded and records retained.)</i>			
9.1	Duration of record keeping	Major	Are all records requested during the external inspection accessible and kept for a minimum period of time of two years, unless a longer requirement is stated in specific control points?	Producers keep up to date records for a minimum of two years from the date of first inspection, unless legally required to do so for a longer period.
9.2	Internal self assessment	Major	Does the producer take responsibility to undertake a minimum of one internal self-assessment per year against the requirements of this standard?	There is documentary evidence that internal self-assessment under responsibility of the producer has been carried out and are recorded annually
9.3	Corrective actions	Major	Are effective corrective actions taken as a result of non-conformances detected during the internal self-assessment ?	Effective corrective actions are documented and have been implemented.
10	WASTE AND POLLUTION MANAGEMENT, RECYCLING AND RE-USE <i>Waste minimisation should include: review of current practices, avoidance of waste, reduction of waste, re-use of waste, and recycling of waste.</i>			
10.1	Identification of Waste and Pollutants	Major	Have all possible waste products and sources of pollution been identified in all areas?	All possible waste products (such as paper, cardboard, plastic, oil, etc)and sources of pollution (e.g. fertiliser excess, exhaust smoke, oil, fuel, noise, effluent, chemicals, feed waste, etc) produced by the farm processes have been listed
10.2	Waste and Pollution Action	Minor	Is there a farm waste management plan to avoid or reduce wastage and pollution by waste recycling?	A comprehensive, documented plan that covers wastage reduction, pollution and waste recycling

	Plan		Are organic wastes composted on the farm and utilised as manure?	is available. Air, soil, water, noise and light contamination must be considered.
10.3	Clean premises	Major	Are the farm and premises clear of litter and waste to avoid establishing a breeding ground for pests and diseases which could result in a food safety risk?	Visual assessment that there is no evidence of breeding grounds in areas of waste/litter in the immediate vicinity of the production or storage buildings. Areas where produce is handled indoors are cleaned at least once a day.
10.4	Designated place for waste storage	Minor	Do the premises have adequate provisions for waste disposal?	The farm has designated areas to store litter and waste. Different types of waste are identified and stored separately.
11	ENVIRONMENT AND CONSERVATION <i>Farming and environment are inseparably linked. Managing wildlife and landscape is of great importance; enhancement of species as well as structural diversity of land and landscape features will benefit the abundance and diversity of flora and fauna</i>			
11.1	Impact of Farming on the Environment and Biodiversity			
11.1.1	Wildlife conservation plan	Minor	Does each farmer have a management of wildlife and conservation plan that acknowledges the impact of farming activities on the environment?	There must be a written action plan which aims to enhance habitats and increase biodiversity on the farm.
11.1.2	Benefit to local community	Minor	Has the farmer considered how to enhance the environment for the benefit of the local community and flora and fauna?	There should be tangible actions and initiatives that can be demonstrated by the farmer on the farm site looking at habitat quality and habitat elements.
11.1.3	Avoid damage habitat	Minor	Does the plan include action to avoid damage and deterioration of habitats on the farm?	Within the conservation plan there is a clear list of priorities and actions to rectify damaged or deteriorated habitats on the farm.
11.1.4	Increase biodiversity	Minor	Does the plan include activities to enhance habitats and increase biodiversity on the farm?	There is a clear list of priorities and actions to enhance habitats for fauna and flora to increase biodiversity on the farm

12	COMPLAINTS			
12.1	Availability of complaint procedure	Major	Is there a complaint procedure available relating to issues covered by the standard?	There must be available on request, a clearly identifiable document for complaints handling.
12.2	Records of complaints	Major	Does the complaints procedure ensure that complaints are adequately recorded, studied and followed up including a record of actions taken?	There are documents of the actions taken with respect to such complaints regarding GAP standard deficiencies found in products or services.

TABLE 02 CHECKLISTS FOR SELF-ASSESSMENT

S.no.	Parameter/Control criteria	Level of compliance	Compliance		Remarks
			Yes	No	
1	SITE SELECTION				
1.1	Is site free from toxic elements such as industrial wastes and effluents?	Major			
1.2	Is the site having access to reliable source of irrigation water (where applicable/relevant)?	Major			
1.3	Has a management plan been developed setting out strategies to minimize all identified risks? Are the results of this analysis recorded and used to justify that the site in question is suitable?	Major			
1.4	Has the meteorological data collated for preceding three years taken into account while judging the suitability of the site.	Minor			
2	SOIL CONDITIONS/MANAGEMENT				
2.1	Has the soil map prepared for the farm	Major			
2.2	Is the soil optimal to the selected crop with reference to its water holding capacity and fertility?	Major			
2.3	If soils with low fertility levels use soil amendments as per the specific site and requirement of species, are the latest soil test report on physico-chemical parameters and nutrient profile to decide the nature	Major			

	and quantity of soil amendments available?				
2.4	Has the quality of irrigation water been adequately understood and classified in the context of both soil type and the target crop in terms of total salt concentration, Sodium absorption ratio, Bicarbonate and Boron concentration etc.	Major			
2.5	Irrigation water is required to conform to standards of heavy metals and residual pesticides.?	Major			
2.6	When shade-loving crop is planned for, availability of shade across the field should be ascertained.	Major			
3	SEEDS AND PROPAGATION MATERIAL				
3.1	Do seed/planting material accompanied with the following information:- a) Name, nomenclature and trade name) b) Botanical name c) Variety?	Critical			
3.2	Does the producer keep records on sowing/planting methods, seed/planting rate, sowing/planting date?	Major			
3.3	Seed				
3.3.1	The seeds chosen for cultivation purposes must meet the botanical and varietal purity.	Critical			
3.3.2	Are the seeds chosen for cultivation purposes physically free from pests, diseases, weeds, and foreign and inert matter?	Critical			
3.3.3	Does the producer keep records on sowing/ planting methods, seed/planting rate, sowing /planting date?	Major			
3.3.4	Are prescribed seed treatment protocols for the target species, completed well in advance to match the planting season.	Major			
3.3.5	When the process for seedling production under nursery conditions, is it initiated as per the recommended agronomic practices for the target species and carried out reasonably well before the actual schedule of field transplantation and only healthy seedlings transplanted.	Major			
3.4	Stem cutting				

3.4.1	Are sources of cuttings authenticated when root induction in stem cuttings under nursery conditions for transplantation into the field for both botanical identity and quality of vegetative propagules?	Critical			
3.4.2	Are only healthy stem cutting giving desired rooting used?	Major			
4	CROP MANAGEMENT FOR CULTIVATION				
4.1	Field preparation				
4.1.1	Is soil brought to the desired tilth to facilitate favourable environment for growing seed and seedling?	Major			
4.1.2	Do field operation performed provide better environment, soil structure and texture, and keep it free from weeds for initial 20-30 days?	Major			
4.2	Sowing and transplanting				
4.2.1	Are recommended rate of seedlings per unit of land area adhered to?	Minor			
4.2.2	Is placement of seeds taking place at the appropriate depth in the moist zone of the soil?	Major			
4.2.3	Are seedlings where used transplanted following the spacing norms in terms of row-to-row and plant-to-plant distance governed by the needs of target crop as envisaged in the agronomic protocol for target species?	Minor			
4.2.4	Are the seedling at optimum stage of transplanting uprooted and transplanted immediately thereafter?	Major			
4.2.5	Replenishment of plant populations to compensate mortality losses should be carried out within a reasonable timeframe and in consideration of the gestation period of the target crop.	Minor			
4.2.6	Is there a document that guarantees seed quality (free from injurious pests, diseases, virus, etc.)?	Minor			
4.3	Manures and Fertilizers				
4.3.1	Source of information/material about manures and fertilizers used	Major			

	Parameters used to accept or qualify the manure in case source is from outside.				
4.3.2	Is use of organic manure preferred for growing plants supplemented by mineral nutrition through inorganic source in consideration of the nutritional needs of the target crop vis-à-vis the soil characteristics?	Minor			
4.3.3	Is use of compost, vermi-compost, green leafy manure and biofertilizers considered desirable?	Minor			
4.3.4	Are specialized nutritional care for distinct purposes such as root production or enhancement of leafy bio-mass etc opted for in the light of recommended agronomic practices for target species?	Major			
4.4	Irrigation				
4.4.1	How is the total water requirement of the crop estimated in the light of available agronomic protocol? How the irrigation cycles is planned for and implemented to ensure optimal plant growth.	Major			
4.4.2	Is there a water management plan to optimise water usage and reduce waste in terms of method of irrigation?	Major			
4.4.3	How water harvesting and water conservation methods are followed, wherever possible	Minor			
4.4.4	Is the quality of water considered in the light of prevailing soil conditions and soil and water analysis taken into account for this purpose.	Major			
4.4.5	How soils having the problem of drainage are dealt with in specific manner so as to provide outlet for excess water?	Major			
4.5	Weeding and inter-cultural operations				
4.5.1	How initial flush of weeds are controlled effectively to ensure a weed free environment to young plants?.	Major			
4.5.2	Is the prescribed schedule of all inter-cultural operations such as weeding, hoeing, topping, nipping of buds, pruning, shading and	Major			

	earthing up etc. adhered to in a manner to optimize overall productivity.				
4.5.3	Are use of herbicides avoided as far as possible? In case of their inevitable usage, are available evidence of safety to the target crop considered adequately?	Major			
4.6	Crop protection				
4.6.1	Is there a comprehensive preventive and control measures enumerated in the agronomic protocol used for pest management to minimize loss of the final crop and its quality.	Major			
4.6.2	Is crop protection plans limited to the use of bio-control agents and bio-pesticides?	Major			
4.6.3	Integrated Pest Management protocols shall be in place in absence of the protocols at 4.6.1 and 4.6.2.	Critical			
4.6.4	How under compulsive circumstances care is taken to use smallest effective dosage of pesticides on the basis of crop protection protocols prescribed for the target species	Major			
4.6.5	When chemical pesticides are used for crop protection, is residue analysis of final product carried out through appropriate testing agencies following standard procedures?	Critical			
5	HARVEST AND POST HARVEST MANAGEMENT				
5.1	Harvesting				
5.1.1	How the harvesting season is determined and followed on the basis of qualitative parameters set for the end product of the constituents rather than the total vegetative yield?	Major			
5.1.2	How are cutting devices employed for harvesting selected to minimize the contamination by soil particles? How while harvesting, care is taken to avoid incidental and concurrent harvest of weeds?	Major			
5.1.3	How are the containers used for harvested materials kept clean? How care is taken to ensure freedom from the risks of cross contamination by other species, weeds and such other extraneous matter?	Major			
5.2	Primary processing				

5.2.1	Are the washing and cleaning methods for freshly harvested materials laid down in consideration of the target plant material?	Major			
5.2.2	Is the freshly harvested produce not be stored as such and the drying process initiated in a continuum? How is the length of storage minimized and handled in a manner to prevent degradation or rotting?	Major			
5.2.3	How processing area or sites are kept clean, well ventilated, and have the facilities for protection against sunlight, dust, rain, rodents, insects and livestock?.	Major			
5.2.4	Are the drying procedure and the temperature employed for this purpose in conformity with the quality needs of the farm produce?	Critical			
5.2.5	Whether sorting procedure is carried out after completion of drying phase and before the material is packed?	Major			
5.3	Packaging, storage and transportation				
5.3.1	Is the selection of packaging material based on the quality requirements and possible length of storage before consumption/processing and kept clean, dry and undamaged?	Major			
5.3.2	While packaging, are mechanical damages and undue compacting of the dried plant material that may result in undesirable quality changes avoided? Is care taken to avoid overfilling of the containers?	Major			
5.3.3	Is the storage area kept dry and protected from insects and rodents and such other factors that may be detrimental to the quality of the product?.	Major			
5.3.4	Are different varieties stored separately to avoid varietal mixing?	Major			
5.3.5	When multiple commodities/varieties are handled in the same storage area, is care exercised to prevent product mix up and cross contamination.	Minor			
6	IDENTIFICATION AND TRACEABILITY				
6.1	Identification				
6.1.1	Are produce legibly labeled inscribing on every pack with the product name, month and year of harvest and the name of farmer/farming agency? If the material was tested before, an appropriate label may be	Major			

	used indicating quality approval				
6.2	Traceability				
6.2.1	Is registered product traceable back to and trackable from the registered farm (and other relevant registered areas) where it has been grown?	Critical			
7	PERSONNEL AND EQUIPMENT				
7.1	Key resource persons engaged at the site (such as farm owner/ supervisor) must be conversant with all aspects related to the target crop such as, quality requirements of the end product, crop husbandry etc.	Major			
7.2	The personnel should have basic exposure to subject matters like safety and hygiene	Major			
7.3	The machinery used in fertilizer and pesticide application must be calibrated at prescribed schedules and calibration certificates / records should be maintained.	Major			
7.4	Equipments must be clean and mounted where applicable, in an easily accessible manner. Scheduled servicing procedures must be adhered to keep them in working order	Major			
7.5	Additional care should be taken for cleaning those machine parts that get into direct contact with the harvested produce	Major			
7.6	The material used for the equipment, particularly that coming into direct contact, should be safe. Equipments that pose a risk of hazardous metallic contamination of the harvested crop should be avoided	Critical			
8	WORKERS HEALTH, SAFETY AND WELFARE				
8.1	Risk Assessments				
8.1.1	Does the farm have a written risk assessment for safe and healthy working conditions?	Major			
8.1.2	Does the farm have a written health, safety and hygiene policy and procedures?	Major			

8.2	Training				
8.2.1	Do all workers handling and/or administering plant chemicals, disinfectants, plant protection products, biocides or other hazardous substances and all workers operating dangerous or complex equipment have certificates of competence, and/or details of other such qualifications?	Major			
8.2.2	Have all workers received adequate health and safety training and are they instructed according to the risk assessment?	Major			
8.2.3	Is there always an appropriate number of persons (at least one person) trained in first aid present on each farm whenever on-farm activities are being carried out?	Major			
8.3	Hazards and First Aid				
8.3.1	Do accident and emergency procedures exist; are they visually displayed and communicated to all persons associated with the farm activities?	Major			
8.3.2	Are potential hazards clearly identified by warning signs and placed where appropriate?	Minor			
8.4	Protective Clothing/Equipment				
	Are workers (including subcontractors) equipped with suitable protective clothing in accordance with legal requirements and/or label instructions or as authorized by a competent authority?	Major			
9	RECORD KEEPING AND INTERNAL SELF-ASSESSMENT/ INTERNAL INSPECTION				

9.1	Are all records requested during the external inspection accessible and kept for a minimum period of time of two years, unless a longer requirement is stated in specific control points?	Major			
9.2	Does the producer take responsibility to undertake a minimum of one internal self-assessment per year against the requirements of this standard?	Major			
9.3	Are effective corrective actions taken as a result of non-conformances detected during the internal self-assessment ?	Major			
10	WASTE AND POLLUTION MANAGEMENT, RECYCLING AND RE-USE				
10.1	Have all possible waste products and sources of pollution been identified in all areas?	Major			
10.2	Is there a farm waste management plan to avoid or reduce wastage and pollution by waste recycling? Are organic wastes composted on the farm and utilised as manure?	Minor			
10.3	Are the farm and premises clear of litter and waste to avoid establishing a breeding ground for pests and diseases which could result in a food safety risk?	Major			
10.4	Do the premises have adequate provisions for waste disposal?	Minor			
11	ENVIRONMENT AND CONSERVATION				
11.1	Does each farmer have a management of wildlife and conservation plan that acknowledges the impact of farming activities on the environment?	Minor			
11.2	Has the farmer considered how to enhance the environment for the benefit of the local community and flora and fauna?	Minor			
11.3	Does the plan include action to avoid damage and deterioration of habitats on the farm?	Minor			
11.4	Does the plan include activities to enhance habitats and increase biodiversity	Minor			

	on the farm?				
12.	COMPLAINTS				
12.1	Is there a complaint procedure available relating to issues covered by the standard?	Major			
12.2	Does the complaints procedure ensure that complaints are adequately recorded, studied and followed up including a record of actions taken?	Major			

TERMINOLOGY

1. **Annual crop** : When the time period between end of propagation stage to first harvest date is less than 12 months.
2. **Certification** : All those actions leading to the issuing of an INDGAP certificate.
3. **Crop** : The plants, which produce the produce.
4. **Crop rotation** : The practice of growing different crops in recurring succession on the same land. It also includes crops on certain plot are following other crops according to pre-defined plan.
5. **Crop year** : Generally, the 12 month period from the beginning of harvest of a particular crop rotation.
6. **Certification Body** : An organization that has been approved to grant INDGAP certificate under the Scheme
7. **Customer** : A customer is anyone who purchases products or services from a supplier.
8. **Environment** : Water, air, land, wild species of fauna & flora and any inter relationship between them, as well as relationship with living organisms.
9. **Farm** : A farm is an agricultural production unit or group of agricultural production units; covered by same operational procedures, farm management and INDGAP decision-making activities.
10. **Food safety** : An assurance that food will not cause harm to the consumer when it is prepared and consumed according to its intended use.
11. **Harvesting containers** : Containers used for transporting produce during harvest.
12. **Hazard**: A biological, chemical, physical or any other property that may cause a product to be unsafe for human consumption.

- 13. Irrigation:** The application of water to soil to assist in the production of crops especially during stress period.
- 14. Irrigation water:** Water which is artificially applied in the process of irrigation. It does not include precipitation.
- 15. Inter crop:** The crops raised in an orchard or other widely spaced crops for increasing income from the same piece of land e.g short duration vegetables, pulses, oilseeds etc.
- 16. Inter cropping:** Refers to growing of two or more generally dissimilar crops simultaneously on the same piece of land, base crop necessarily in distinct row arrangement. The recommended optimum plant population of the base crop is suitably combined with appropriate additional plant density of the associated crop, and there is crop intensification in both time and space dimensions.
- 17. Integrated pest management:** In agriculture, integrated pest management (IPM) is a pest control strategy that uses a variety of complementary strategies including mechanical devices, physical devices, genetic, biological, cultural management, and chemical management. IPM is a sustainable approach to managing pests by combining biological, cultural, mechanical and chemical tools in a way that minimizes economic, health and environmental risks.
- 18. Individual grower :** An organization or person legally responsible for on farm production, who retains ownership of all the produce covered in this INDGAP certificate.
- 19. In-organic Fertilizer :** Commercial chemical fertilizer.
- 20. Inspection :** An examination of systems for control of food, raw materials, processing and distribution including in process and finished product testing in order to verify compliance to requirements.
- 21. Pesticide :** Plant protection product.
- 22. Ploughing:** Operations carried out with the help of tractor drawn or bullock drawn implements known as plough, before the crops are sown.
- 23. Pollution:** Contamination of natural environment by the addition to air or water of substances potentially toxic or otherwise harmful to man and animals for example, SO₂, CO₂, radio-active fall out insecticides etc.

- 24. Post – harvest chemicals :** Includes post-harvest plant protection products, detergents, and lubricants.
- 25. Potable water :** Water which needs the quality standards of drinking water such as those described in the WHO published guidelines for the safe use of waste water and excreta in agriculture and aquaculture.
- 26. Primary produce :** Produce at a stage before processing.
- 27. Processed product :** When the structure of the product is altered in appearance or form.
- 28. Produce :** The harvested product of the crop before it is sold.
- 29. Product :** The produce sold to the customers.
- 30. Record :** Document showing objective evidence of the tasks performed and results achieved.
- 31. Registered product crop :** The crop that produces the product that has been registered by the grower with the certification body under INDGAP.
- 32. Registered product produce :** the produce that is the result of the registered product crop.
- 33. Registration Number :** The number given to grower or grower group when he has completed the registration.
- 34. Rouging :** To remove weeds or off-type or diseased plants from a standing field crop.
- 35. Seeding :** The juvenile stage of a plant grown from seed. Usually indicates plants which have up to and including about 4 true leaves.
- 36. Tillage :** The use of implements for mechanical manipulation to prepare seed beds conducive for field crop production
- 37. Trace-back :** The ability to trace the history, use or location of a product (i.e., the origin of materials and parts, processes applied to the product, or its distribution and placement after delivery) by means of a record.
- 38. Worker :** Any person on the farm that has been contracted to carry out a task. This includes farm owners and managers.