

DRAFT UGANDA STANDARD

Second Edition
2018-mm-dd

Organic production standard

PUBLIC REVIEW DRAFT



Reference number
DUS DEAS 456: 2018

Compliance with this standard does not, of itself confer immunity from legal obligations

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The Executive Director
Uganda National Bureau of Standards
P.O. Box 6329
Kampala
Uganda
Tel: +256 417 333 250/1/2
Fax: +256 414 286 123
E-mail: info@unbs.go.ug
Web: www.unbs.go.ug

National foreword

Uganda National Bureau of Standards (UNBS) is a parastatal under the Ministry of Trade, Industry and Cooperatives established under Cap 327, of the Laws of Uganda, as amended. UNBS is mandated to co-ordinate the elaboration of standards and is

- (a) a member of International Organisation for Standardisation (ISO) and
- (b) a contact point for the WHO/FAO Codex Alimentarius Commission on Food Standards, and
- (c) the National Enquiry Point on TBT Agreement of the World Trade Organisation (WTO).

The work of preparing Uganda Standards is carried out through Technical Committees. A Technical Committee is established to deliberate on standards in a given field or area and consists of representatives of consumers, traders, academicians, manufacturers, government and other stakeholders.

Draft Uganda Standards adopted by the Technical Committee are widely circulated to stakeholders and the general public for comments. The committee reviews the comments before recommending the draft standards for approval and declaration as Uganda Standards by the National Standards Council.

This Draft Uganda Standard, DUS DEAS 456: 2018, *Organic production standard*, is identical with and has been reproduced from a Draft East African Standard, DEAS 456: 2018, *Organic production standard*, and is being proposed for adoption as a Uganda Standard.

This standard was developed by the Food and agriculture Standards Technical Committee (UNBS/TC 2).

This second edition cancels and replaces the first edition, US EAS 456:2007, which has been technically revised.

Wherever the words, "East African Standard" appear, they should be replaced by "Uganda Standard."



DEAS 456: 2018

ICS 67.020

DRAFT EAST AFRICAN STANDARD

Organic production standard

EAST AFRICAN COMMUNITY

PUBLIC REVIEW DRAFT

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East African Community
P.O. Box 1096,
Arusha
Tanzania
Tel: + 255 27 2162100
Fax: + 255 27 2162190
E-mail: eac@eachq.org
Web: www.eac-quality.net

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Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing safety and quality of products and services in the East African Community. It is envisaged that through harmonized standardization, trade barriers that are encountered when goods and services are exchanged within the Community will be removed.

The Community has established an East African Standards Committee (EASC) mandated to develop and issue East African Standards (EAS). The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the public and private sector organizations in the community.

East African Standards are developed through Technical Committees that are representative of key stakeholders including government, academia, consumer groups, private sector and other interested parties. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the Principles and procedures for development of East African Standards.

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

The committee responsible for this document is Technical Committee EASC/TC 020, *Agriculture and Agrochemicals*.

Attention is drawn to the possibility that some of the elements of this document may be subject of patent rights. EAC shall not be held responsible for identifying any or all such patent rights.

This second edition cancels and replaces the first edition (EAS 456:2007), which has been technically revised.

Introduction

The history, culture and community values of East Africans are embedded in agriculture. It is the most important source of livelihoods for millions of East Africans. The sustainable management of the agriculture production process is therefore crucial if livelihoods are to be sustained.

Organic agriculture is a holistic production management system, which promotes and enhances agro-ecosystem health, including bio-diversity, biological cycles and soil biological activity. It seeks to minimise the use of external inputs, avoiding the use of synthetic drugs, fertilizers and pesticides and aims at optimising the health and productivity of interdependent communities of soil life, plants, animals and people. It builds on East Africa's rich heritage of indigenous knowledge combined with modern science, technologies and practices.

The aims of organic agriculture are summarised in the four principles of health, ecology, fairness and care which inspire the worldwide organic movement. See Annex A.

The East African Organic Production Standard (EAOPS) has been written for organic production in East Africa and has been adapted to conditions in East Africa. The purpose is to have a single organic standard for organic agriculture production under East African conditions.

This East African Organic Production Standard has been based on organic standards currently in place in the region as well as the International Federation of Organic Agriculture Movements (IFOAM) Standards and the Codex Alimentarius guidelines for the production, processing, labelling and marketing of organically produced foods.

The East African Organic Production Standard can be used for self-assessment by producers, declarations of conformity in the marketplace, certification by certification bodies in the region, or other kinds of verification. If the standard is used for the purposes of third-party certification, inspection and certification should be carried out in accordance to international norms, such as ISO Guide 65 or the IFOAM Accreditation Criteria. If adherence to the standard is verified through other mechanisms, those mechanisms shall adhere to the principles of competency, integrity and transparency.

The standard is intended for the development of organic production and trade in the East African region. The standards can be a platform for a common label for organic products in East Africa using the East African organic mark (Kilimo hai mark) and for developing consumer trust. The standard also formulates standpoints which can be used in international negotiations on standards. Further, it can be a basis for equivalence agreements with other countries and regions.

The East African Organic Production Standard has been written in a way to make it easy for the reader and user to access and understand. Because of the need for organic agriculture to be adapted to local conditions, the standard is not overly prescriptive. The standard covers plant production, animal husbandry, bee-keeping, wild production and processing, aquaculture, sustainable fisheries and products therefrom, regardless of their final use. In the future, other areas will be incorporated as the need arises.

Because organic agriculture is dynamic, and new knowledge is continuously being generated, this standard will be revised regularly to incorporate new knowledge. The revisions will involve consultations with the stakeholders

PUBLIC REVIEW DRAFT

Organic production standard

1 Scope

This Draft East African Standard provides requirements for organic production. It covers plant production, animal husbandry, aquaculture, sustainable fisheries, bee-keeping, the harvesting of wild products, and the processing and labelling of the products therefrom. It does not cover procedures for verification such as inspection or certification of products.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

biodiversity

variety of life: it includes genetic diversity (i.e., diversity within and among species), species diversity (i.e., the number and variety of species), and ecosystem diversity (total number of ecosystem types)

3.2

bio-fouling

unwanted accumulation of microbial, plant or animal materials or organisms on man-made surfaces

3.3

breeding

selection of plants or animals to reproduce or to further develop desired characteristics in succeeding generations

3.4

by-catch

any non-targeted species in sustainable fishery and aquaculture

3.5

buffer zone

clearly defined and identifiable boundary area bordering an organic production site and adjacent areas that is established to avoid contact with substances which shall not be used according to this standard

3.6
child
person under the specified age in the respective national legislations. In cases involving employment in hazardous sectors, child denotes a person under the age of 18 years

3.7
child labour
any employment that interferes with the legal rights of a child and culturally appropriate educational needs

3.8
contamination
contact of organic product, facilities and/ or land with a substance (s) prohibited for Organic production and/or handling

3.9
conventional
any material, production, or processing practice that is not organic or organic “in-conversion”

3.10
conversion period
time between the start of the organic management and the acceptance of crops and animal husbandry as organic

3.11
crop rotation
practice of alternating the species or families of annual and/or biennial crops grown in a certain field in a pattern or sequence so as to break weed, pest and disease cycles and to maintain or improve soil fertility and the content of organic matter

3.12
feral animals
animals that have escaped from domestication and have reverted to the wild state

3.13
food additive
any substance not normally consumed as a food by itself and not normally used as a typical ingredient of the food, whether or not it has nutritive value, the intentional addition of which to food for a technological (including organoleptic) purpose in the manufacture, processing, preparation, treatment, packing, packaging, transport or holding of such food results, or may be reasonably expected to result, (directly or indirectly) in it or its by-products becoming a component of or otherwise affecting the characteristics of such foods. The term does not include contaminants, or substances added to food for maintaining or improving nutritional qualities, or sodium chloride.

3.14
food fortification
addition of one or more essential nutrients to a food, whether or not it is normally contained in the food, for the purpose of preventing or correcting a demonstrated deficiency of one or more nutrients in the population or specific population groups

3.15
genetic engineering
Genetic Engineering (GE) is a set of modern biotechnology techniques that involve: the application of in vitro, ex vivo, in vivo nucleic acid techniques, including recombinant deoxyribonucleic acid (DNA), ribonucleic acid (RNA) and introduction of nucleic acid into cells or organelles; or editing, altering, modifying, deleting or adding DNA or RNA or any molecular components affecting their micro- or macrostructure or function directly or indirectly (e.g. through epigenetic modifications of gene expression or by other means); fusion of cells; which are not techniques used in traditional breeding and selection.

3.16**genetically modified organism (GMO)**

plant, animal or microbe that has been transformed by genetic engineering

3.17**green manure**

crop that is incorporated into the soil for the purpose of soil improvement and which may include spontaneous crops, plants or weeds

3.18**habitat**

area over which a plant or animal species naturally exists; the area where a species occurs. It is also used to indicate types of habitat, e.g., seashore, riverbank, woodland, and grassland.

3.19**high conservation value area**

area that has been identified as having outstanding and critical importance due to its environmental, socioeconomic, biodiversity or landscape values.

3.20**homeopathic treatment**

treatment of disease based on administration of remedies prepared through successive dilutions of a substance that in larger amounts produces symptoms in healthy subjects similar to those of the disease itself

3.21**hydroponic systems**

crop production systems in inert media and/or water solutions using dissociated nutrients (in suspension or solution) as prime source of nutrient supply. Growing crops in water only is not considered a hydroponic system

3.22**ingredient**

any substance, including a food additive, used in the manufacture or preparation of food and non-food products and present in the final product (although possibly in a modified form)

3.23**intractable residues**

vegetative crop material left on a field after a crop is harvested, pruned or processed that is difficult to manage

3.24**irradiation (ionizing radiation)**

high energy emissions from radio nucleotides, capable of altering a product's molecular structure for the purpose of controlling microbial contaminants, pathogens, parasites and pests in food, preserving food or inhibiting physiological processes such as sprouting or ripening, or for the purpose of inducing mutations for selection and breeding

3.25**label**

any written, printed or graphic representation that is present on a product, accompanies the product or is displayed near the product

3.26**manure**

organic material that is used to fertilize land, usually consisting of the feces and urine of domestic livestock, with or without litter such as straw, hay or bedding

3.27

nanomaterials

substances deliberately designed, engineered and produced by human activity to be in the nanoscale range (approx 1-300 nm) because of very specific properties or compositions (e.g. shape, surface properties, or chemistry) that result only in that nanoscale. Incidental particles in the nanoscale range created during traditional food processing such as homogenization, milling, churning, and freezing, and naturally occurring particles in the nanoscale range are not intended to be included in this definition.

3.28

operator

individual or organization responsible for ensuring that the production system and the products meet this standard

3.29

organic agriculture

holistic production management system, which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles and soil biological activity. It seeks to minimise the use of external inputs, avoiding the use of synthetic drugs, fertilizers and pesticides and aims at optimising the health and productivity of interdependent communities of soil life, plants, animals and people

3.30

organic product

product which has been produced, processed and handled in compliance with this standard

3.30.1

organic fish

are fishery products produced under natural conditions following organic agriculture principles and are not exposed to any protective additives or genetic engineering and fed with feeds prepared with natural materials. Organic fish can be produced in oceans, domestic waters, pools, net cages, barrages, lakes, rivers, ponds, fish traps and farms

3.32

organic seed and planting material

seed and planting material that is produced under certified organic management

3.33

parallel production

any production in which the same unit is growing, breeding, handling or processing the same products in both an organic and a non-organic system. A situation with organic and in-conversion production of the same product is also parallel production.

3.34

precautionary approach

set of measures that provides for prevention of potential damage or harm to human health and/or the environment from introduction of technologies and practices whose safety has not been sufficiently proven.

3.35

processing aid

any substance or material, not including apparatus or utensils, and not consumed as a product ingredient by itself, intentionally used in the processing of raw materials, the product or its ingredients, to fulfill a certain technical purpose during treatment or processing and which may result in the non intentional but unavoidable presence of residues or derivatives in the final product. This includes filtration auxiliaries and solvents used for extraction

3.36

propagation

reproduction of plants by sexual (i.e. seed) or asexual (i.e. cuttings, root division) means

3.37**ruderal**

plant growing in waste places, along roadsides or in rubbish

3.38**sanitize**

to adequately treat produce or product contact surfaces by a process that is effective in destroying or substantially reducing the numbers of vegetative cells of microorganisms of public health concern, and other undesirable microorganisms, but without adversely affecting the product or its safety for the consumer

3.39**shall**

required state or action

3.40**should**

recommended, desirable or expected state or action

3.41**soil**

a natural living ecosystem that develops on the surface of the earth as a result of the influence of climate, topography, biological activity, time, and sometimes cultivation. Soil is composed of air, water, minerals, organisms and organic matter and is connected to the outermost layer of the earth.

3.42**soil fertility**

potential capacity of the soil to supply nutrients required for plant growth

3.43**soil health**

continued capacity of the soil to function as a vital living system, within ecosystem and land use boundaries, to sustain biological productivity, maintain the quality of air and water environments, and promote plant, animal and human health. Soil health is the ability of soil to perform according to its potential and changes over time due to human use and management or to natural events.

3.44**soil quality**

functional capacity of the soil, within ecosystem and land use boundaries, to sustain biological productivity, maintain environmental quality and promote plant, animal, microbial and human health. Soil quality is a function of its biological, physical and chemical properties, many of which are a function of soil organic matter content, which influence the capacity of soil to perform crop production and environmental functions, including the absence of contaminants.

3.45**spawning biomass**

combined weight of all individuals in a fish stock that are capable of reproducing

3.46**split production**

where only part of the farm or processing unit is organic. The remainder of the property can be (a) non-organic, and/or (b) in conversion. Also see parallel production.

3.47**substrate**

substance that an organism grows in and lives upon

3.48

sustainable fishery

fishery that is managed to produce organic fish products and other services in an ecologically sound manner and socio-economically equitable for the present and future generations

3.49

synthetic

manufactured by chemical and industrial processes. Includes products not found in nature or simulation of products from natural sources (but not extracted from natural raw materials)

3.50

synthetic pesticide

synthetic product intended to prevent, eliminate or control a pest

3.51

traceability

documented movement of an organic product from its production system to final use

3.51

ghost fishing

The accidental capture of aquatic organisms by fishing gear (usually gillnets, or traps, pots, etc.) that has been lost or discarded into the sea and which continues to entangle or trap aquatic animals.

4 General requirements for organic production

4.1 Ecosystem management

4.1.1 General Principle

Organic farming benefits the quality and sustainability of ecosystems.

4.1.2 Requirements

4.1.2.1 Operators shall design and implement measures to maintain and improve landscape and enhance biodiversity quality, by maintaining on farm wildlife refuge habitats or establishing them where none exist. Such habitats may include, but are not limited to:

- a) extensive grassland such as moorlands, reed land or dry land;
- b) in general, all areas which are not under rotation and are not heavily manured: extensive pastures, meadows, extensive grassland, extensive orchards, hedges, hedgerows, edges between agriculture and forest land, groups of trees and/or bushes, and forest and woodland;
- c) ecologically rich fallow land or arable land;
- d) ecologically diversified (extensive) field margins;
- e) waterways, pools, springs, ditches, floodplains, wetlands, swamps and other water rich areas which are not used for intensive agriculture or aquaculture production;
- f) areas with ruderal flora; and
- g) wildlife corridors that provide linkages and connectivity to native habitat.

4.1.2.2 Clearing or destruction of High Conservation Value Areas is prohibited. Farming areas installed on land that has been obtained by clearing of High Conservation Value Areas in the preceding five years shall not be considered compliant with this standard.

4.1.2.3 The operator shall demonstrate care for biodiversity throughout the farm holding.

4.1.2.4 Culturally or legally protected primary ecosystems, such as primary forests and wetlands, shall not be cleared or drained for the purpose of establishing production according to this standard.

4.1.2.5 To the extent possible and appropriate to the crop and the conditions, trees shall be present in the fields.

NOTE Older, fruiting trees are especially important to insects and birds.

4.1.2.6 Natural boundaries such as hedges, paths and ditches should be encouraged.

NOTE Hedges, paths and ditches act as important wildlife corridors through agricultural land, help to maintain a diverse ecology, and provide a habitat for many beneficial animals and insects and shelter for livestock.

4.2 Soil and water conservation

4.2.1 General principle

Organic farming methods conserve and improve the soil, maintain water quality and use water efficiently and responsibly.

4.2.2 Requirements

4.2.2.1 Soil conservation shall be an integral part of the organic farming system. In order to prevent erosion by wind and water, the operator shall take measures appropriate to the specific local conditions of climate, soil, slope and land use. Examples are the use of windbreaks, soil cover, cover crops, minimum tillage, fallowing (with vegetation cover), mulching, terraces and contour planting.

4.2.2.2 Operators shall prevent or remedy soil and water salinization where these pose a problem.

4.2.2.3 Land preparation by burning vegetation or crop residues is prohibited. Exceptions may be granted in cases where burning is used to suppress the spread of disease, to stimulate seed germination, to remove intractable residues, or other such exceptional cases; in which case, burning of vegetation shall be restricted and controlled to protect organic matter and biodiversity.

4.2.2.5 Operators shall not deplete nor excessively exploit water resources, and shall seek to preserve water quality. They shall where possible recycle rainwater and monitor water extraction.

4.2.2.6 Operators shall return nutrients, organic matter and other resources removed from the soil through harvesting by the recycling, regeneration and addition of organic materials and nutrients.

4.2.2.7 Stocking densities and grazing shall not degrade land or pollute water resources. This applies also to all manure management and applications.

4.4 Documentation and transparency

4.4.1 The operator shall maintain records of the production, appropriate for the scale of production and the ability of the operator.

4.4.2 The operator shall give interested parties relevant information about the production.

4.4.3 The operator shall maintain a system for traceability of organic products.

4.5 Contamination

4.5.1 General Principle

All relevant measures are taken to ensure that organic soil, water resources, air and organic products are protected from contamination.

4.5.2 Requirements

4.5.2.1 The operator shall employ measures including barriers and buffer zones to avoid potential contamination and limit contaminants in organic products.

4.5.2.2 The operator shall avoid using chemical products that may endanger human health or the environment. Where there are products that are considered to be less harmful, they shall be used. The operator shall take relevant precautionary measures to avoid the contamination of organic sites and products. Where there is a reasonable suspicion of substantial contamination by, for example, soil, water, air, inputs or ingredients, appropriate actions shall be taken.

Litter and production waste, both on farms and in processing, shall be handled in such a way that they do not contaminate the organic products or the environment.

Chemical products shall be properly labelled, safely stored and disposed off.

4.5.2.3 Contamination of organic products that results from circumstances beyond the control of the operator may alter the organic status of the operation, the product or both.

4.6 Inappropriate technologies

4.6.1 General Principle

Organic agriculture and aquaculture are based on the principle of care and should prevent significant risks by adopting appropriate technologies and rejecting unpredictable ones.

4.6.2 Requirements

4.6.2.1 Genetically modified organisms or their derivatives shall not be used or introduced through negligence or oversight. This includes animals, seed, propagation material, farm inputs such as fertilizers, soil conditioners and crop-protection materials.

4.6.2.2 Ingredients, additives or processing aids derived from GMOs shall not be used in organic processing.

4.6.2.3 Inputs, processing aids, and ingredients shall be traced back one step in the biological chain from which they are produced to verify that they are not derived from GMOs.

4.6.2.4 On farms with split (including parallel) production, the use of genetically engineered organisms is not permitted in any production activity on the farm.

4.6.2.5 The use of nanomaterials is prohibited in organic production and processing, including in packaging and product contact surfaces. No substance allowed under this standard shall be allowed in nano form

4.7 Adherence to relevant legislation

The operator shall act in accordance with relevant partner state organic agriculture and other regulations.

4.8 Knowledge about organic production

The operator shall ensure that all persons involved in organic production have adequate knowledge of organic production and the relevant parts of this standard.

5 General requirements for crop production and animal husbandry

5.1 Split production and parallel production

5.1.1 General principle

The whole farm, including livestock, is converted to organic management practices according to the standards over a period of time.

5.1.2 Requirements

5.1.2.1 If the whole farm is not converted (split production) the organic and conventional parts of the farm shall be clearly and continuously separated.

5.1.2.2 Simultaneous production of the same products (parallel production) is only permitted where such production is undertaken in a way that allows clear and continuous and verifiable separation of all operations and products claimed as organic. Organic and non-organic units in parallel production must be physically and operationally separated.

5.1.2.3 Land converted to organic production shall not be alternated between organic and conventional production within periods less than the conversion time.

5.1.2.4 A crop which is grown both as organic and non-organic (conventional or in-conversion) on the same farm shall not be sold as organic unless the production is managed in a way that allows clear and continuous separation of the organic and non-organic production (e.g., the varieties for the organic and non-organic crop differ in such a way that they can easily be distinguished from each other).

5.1.2.5 Prohibited materials in annex c and those not listed in annex B shall not be stored where organic products are grown and handled.

5.2 Maintenance of organic management

5.2.1 General Principle

Organic production systems require an ongoing commitment to organic production practices.

5.2.2 Recommendations

In case of split or parallel production, the operator should demonstrate continuous efforts towards bringing the entire farm under organic management, such as increasing the size of the organic operation relative to the conventional or adopting organic practices in the conventional operation.

5.2.3 Requirements

Management of organic production system shall not rely upon continuous switching between organic and conventional.

6 Crop productions

6.1 Choice of Crops species and Varieties and propagation of planting materials

6.1.1 General Principle

Species and varieties cultivated in organic agriculture systems are selected for adaptability to the local soil and climatic conditions, tolerance and resistance to pests and diseases.

6.1.2 Recommendation

Operators should give preference to organically bred varieties (varieties from organic breeding programs) when available.

6.1.3 Requirements

6.1.3.1 Operators shall use organically produced seed and planting material whenever available in appropriate varieties and quality. When organic seed and planting materials are not available in sufficient quantity or quality for the required variety or equivalent varieties, in conversion materials may be used. When none of these are available, conventional materials may be used provided that they have not been treated with post-harvest pesticides not otherwise permitted by this standard. Where postharvest chemical treatment is prescribed by law for phytosanitary purposes, treated seed and planting material may be used

6.1.3.2 All use of chemically treated seeds, seedlings and planting materials shall be documented

6.1.3.3 Non-organic seeds and planting materials shall be propagated under organic management for one generation, in the case of annuals, and for perennials, two growing periods, or 18 months, whichever is the longer, before being certified as organic seed and plant material.

6.1.3.4 Propagation may be based on generative propagation (seeds) as well as vegetative propagation derived from various plant organs e.g.

- a) partitioned tubers, scales, husks;
- b) partitioned bulbs, bulbs, offset bulbs etc.;
- c) layer, cut and graft shoots;
- d) rhizomes; and
- e) meristem culture.

6.1.3.5 All multiplication practices on the farm, except meristem culture, shall be under organic management.

6.1.3.6 Vegetal propagation materials, bedding materials and substrates shall only consist of substances listed in Annex B.

6.2 Breeding of organic varieties

Explanatory Note: This section refers to breeding of organic varieties, not simply use or production of organic seeds from regular (conventional) varieties.

6.2.1 General principles

Organic plant breeding and variety development is sustainable, enhances genetic diversity and relies on natural reproductive ability. It aims for new varieties particularly suited for organic production systems.

Organic plant breeding is based on fertile plants that can establish a viable relationship with the living soil. Organic varieties are obtained by an organic plant breeding program.

6.2.2 Requirements

6.2.2.1 To produce organic varieties, plant breeders shall select their varieties under organic conditions that comply with the requirements of this standard. All multiplication practices except meristem culture shall be under certified organic management.

6.2.2.2 Organic plant breeders shall develop organic varieties only on the basis of genetic material that has not been contaminated by products of genetic engineering.

6.2.2.3 Organic plant breeders shall disclose the applied breeding techniques used to develop an organic variety.

6.2.2.4 The genome is respected as an impartible entity. Technical interventions into the genome of plants shall not be allowed (e.g. ionizing radiation; transfer of isolated DNA, RNA, or proteins).

6.2.2.5 The cell is respected as an impartible entity. Technical interventions into an isolated cell on an artificial medium shall not be allowed (e.g. genetic engineering techniques; destruction of cell walls and disintegration of cell nuclei through cytoplasm fusion).

6.2.2.6 The natural reproductive ability of a plant variety is respected and maintained. This excludes techniques that reduce or inhibit the germination capacities (e.g. terminator technologies).

6.3 Conversion period and requirements

6.3.1 The conversion period for land shall be a minimum of one year of management according to this standard. If land that has been in fallow for at least one year is brought into production, no conversion period shall apply for that land.

6.3.2 The conversion period may be extended depending on past land use (for example, heavy use of pesticides with a risk of contamination of products and the nature of contaminants).

6.3.3 Crops harvested less than 24 months after the application of a prohibited input to crop or soil shall not be used or sold as organic

6.4 Farming system diversity

6.4.1 General principle

The development of living soils is the foundation of organic production. Soil health and quality are the basis of soil management practices and are critical to successful pest, disease and weed management. Organic growing systems are soil based, care for the soil and surrounding ecosystems, provide support for a diversity of species, are based on nutrient recycling and mitigate soil and nutrient losses.

6.4.2 Recommendation

The operator is encouraged to use and preserve indigenous breeds, varieties and species of plants and animals.

6.4.3 Requirements

Diversity in plant production, organic matter, soil fertility, microbial activity and soil and plant health shall be stimulated by crop rotation, intercropping, agro-forestry and other appropriate measures.

For annual crops, crop rotation shall be practised.

For perennial crops, other plants shall be intercropped. For perennial crops that are grown as monocultures where intercropping is not possible (e.g., sugarcane), other means to secure diversity shall be applied to the growing system.

6.5 Soil fertility management

6.5.1 General Principle

Organic farming returns microbial, plant or animal material to the soil to increase or at least maintain its fertility and biological activity.

6.5.2 Recommendation

The fertility program should be based on material of microbial, plant or animal origin, such as green manure, compost or mulch, obtained through the following sources in this order of priority:

- a) organically produced on the farm;
- b) of organic quality, obtained from the surrounding farms or natural environment; and
- c) other inputs allowed under Annex B.

Nutrients and fertility products should be applied in a way that does not harm soil, water, and biodiversity (requirement 6.5.3.3). This should be evaluated through the use of appropriate indicators, such as:

- a) no significant accumulation of heavy metals or phosphorus in the soil;
- b) no significant contribution to the eutrophication of water bodies;
- c) balanced nutrient supply as compared to the nutrient needs; and
- d) maintenance or increase in soil carbon content over time.

6.5.3 Requirements

6.5.3.1 Soil organic matter, microbial activity and general soil health and fertility shall be improved if low and maintained or improved if satisfactory. The operator shall prevent over accumulation of heavy metals and other pollutants in the soils.

6.5.3.2 Material of microbial, plant or animal origin shall form the basis of the fertility program. Maintenance of fertility may not rely solely on off farm inputs.

6.5.3.3 Nutrients and fertility products shall be applied in a way that does not harm soil, water, and biodiversity.

6.5.3.4 Material applied to the land or crop shall be in accordance with Annex B. Fertility amendments in Annex B that are rapidly available to the plants are exceptionally allowed only as a necessary complement when other fertility building techniques have been applied and are insufficient. Human excrement shall be handled in a way that reduces risk of pathogens and parasites and shall not be applied within six months of the harvest of annual crops for human consumption with edible portions in contact with the soil.

6.5.3.5 Mineral fertilizers shall only be used in a program addressing long term fertility needs together with other techniques such as organic matter additions, green manures, crop rotations and nitrogen fixation by plants. Their use shall be justified by appropriate soil and leaf analysis or diagnosed by an independent expert.

6.5.3.6 Mineral fertilizers shall be applied in the form in which they are naturally composed and extracted and shall not be rendered more soluble by chemical treatment.

6.5.3.7 Chilean nitrate and all synthetic fertilizers, including urea, are prohibited.

6.5.3.8 The production of terrestrial plants shall be soil based. The production of such crops in hydroponic systems is prohibited. "Soil based" means that apart from the propagation or seedling stages, a plant must spend its life in the soil. For herbs, flowers and ornamentals in pots that are sold directly to the final consumer, the Certification Body can allow production on permitted growing media.

6.5.3.9 The removal of soil from the farm is prohibited. Incidental removal of soil when harvesting crops is permitted.

6.6 Pest, disease and weed management

6.6.1 General Principles

Organic farming systems apply biological and cultural means to prevent unacceptable losses from pests, diseases and weeds. They use crops and varieties that are well adapted to the environment and a balanced fertility program to maintain fertile soils with high biological activity, locally adapted rotations, companion planting, green manures, functional biodiversity, habitat management, beneficial organisms and other recognized organic practices as described in this standard.

6.6.2 Recommendation

In case operators need to use commercial formulated inputs, preference should be given to formulations approved for use in organic agriculture by a specialized organic material review organization/program.

6.6.3 Requirements

6.6.3.1 The organic production system shall include biological, cultural and mechanical mechanisms to manage pests, weeds and diseases. These include:

- a) choice of appropriate species and varieties;
- b) appropriate rotation programs, intercropping and companion planting;
- c) mechanical cultivation;
- d) protection of natural enemies of pests through provision of favorable habitat, such as hedges, nesting sites and ecological buffer zones that maintain the original vegetation to house pest predators;
- e) natural enemies including release of predators and parasites;
- f) application of heat;
- g) mulching and mowing;
- h) grazing by animals;
- i) mechanical controls such as traps, barriers, light and sound; and
- j) on-farm preparations from local plants, animals and microorganisms.

6.6.3.2 When the measures in 6.6.3 are not sufficient, pest, disease and weed management substances permitted under Annex B Table B.2 may be used.

6.6.3.3 Thermal sterilization of soils is prohibited. Exceptions may be granted to protected cropping structures in instances of severe disease or pest infestation that cannot be otherwise remedied through measures in 6.6.1, 6.6.2 and 6.6.4

6.6.3.4 Active ingredients of natural origin in inputs for pest, disease, weed or growth management may be used unless listed in Annex C.

6.6.3.5 Non-active ingredients, such as carriers and wetting agents, shall not be carcinogens, teratogens, mutagens or neurotoxins.

6.7 Protected cropping

6.7.1 General principle

All the rules on crop production apply to protected cropping, including those concerning conversion period (6.3), diversity of crop production (6.4), and soil fertility and fertilization (6.5). Natural light, air and water are essential components of organic plant production.

6.7.2 Recommendations

Energy used for light and climate control should be from renewable resources. Technologies that reduce energy consumption should be used.

6.7.3 Requirements

6.7.3.1 Artificial light is only allowed for plant propagation and as a complement to sunlight to extend the day length to a maximum of 16 hours.

6.7.3.2 Operators shall monitor record and optimize any energy used for artificial light, heating, cooling, ventilation, humidity and other climate control.

6.8 Mushroom production

6.8.1 The culture substrate for mushrooms shall be constituted of organic ingredients such as organic grain, seed-cakes and straw. Where organic substrates are not commercially available in sufficient quality and quantity, ingredients from conventional production or of natural origin which do not pose a risk of contamination may be used.

6.8.2 Inputs used in mushroom production shall be in accordance with 6.1, 6.5 and 6.6.

6.9 Avoiding contamination

6.9.1 General Principle

All relevant measures are taken to ensure that organic soil and organic products are protected from contamination.

6.9.2 Requirements

6.9.2.1 The operator shall monitor crops, soil, water, and inputs for risks of contamination by prohibited substances and environmental contaminants.

6.9.2.2 Machines, equipment and tools such as seed drills, fertilizer spreaders and spraying equipment from conventional farming systems shall be thoroughly cleaned of potentially contaminating materials before being used on organically managed areas.

6.9.2.3 For synthetic structure coverings, mulches, fleeces, insect netting and silage wrapping, only products based on polyethylene and polypropylene or other polycarbonates, and biodegradable materials (e.g. starch based), are permitted. These shall be removed from the soil after use and shall not be burned on the farmland.

6.9.2.4 Where there is an apparent and substantial risk of contamination from adjacent farms, the operator shall implement measures, including barriers and buffer zones, to avoid or limit the contamination.

6.9.2.5 Treatment of animals against ticks and other ectoparasites shall be administered in such a way that the risk of the contamination of crop land is minimised.

6.10 Draught animals

Draught animals, when used in organic plant production, shall be treated according to the animal management standards (7.3). Working conditions for draught animals shall not be adverse to the health and development of the animal.

7 Animal husbandry

7.1 Animal origin and conversion period

7.1.1 General principle

Organic animals are born and raised on organic holdings. Animal husbandry systems that change from conventional to organic production require a conversion period.

7.1.2 Requirements

7.1.2.1 All the requirements of this standard for land and animals must be met for the duration of the conversion period before the resulting product may be considered as organic. Land and animals may be converted simultaneously.

7.1.2.2 The animal husbandry and individual animals brought into a herd shall undergo a conversion period according to the following:

Type of production	Species	Length of conversion period
Meat production	cows	12 months
	poultry	45 days
	sheep, goats, pigs	3 months
	rabbits	45 days
Dairy production	all species	3 months
Eggs	all species	45 days

7.1.2.3 Animals shall be raised organically from birth. Where organic livestock is not available, conventional animals may be brought in, according to the following maximum age limits:

- a) 2-day-old chicks for meat production;
- b) 18-week-old hens for egg production;
- c) 2 weeks old for any other poultry;
- d) 3 months old for piglets;
- e) 3 months old for calves;

- f) 3 months for goats and sheep; and
- g) Older animals may be brought in for breeding only.

7.2 Parallel/split production

Products from the same type of animal and the same type of production which are both organic and non-organic (conventional or in-conversion) on the same farm shall not be sold as organic unless the production is done in a way that allows for the clear and continuous separation and identification of the organic and non-organic productions.

7.3 Animal management

7.3.1 General principle

Organic livestock husbandry is based on the harmonious relationship between land, plants and livestock, respect for the physiological and behavioural needs of livestock and the feeding of good quality organically grown feedstuffs. Stocking rates for livestock should be appropriate for the region in question taking into consideration the body size/weight of the breeds maintained, feed production capacity, stock health, nutrient balance, and environmental impact.

7.3.2 Requirements

7.3.2.1 The operator shall ensure that the environment, the facilities, stocking density and flock/herd size provides for the behavioral needs of the animals.

7.3.2.2 In particular, the operator shall ensure the following animal welfare conditions:

- a) sufficient free movement and opportunity to express normal patterns of behavior, such as space to stand naturally, lie down easily, move around freely, groom themselves, sleep and nest comfortably, as well as assume all natural postures and movements such as stretching etc.;
- b) sufficient fresh air, water, feed, thermal comfort and natural daylight, to satisfy the needs of the animals;
- c) access to resting areas, shelter and protection from sunlight, temperature, rain, mud and wind adequate to reduce animal stress;
- d) provision of suitable materials and areas for exploratory and foraging behaviors;
- e) in addition to these general welfare conditions for all animal categories, provisions for specific animal groups also have to be taken into account, e.g. for cattle social grooming and grazing; for pigs rooting, separate lying, activity/dunging and feeding areas, free farrowing, group housing; for poultry nesting, wing stretching/flapping, foraging, dust bathing, perching and preening.

Note: animals whose management system requires outdoor tethering to make use of grazing can still be managed in compliance with these requirements.

7.3.2.3 Herd animals shall not be kept in isolation from other animals of the same species. This provision does not apply to small herds for mostly self-sufficient production. Operators may isolate male animals, sick animals and those about to give birth.

7.3.2.4 Construction materials and methods and production equipment that might significantly harm human or animal health shall not be used.

7.3.2.5 Operators shall manage pests and diseases in livestock housing and shall use the following methods according to these priorities:

- a) preventative methods such as disruption, elimination of habitat and access to facilities;
- b) mechanical, physical and biological methods.
- c) substances (other than pesticides) used in traps.
- d) substances listed in Annex F of this standard;

Note: Other products may be used if required by law for the control of notifiable diseases.

7.3.2.6 When animals are housed, the operator shall ensure that:

- a) where animals require bedding, adequate natural materials are provided. Bedding materials that are normally consumed by the animals shall be organic;
- b) building construction provides for insulation, heating, cooling and ventilation of the building, ensuring that air circulation, dust levels, temperature, relative air humidity, and gas concentrations are within levels that are not harmful to the livestock;
- c) no animals shall be kept in closed cages;
- d) animals are protected from predation by wild and feral animals;
- e) animals are regularly visited and monitored; and
- f) when welfare and health problems occur, appropriate management adjustments are implemented (e.g. reducing stocking density).

7.3.2.7 All animals shall have unrestricted and daily access to pasture or a soil based open air exercise area or run, with vegetation, whenever the physiological condition of the animal, the weather and the state of the ground permit. Such areas may be partially covered. Animals may temporarily be kept indoors because of inclement weather, health condition, reproduction, specific handling requirements or at night. Lactation shall not be considered a valid condition for keeping animals indoors.

7.3.2.8 The maximum hours of artificial light used to prolong natural day length shall not exceed a maximum that respects the natural behavior, geographical conditions and general health of the animals. For laying hens, a minimum daily rest period of eight continuous hours without artificial light shall be respected.

7.4 Breeding

7.4.1 General Principle

Breeds are adapted to local conditions.

7.4.2 Requirements

7.4.2.1 Breeding systems shall be based on breeds that can reproduce successfully under natural conditions.

7.4.2.2 Artificial insemination is permitted.

7.4.2.3 Embryo transfer techniques and cloning are prohibited.

7.4.2.4 Hormones are prohibited to induce ovulation and birth unless applied to individual animals for medical reasons and under veterinary supervision.

7.5 Mutilations

7.5.1 General principle

Organic farming respects the animals' distinctive characteristics.

7.5.2 Requirements

7.5.2.1 Mutilations are prohibited.

7.5.2.2 The following exceptions may be used only if animal suffering is minimized and anesthetics are used where appropriate:

- a) castrations;
- b) tail docking of lambs;
- c) dehorning at young age within 1 year; and
- d) ringing, except for pigs;

7.6 Animal nutrition

7.6.1 General Principle

Organic animals receive their nutritional needs from organic forage and feed of good quality.

7.6.2 Requirements

7.6.2.1 Animals shall be fed organic feed.

Operators may feed a limited percentage of non-organic feed under specific conditions in the following cases:

- a) organic feed is of inadequate quantity or quality;
- b) areas where organic agriculture is in early stages of development; and
- c) grazing of non-organic grass or vegetation during seasonal migration.

7.6.2.2 Animals shall be fed 100 % organic feedstuff. Where the quantity or quality of commercially available organic feed is inadequate, the daily maximum percentage of non-organic feed shall be 40 %, calculated on a dry-matter basis.

7.6.2.3 Animals shall be offered a balanced diet that provides all of the nutritional needs of the animals in a form allowing them to exhibit their natural feeding and digestive behaviour.

7.6.2.4 More than 50% of the feed shall come from the farm unit itself, surrounding natural grazing areas, or be produced in cooperation with other organic farms in the region.

Note: Exceptions may be permitted in regions where organic feed production is in an early stage of development or temporarily deficient, or in cases of unpredictably low crop production on the farm or in the region.

7.6.2.5 For the calculation of feeding allowances only, feed produced on the farm unit during the first year of organic management may be classed as organic. This refers only to feed for animals that are being produced within the farm unit. Such feed may not be sold or otherwise marketed as organic.

7.6.2.6 The following substances are prohibited in the diet:

- a) farm animal by-products (e.g. abattoir waste) to ruminants;
- b) slaughter products of the same species;
- c) all types of excrements including droppings, dung or other manure;
- d) feed subjected to solvent extraction (e.g. hexane) or the addition of other chemical agents;
- e) synthetic amino acids and amino acid isolates;
- f) urea and other synthetic nitrogen compounds;
- g) synthetic growth promoters or stimulants;
- h) synthetic appetizers;
- i) preservatives, except when used as a processing aid;
- j) artificial colouring agents; and
- k) antibiotics

7.6.2.7 Animals may be fed vitamins, trace elements and supplements from natural sources.

7.6.2.8 Synthetic vitamins, minerals and supplements not exceeding 5 % (w/w) of the total feed may be used when natural sources are not available in sufficient quantity and quality.

7.6.2.9 All ruminants shall have daily access to roughage. Ruminants must be grazed throughout the entire grazing season(s).

NOTE Ruminants may be fed with organic carried fresh fodder during the grazing season where weather and soil conditions do not permit grazing. The organic carried fresh fodder shall not exceed 20% of the amount of forage grazed during the grazing season. Animal welfare shall not be compromised.

7.6.2.10 Fodder preservatives such as the following may be used:

- a) bacteria, fungi and enzymes;
- b) natural products of food industry;
- c) plant based products; and
- d) vitamins and minerals subject to the order of preference in 7.6.2.7 and 7.6.2.8.

NOTE synthetic chemical fodder preservatives such as acetic formic and propionic acid are permitted in severe weather conditions.

7.7 Veterinary medicine

7.7.1 General principle

Organic management practices promote and maintain the health and wellbeing of animals through balanced organic nutrition, stress-free living conditions and breed selection for resistance to diseases, parasites and infections.

7.7.2 Requirements

7.7.2.1 The operator shall take all practical measures to ensure the health and wellbeing of the animals through preventative animal husbandry practices such as:

- a) selection of appropriate breeds or strains of animals;
- b) adoption of animal husbandry practices appropriate to the requirements of each species, such as regular exercise and access to pasture and/or open Fair runs, to encourage the natural immunological defence of animal to stimulate natural immunity and tolerance to diseases;
- c) provision of good quality organic feed;
- d) appropriate stocking densities; and
- e) grazing rotation and management.

7.7.2.2 If an animal becomes sick or injured despite preventative measures, that animal shall be treated promptly and adequately, if necessary in isolation and in suitable housing. Operators shall give preference to natural medicines and treatments, including homeopathy, Ayurvedic medicine and acupuncture.

7.7.2.3 Use of synthetic allopathic veterinary drugs or antibiotics will cause the animal to lose its organic status. Producers shall not withhold such medication where doing so will result in unnecessary suffering of the livestock.

The animal may retain its organic status if:

- a) the operator can demonstrate compliance with 7.7.1;
- b) natural and alternative medicines and treatments are unlikely to be effective to cure sickness or injury, or are not available to the operator;
- c) the chemically synthesized allopathic veterinary medical products or antibiotics are used under the supervision of a veterinarian;
- d) withdrawal periods shall be not less than double of that required by legislation, or a minimum of 14 days, whichever is longer; and
- e) this exception is granted for a maximum of three courses of remedial treatments with chemically synthesized allopathic veterinary medicinal products or antibiotics within 12 months, or one course of treatment if the productive lifecycle of the animal is less than one year.

7.7.2.4 Prophylactic use of any synthetic allopathic veterinary drug is prohibited.

7.7.2.5 Substances of synthetic origin used to stimulate production or suppress natural growth are prohibited

7.7.2.6 Vaccinations are allowed only in the following cases:

- a) when an endemic disease is known or expected to be a problem in the region of the farm and where this disease cannot be controlled by other management techniques, or
- b) when a vaccination is legally required

7.8 Transport and slaughter

7.8.1 General principle

Organic animals are subjected to minimum stress during transport and slaughter.

7.8.2 Requirements

7.8.2.1 Animals shall be handled calmly and gently during transport and slaughter.

7.8.2.2 The use of electric prods and other such instruments is prohibited.

7.8.2.3 Organic animals shall be provided with conditions during transportation and slaughter that reduce and minimize the adverse effects of stress, loading and unloading, mixing different groups of animals, extreme temperatures and relative humidity. The type of transport shall meet the specific needs of the species being transported.

7.8.2.4 The operator shall ensure an adequate food and water supply during transport and at the slaughterhouse.

7.8.2.5 Animals shall not be treated with synthetic tranquilizers or stimulants prior to or during transport.

7.8.2.6 Each animal or group of animals shall be identifiable at each step in the transport and slaughter process.

7.8.2.7 Slaughterhouse journey times shall not exceed eight hours.

Where there is no certified organic slaughterhouse within eight hours travel time, an animal may be transported for a longer period if the animals are given a rest period and access to water.

7.8.2.8 Those responsible for transportation and slaughtering shall avoid contact (sight, sound or smell) of each live animal with dead animals or animals in the killing process.

8 Bee-keeping

8.1 General Principle

Bee keeping is an important activity that contributes to enhancement of the agriculture and forestry production through the pollinating action of bees.

8.2 Requirements

8.2.1 The areas within a 3 km radius of the hives shall consist of organically managed fields, uncultivated land and/or wild natural areas in a way that ensures access to sources of honeydew, nectar and pollen that meets organic crop production requirements sufficient to supply all of the bees nutritional needs.

8.2.2 The operator shall not place hives within a foraging distance (5 kms) of fields or other areas with a high contamination risk (e.g. conventional fields, industrial zones and highways).

8.2.3 The hives shall consist primarily of natural materials and present no risk of contamination to the environment or the bee products. Use of construction materials with potentially toxic effects is prohibited.

8.2.4 At the end of the production season, hives shall be left with reserves of honey and pollen sufficient for the colony to survive the off-season. Any supplementary feeding in response to unexpected need shall be carried out only between the last honey harvest and the start of the next nectar or honeydew flow period. In such cases, organic honey or organic sugar shall be used.

8.2.5 Bee colonies may be converted to organic production. Introduced bees shall come from organic production units when available. Bee products may be sold as organically produced when the requirements of this standard have been complied with for at least one harvest cycle.

8.2.6 During the conversion period, the wax shall be replaced by organically produced wax, except where no prohibited products have been previously used in the hive and where is no risk of contamination of wax. In cases where all the wax cannot be replaced during a one year period, the conversion period shall be extended to cover the full replacement of the wax.

8.2.7 For pest and disease control the following are permitted:

- a) lactic acid, formic acid;
- b) oxalic acid, acetic acid;
- c) sulfur;
- d) natural essential oils (e.g. menthol, eucalyptol, camphor);
- e) *Bacillus thuringiensis*;
- f) steam, direct flame and caustic soda for hive disinfection.

8.2.8 Where preventative measures fail, veterinary medicinal products may be used provided the following are adhered to:

- a) preference is given to phyto therapeutic and homeopathic treatment;
- b) if allopathic chemically synthesized medicinal products are used, the bee products shall not be sold as organic; and
- c) treated hives shall be placed in isolation and undergo a conversion period of one year.

8.2.9 The practice of destroying the male brood is permitted only to contain infestation with *Varroa* (mites).

8.2.10 The health and welfare of the hive shall be primarily achieved by hygiene and hive management.

8.2.11 The destruction of bees in the combs as a method of harvesting of bee products is prohibited.

8.2.12 Mutilations, such as clipping of the wings of queen bees, are prohibited.

8.2.13 Artificial insemination of queen bees is permitted.

8.2.14 The use of chemical synthetic bee repellents is prohibited. The use of smoke should be kept to a minimum. Acceptable smoking materials should be natural or from materials that meet the requirements of these standards.

8.2.15 Honey temperatures shall be maintained as low as possible, and not exceed 45 °C, during the extraction and processing of products derived from bee keeping.

8.2.16 Used engine oil shall not be used for pest control.

9 Wild harvested products and common/public land management

9.1 General principle

Organic management prevents degradation of common biotic and abiotic resources, including areas used for rangeland, fisheries, forests, and forage for bees, as well as neighbouring land, air and water.

9.2 Requirements

9.2.1 Wild harvested products shall only be derived from a sustainable growing environment. Products shall not be harvested at a rate that exceeds the sustainable yield of the ecosystem, or threatens the existence of plant, fungal or animal species, including those not directly exploited.

9.2.2 Operators shall harvest products only from a clearly defined area where prohibited substances have not been applied for a minimum of three years.

9.2.4 The collection or harvest area shall be at an appropriate distance from conventional farming or other pollution sources in order to avoid contamination.

9.2.5 The operator who manages the harvesting or gathering of common resource products shall be familiar with the defined collecting or harvesting area, including the impacts of collectors not involved in the organic scheme.

9.2.6 Operators shall take measures to ensure that wild, sedentary aquatic species are collected only from areas where the water is not contaminated by substances prohibited in these standards.

10 Sustainable fisheries

10.1 Sustainability of the fish stock

10.1.1 General requirements

10.1.1.1 A fishery shall be managed in a manner that does not lead to over-fishing of the exploited species populations and, for those species populations that are already diminished; the fishery shall be managed in a manner that demonstrably leads to their recovery.

10.1.1.2 The fishery shall be managed at catch levels that continually maintain the high productivity of the target species population(s) and associated ecological community relative to its potential productivity.

10.1.1.3 Where the exploited species populations are depleted, the fishery shall be managed in such a way that recovery and rebuilding is allowed to occur to a specified level consistent with the precautionary approach and the ability of the species populations to produce long-term potential yields within a specified time frame.

10.1.1.4 Fishing shall be carried out in a manner that does not alter the age or genetic structure or sex composition to a degree that impairs reproductive capacity.

10.1.2 Fishing gear

10.1.2.1 Fishing gear shall conform to the fishing regulations in the respective partner states.

10.1.2.2 Design and mode of operation of gear shall avoid long-lasting or irreversible damage to the environment (such as damage to sensitive biotopes). The fishing gear shall be that which minimizes by-

catches of birds, rare or protected animals and by-catches of undersized fish or other (fish) species that appear in considerable numbers.

10.1.2.3 Gear shall mainly catch mature individuals of the target species as per the respective partner state fishing regulations.

10.1.2.4 Damaged gear shall be taken ashore for repairs or destruction.

10.1.3 Reproduction capacity of the fishery

10.1.3.1 The collective fishery pressure on a stock shall not exceed its production capacity or endanger the balance in the ecosystem.

10.1.3.2 The fishery management shall evaluate and consider effects of fishing on fish stocks and the aquatic environment when deciding on a fishery. Such assessments of the size of stock shall apply the precautionary approach.

10.1.3.3 A fishery management shall assess the reproduction capacity of the stock using internationally recognized stock assessment methods.

10.1.3.4 A fishery stock shall contain the minimum critical spawning biomass and shall not exceed the critical mortality. Biological data such as size and distribution of fish in samples and estimates of fish stock biomass shall provide the basis for assessing the spawning biomass and fish mortality.

10.2 Fishing and transport boats

10.2.1 General requirements

The operations of boats shall be well planned in order to cause the least possible environmental impact that may result from the operation or maintenance of engines and from activities, such as fishing and transport.

10.2.2 Boats

Boats shall be officially registered as per respective national fishing regulations.

10.2.3 Motors, fuel, hydraulic oil and lubricating greases

Fishing and transporting boats with two-stroke engines shall change to a four-stroke engine when replacing an engine. Hydraulic oils used on-board shall preferably be eco-labelled. Impure fuel shall be not used in fishing boats. Environmentally friendly fuel, oils and greases shall be used where available.

10.2.4 Bottom paints

Paints containing toxic substances such as tin or lead shall not be used for painting the bottom of fishing boats.

10.2.5 Training

All primary stakeholders involved in a sustainable fishery shall be trained and made well aware of standards and other requirements for sustainable fisheries. Trainings shall be documented.

10.3 Fishing methods

10.3.1 General requirements

10.3.1.1 The fishing method shall be as environmentally friendly as possible. The methods shall not severely disturb the untargeted wildlife, vegetation and the overall fishing environment.

10.3.1.2 Fishing methods shall be traceable to avoid ghost fishing or fish killed by lost fishing gear.

10.3.1.3 The methods shall keep by-catches, non-target size and/or sex of the target species reduced to a permitted minimum as per respective partner state fishing regulations.

10.3.2 Adhering to laws and standards

All fisheries shall be carried out according to the applicable legislation. If authorities prohibit certain fishing arts, close a fishing area, change legal sizes for fish to be landed or impose measures regarding transport or processing of the fish, these measures automatically also apply to the sustainable fishery, fishery boats, crew, and the other part of the production chain.

10.3.3 Storing

10.3.3.1 The catch shall be put on ice as soon as possible and shall never be stored in direct sunlight.

10.3.3.2 The catch shall be handled in a manner that promotes safety and quality of fish and fisheries products.

10.3.4 Documentation of the fishing trip

It shall be documented where the catch was taken. If a whole lake is included without exceptions this is not needed.

10.4 Handling, processing and transport

10.4.1 General requirements

In addition to the requirements in clause 11 on processing and handling of organic products, the following shall apply for sustainable fisheries

- a) Additives and other raw materials such as processing aids and flavour enhancers not originating from the lake, shall come from natural sources or be produced with environmentally adapted methods.
- b) Disposal of waste shall meet the highest possible requirements for sorting and recycling. Transport and processing shall aim to reduce energy consumption and use the best available fuels and technologies.
- c) Minimal infrastructure and a proper registration at the primary landing sites on-the-lake shall be available to ensure proper handling of the fish immediately after the catch (e.g. by cooling or by application of life-keeping devices) to enhance product safety and quality.
- d) The handling of fish from a sustainable fishery from fishing, transportation, processing to point of sale shall be traceable.
- e) Processors of sustainable fish shall have a clear environmental policy with targets, both in short and long terms as well as an action plan to reach the targets. Documentation shall contain defined objectives

10.4.2 Buying and selling the catch

All fish in sustainable fishery shall be landed on designated landing sites and only handled by designated individuals.

10.4.3 Storage and transport of fish

10.4.3.1 Between fishing ground and processor, preservation of fish is only allowed by cooling. Fish should be kept at temperatures of 7 °C or lower. Ice used for cooling shall be of potable water quality and shall not contain any unallowed additives.

10.4.3.1 Contaminated ice (e.g. with soil or chemicals) shall not be used.

10.4.4 By-products

The processor should strive to process all fish by-products into products used for human consumption or animal feed or other products.

10.4.5 Waste

The operator shall have documented environmental measures. Waste shall be collected, stored and further treated so that it does not contaminate the environment. Waste shall be recycled where it is possible or otherwise stored or destroyed in an environmentally friendly way.

11.0 Aquaculture production standards

11.1 Conversion to organic aquaculture

11.1.1 General principle

Conversion in organic aquaculture production reflects the diversity of species and production methods.

11.1.2 Requirements

11.1.2.1 Operators shall comply with all the relevant general requirements of clause 5 and 7

11.1.2.2 Organic aquaculture shall be based on the rearing of young stock originating from organic brood stock and organic holding, when young stocks from organic brood stock or holding are not available non-organically produced animals may be brought on to holding under specific conditions.

11.1.2.3 Breeds adapted to the local conditions shall be chosen. Natural breeding behaviours, settlements and hatching are desirable traits.

11.1.2.4 The husbandry practices including feeding, design of the installations, stocking densities and water quality shall ensure that the developmental, physiological and behavioural needs of the animal are met.

11.1.2.5 The husbandry practices shall minimise negative environmental impact from the holdings including the escape of the farmed stock

11.1.2.6 Organic aquatic animals shall be kept separate from the conventional aquatic animals.

11.1.2.7 Personnel keeping aquatic animals shall possess the necessary knowledge and skills as regards the health and needs of the aquatic animals.

11.1.2.8 The conversion period for aquaculture production units shall apply for the following types of aquaculture facilities including the existing aquaculture animals;

- a) For facilities that cannot be drained, cleaned and disinfected a conversion period of 24 month;
- b) For facilities that have been drained or fallowed a conversion period of 12 month;
- c) For facilities that have been drained, cleaned and disinfected a conversion period of 6 month; and
- d) for open water facilities 3month conversion period

11.1.2.8 Production units shall be located at an appropriate safe distance from contamination sources and conventional aquaculture.

11.1.2.9 Polyploidy and genetically engineered aquatic species shall not be allowed

11.2 General aquaculture husbandry rules

11.2.1 General principle

Organic aquaculture management maintains the biodiversity of natural aquatic ecosystems, the health of the aquatic environment, and the quality of surrounding aquatic and terrestrial ecosystem.

11.2.2 Requirements

11.2.2.1 The husbandry environment of the aquaculture animals shall be designed in such way that it's in the accordance with their species specific needs.

11.2.2.2 The aquaculture animals shall;

- a) have sufficient space for their wellbeing;
- b) be kept in water of good quality with sufficient oxygen levels;
- c) be kept in temperature and light conditions in accordance with the requirements of the species and having regard to the geographical location;
- d) in case of freshwater the bottom type shall be as close as possible to natural conditions;
- e) Organic aquatic animals shall not be grown in both plastic and concrete tanks; and
- f) in case of carp the bottom shall be natural earth.

11.2.2.3 The stocking density shall be species specific. In considering the effect of stocking density on the welfare of the farmed fish, the condition of the fish (such as fin damage, other injuries, growth rate, behaviour expressed and overall health) and the water quality shall be monitored.

11.2.2.4 The design and construction of the production systems shall provide flow rates and physiochemical parameters that safeguard the animal health and welfare and provide for their behavioural needs.

11.2.2.5 Production systems shall be designed, located and operated to minimise the risk of escape incidents.

11.2.2.6 If fish or crustaceans escape, appropriate actions must be taken to reduce the impact on the local ecosystem including recapture where appropriate. Documentary evidence shall be maintained.

11.3 Specific rules for aquaculture containment systems

11.3.1 General principle

Organic aquaculture containment systems should ensure that aquaculture animals health, welfare are catered for and the environment is maintained nearer to its natural state.

11.3.2 Requirements

11.3.2.1 Closed recirculation aquaculture animal production systems facilities are prohibited with the exception of hatcheries and nurseries or production of species used for organic feed production.

11.3.2.2 Rearing units on land shall meet the following conditions;

- a) For flow through systems it shall be possible to monitor and control the flow rate and the water quality of both inflowing and out flowing water; and
- b) At least five percent of the perimeter (land water interface) area shall be having natural vegetation.

11.3.2.3 Production systems in the lakes and sea shall;

- a) be located where water flow, depth and water body exchanges rates are adequate to minimise the impact on the lake bed or sea bed and the surrounding water body; and
- b) have suitable cage design, construction and maintenance with regard to their exposure to the operating environment.

11.3.2.4 Artificial heating or cooling of water shall only be permitted in the hatcheries and nurseries, natural borehole water may be used to vary temperature of water at all stages of production

11.3 Aquatic plants

11.3.1 General principle

Organic aquatic plants are grown and harvested sustainably without adverse impacts on natural areas.

11.3.2 Requirements

11.3.2.1 Aquatic plant production shall be situated in locations that are not subject to contamination by products or substances not authorised for organic production or pollutants that would compromise the organic nature of the product.

11.3.2.2 Aquatic plants culture at the lake or sea shall only utilise nutrients naturally occurring in the environment or from organic aquaculture animal production, preferably located nearby as part of polyculture system.

11.3.2.3 In facilities on land where external nutrients sources are used the nutrients levels in the effluent water shall be verifiably the same or lower than the inflowing water, only nutrients of plant or animal origin shall be used.

11.3.2.4 Culture density or operational intensity shall maintain the integrity of the aquatic environment by ensuring that the maximum quantity of the aquatic plants which can be supported without negative effects on the environment is not exceeded.

11.3.2.5 Bio fouling organisms shall be removed only by physical means or by hand and where appropriate returned to the lake or sea at distance from farm.

11.3.2.6 Cleaning of the equipment and facilities shall be carried out by physical or mechanical measures and permitted substances in annex E.

11.3.2.7 Harvest of aquatic plants shall not disrupt the ecosystem or degrade the collection area or the surrounding aquatic and terrestrial environment.

11.4 Breeds and breeding

11.4.1 General principle

Organic aquaculture is based on the rearing of aquaculture animals of young stock originating from organic brood stock or holding.

11.4.2 Requirements

11.4.2.1 Native species shall be used and breeding shall aim to give strains which are more adapted to farming conditions, good health and good utilisation of feed resources (Documentary evidence of their origin and treatment shall be provided for the control body or control authority).

11.4.2.2 When organic aquatic animals are not available, for breeding purposes or genetic improvement of the stock wild caught or non-organic animals may be brought into holding, such animals shall be kept for under organic management for at least three months before they are used for breeding.

11.4.2.3 When organic aquaculture juvenile animals are not available for out-growing purpose non organic aquaculture juveniles may be introduced into holding. At least the latter two thirds of the duration of the production cycle shall be maintained under organic management.

11.4.2.4 With regards to breeding of organic aquaculture animals the following shall not be allowed;

- a) artificial induction of polyploidy;
- b) artificial hybridisation;
- c) cloning and;
- d) production of monosex strains except by hand sorting.

11.4.2.5 Appropriate strains shall be chosen and species specific conditions for brood stock management breeding and juvenile production shall be established.

11.4.2.3 Aquatic animal production systems shall use breeds and breeding techniques suited to the region and the production method.

11.5 Aquatic animal nutrition

11.5.1 General principle

Organic aquatic animals receive their nutritional needs from good quality, organic sources.

11.5.2 Requirements

11.5.2.1 The organic aquaculture animals shall be fed with feed that meets the animals' nutritional requirements at the various stages of development.

11.5.2.2 Plant fraction of the feed shall originate from organic production and feed fraction derived from aquatic animals shall originate from sustainable exploitation of fisheries.

11.5.2.3 In case of non-organic feed material from plant origin, feed material from animal and mineral origin, feed additives certain products used in animal nutrition and processing shall be used only if they have been authorised for use in organic production

11.5.2.4 In the absence of organic feed fishmeal and fish oil from non-organic aquaculture animals' trimmings or trimmings as fish for human consumption may be used for transitional period, such feed should not exceed 30% of the daily ration

11.5.2.5 Growth promoters and synthetic amino acids shall not be used.

11.5.2.5 The dietary requirements for aquatic animals shall comply with the requirements of 7.7.2.4 and 7.7.2.5.

11.5.2.6 Use of water containing human excrement is prohibited.

11.6 Aquatic animal health and welfare

11.6.1 General principles

Organic management practices promote and maintain the health and wellbeing of animals through balanced organic nutrition, stress free living conditions appropriate to the species and breed selection for resistance to diseases, parasites and infections.

11.6.2 Requirements

11.6.2.1 Disease shall be prevented based on keeping the animal in optimal conditions by appropriate siting, optimal design of the holdings, the application of good husbandry and management practises, including regular cleaning and disinfection of the premises, high quality feed, appropriate stocking densities and breed and strain selection.

11.6.2.2 Disease shall be treated immediately to avoid suffering to the animal; chemical synthesised allopathic veterinary medicinal products including antibiotics may be used where necessary and under strict conditions, when the use of phototherapeutics, homeopathic and other products is inappropriate.

11.6.2.3 Prophylactic use of veterinary drugs is prohibited.

11.6.2.4 Operators must use natural methods and medicines, as the first choice, when treatment is necessary. Use of chemical allopathic veterinary drugs and antibiotics is prohibited for invertebrates.

11.6.2.5 Hormones and growth promoters are prohibited for use to artificially stimulate growth or reproduction.

11.6.2.6 Stocking densities shall not compromise animal welfare.

11.6.2.7 Operators shall routinely monitor water quality, stocking densities, health, and behavior of each cohort (school) and manage the operation to maintain water quality, health, and natural behavior

11.7 Aquatic animal transport and slaughter

11.7.1 General principle

Organic aquatic animals are subjected to minimum stress during transport and slaughter.

11.7.2 Requirements

11.7.2.1 Operators shall comply with relevant requirements of 7.8.

11.7.2.2 The operator shall handle live organisms in ways that are compatible with their physiological requirements.

11.7.2.3 Operators shall implement defined measures to ensure that organic aquatic animals are provided with conditions during transportation and slaughter that meet animal specific needs and minimize the adverse effects of:

- a) diminishing water quality;
- b) time spent in transport;
- c) stocking density;
- d) toxic substances; and
- e) escape.

11.7.2.4 Aquatic vertebrates shall be stunned before killing. Operators shall ensure that equipment used to stun animals is sufficient to remove sensate ability and/or kill the organism and is maintained and monitored.

11.7.2.5 Aquatic animals shall be handled, transported and slaughtered in a way that minimizes stress and suffering, and respects species specific needs.

12 Processing and handling

12.1 General

12.1.1 General principle

Organic processing and handling provides consumers with nutritious, high quality supplies of organic products, and organic farmers with a market without compromise to the organic integrity of their products.

12.1.2 Requirements

12.1.2.1 Handlers and processors shall not comingle organic products with non-organic products.

12.1.2.2 Handlers and processors shall ensure traceability in the organic processing and handling chain.

12.1.2.3 All organic products shall be clearly identified as such and processed, stored and transported in a way that prevents substitution by or contact with conventional products through the entire process.

12.1.2.4 When nonorganic products are prepared or stored in the preparation unit, the operator shall inform the control body.

12.1.2.5 The handler or processor shall take all necessary measures to prevent organic products from being contaminated by pollutants and contaminants, including the cleaning, decontamination, or if necessary disinfection of facilities and equipment.

12.1.2.6 The handler or processor shall identify and minimize risks of environmental pollution resulting from their activity.

12.1.2.7 Processors shall respect the principles of good manufacturing practices. This shall include maintaining appropriate procedures based on identification of critical processing steps.

12.2 Separation

12.2.1 The integrity of organic products shall be maintained throughout the phases of post-harvest handling, storage, processing and transport.

12.2.2 All organic products shall be clearly identified as organic. Throughout the entire process of storage and transportation, the products shall be stored and transported in a way that prevents their contact or mixing with non-organic products.

12.3 Ingredients

12.3.1 General Principle

Organic processed products are made from organic ingredients.

12.3.2 Requirements

12.3.2.1 All ingredients used in an organic processed product shall be organically produced except for those additives and processing aids that appear in Annex D

In cases where an ingredient of organic origin is commercially unavailable in sufficient quality or quantity, operators may use nonorganic raw materials, provided that:

- a) they are not genetically engineered or contain nanomaterials;
- b) the current lack of availability in that region is officially recognized or prior permission from the control body is obtained; and
- c) the requirements in clause 12.1.2.3 shall be met

12.3.2.2 Using organic and nonorganic forms of the same ingredient in a single product is prohibited.

12.3.2.3 Water and salt may be used as ingredients in the production of organic products and are not included in the percentage calculations of organic ingredients.

12.3.2.4 Minerals (including trace elements), vitamins and similar isolated ingredients shall not be used unless their use is legally required or where severe dietary or nutritional deficiency can be demonstrated in the market to which the particular batch of product is destined.

12.3.2.5 Preparations of microorganisms and enzymes commonly used in food processing may be used, with the exception of genetically engineered microorganisms and their products. Cultures that are prepared or multiplied in house shall comply with the requirements for the organic production of microorganisms.

12.3.2.6 For the production of organic microorganisms for processed food and feed, only organically produced substrate shall be used.

12.4 Processing Methods

12.4.1 General principle

Organic processing and handling provides the consumer with high quality supplies of organic products without compromise to the integrity of the products and protects the environment.

12.4.2 Requirements

12.4.2.1 Techniques used to process organic products shall be biological, physical, and mechanical in nature. Any additives, processing aids, or other material that reacts chemically with organic products or

modifies it must be organically produced or appear in Annex D and shall be used in accordance with noted restrictions.

12.4.2.2 Substances and techniques shall not be used that:

- a) Reconstitute properties lost by the processing and storage of organic products;
- b) conceal negligent processing;
- c) or may otherwise be misleading as to the true nature of these products. Water may be used for rehydration or reconstitution.

12.4.2.3 Solvents used to extract organic products shall be either organically produced or food grade substances that appear on Annex D consistent with the annotation.

12.4.2.4 Irradiation is not permitted for any ingredient or the final product.

12.4.2.5 Filtration equipment shall not contain asbestos, or utilize techniques or substances that may contaminate the product. Filtration agents and adjuvants are considered processing aids and therefore must appear in Annex D.

12.4.2.6 The following conditions of storage are permitted (for allowed substances in these conditions, see Annex D):

- a) controlled atmosphere;
- b) temperature control;
- c) drying; and
- d) humidity regulation.

12.4.2.7 Intentional manufacture or use of nanomaterials in organic products is prohibited.

12.4.2.8 Equipment surfaces and utensils that might come into contact with organic products shall be free of nanomaterials, unless there is verified absence of contamination risk.

12.5 Pest and disease control

12.5.1 General principle

Organic products are protected from pests and diseases by the use of good manufacturing practices that include proper cleaning, sanitation and hygiene, without the use of synthetic chemical pest control treatments or irradiation.

12.5.2 Requirements

12.5.2.1 Handlers and processors shall manage pests and shall use the following methods according to these priorities:

- a) preventative methods such as disruption, elimination of habitat and access to facilities;
- b) mechanical, physical and biological methods, including visual detection, sound, ultrasound, light and UV light, temperature control, controlled atmosphere and diatomaceous earth.
- c) substances according to the Annexes of this standard;
- d) substances (other than pesticides) used in traps.

12.5.2.2 Prohibited pest control practices include, but are not limited to, the following substances and methods:

- a) pesticides not contained in Annex B.2;
- b) fumigation with ethylene oxide, methyl bromide, aluminum phosphide or other substance not contained in Annex D;
- c) ionizing radiation

12.5.2.3 The direct use or application of a prohibited method or material renders that product no longer organic. The operator shall take necessary precautions to prevent contamination, including the removal of organic products and related packaging materials from the storage or processing facility, and measures to decontaminate the equipment or facilities. Application of prohibited substances to equipment or facilities shall not contaminate organic product handled or processed therein. Application of prohibited substances to equipment or facilities shall not compromise the organic integrity of product handled or processed therein and shall be documented to attest this.

12.6 Packaging

12.6.1 General principle

Organic product packaging has minimal adverse impacts on the product and on the environment.

12.6.2 Requirements

12.6.2.1 Operators shall not use packaging material that may contaminate organic products. This includes reused bags or containers that have been in contact with any substance likely to compromise the organic integrity. Packaging materials, and storage containers, or bins that contain a synthetic fungicide, preservative, fumigant, or nanomaterials are prohibited.

12.6.2.2 Operators shall demonstrate efforts to minimize packaging and/or choose packaging materials with minimum environmental impact. The total environmental impact of production, use and disposal of packaging shall be considered.

12.6.2.3 Polyvinyl chloride (PVC) and aluminium should be avoided.

12.7 Cleaning, disinfecting, and sanitizing of processing facilities

12.7.1 General principle

Organic products are safe, of high quality, and free of substances used to clean, disinfect, and sanitize the processing facilities.

12.7.2 Requirements

12.7.2.1 Operators shall take all necessary precautions to protect organic products against contamination by substances prohibited in organic farming and handling, pests, disease causing organisms, and foreign substances.

12.7.2.2 Water and substances that appear in Annex E, may be used as equipment cleansers and equipment disinfectants that may come into direct contact with the product.

12.7.2.3 Operations that use other cleaners, sanitizers, and disinfectants on product contact surfaces shall use them in a way that does not contaminate the product. The operator shall perform an intervening event between the use of any cleaner, sanitizer, or disinfectant and the contact of organic product with that surface sufficient to prevent residual contamination of that organic product.

13 Labelling

13.1 General principle

Organic products are clearly and accurately labelled as organic.

13.2 Requirements

13.2.1 Products produced in accordance with this standard may be labelled as organic.

13.2.2 Labels must identify the following:

- a) the person or company legally responsible for the product; and
- b) the body that assures conformity to this organic standard.

13.2.3 Processed products shall be labelled according to the following minimum requirements:

- a) Where 95 to 100% of the ingredients (by weight) are organic, the product may be labelled as “ORGANIC”;
- b) Where less than 95% but not less than 70% of the ingredients (by weight) are organic, these product cannot be labelled as “organic”, but phrases such as “MADE WITH ORGANIC INGREDIENTS” can be used, provided the proportion of organic ingredients is clearly stated; and
- c) Where less than 70% of the ingredients (by weight) are organic, the product cannot be labelled as “organic”, nor bear phrases such as “made with organic ingredients” on the package front, nor bear any certification body seal, national logo, or other identifying mark which represents organic certification of a product or product ingredients, but individual ingredients may be called “organic” in the ingredients list.

13.2.4 All ingredients of a multi-ingredient product shall be listed on the product label in order of their weight percentage. It shall be apparent which ingredients are of organic certified origin and which are not. All additives shall be listed with their full name. If herbs and/or spices constitute less than 2% of the total weight of the product, they may be listed as “spices” or “herbs” without stating the percentage.

13.2.5 In-conversion” ingredients may be used in multi-ingredient feed. However the ingredient list must identify their status and the total percentages of “in- conversion”, organic and nonorganic ingredients on a dry matter basis.

13.2.6 Multi-component products, live or unprocessed (such as vegetable boxes) may be sold or marketed as organic only if all the components are organic.

13.2.7 The label for in-conversion products shall be clearly distinguishable from the label for organic products. Only single ingredient plant products may be labelled as “in-conversion”.

13.2.8 Labelling shall follow the applicable legislation.

13.2.9 A statement that the product is “produced according to the East Africa Organic Standard” may be made on the labels.

14 Social justice

14.1 General principle

Social justice and social rights are an integral part of organic agriculture and processing. The fairness principle of organic agriculture emphasizes that those involved in organic agriculture should conduct human relationships in a manner that ensures fairness at all levels and to all parties involved at all times.

14.2 Recommendation

Operators should positively and actively encourage the collective organization of their employees or contracted smallholders.

Permanent employees and their families should have access to education, transportation and health services.

Operators should respect the rights of indigenous peoples, and should not use or exploit land whose inhabitants or farmers have been or are being impoverished, dispossessed, colonized, expelled, exiled or killed, or which is currently in dispute regarding legal or customary local rights to its use or ownership.

Organic operations should make a positive social and cultural contribution over and above legal obligations. This could be in one or several of the following areas:

- a) Education and training
- b) Research and innovation
- c) Supporting the local and wider community
- d) Enhancing rural development.

14.3 Requirements

14.3.1 Production that violates human rights and social justice requirements in this clause cannot be declared organic.

14.3.2 Operators shall not violate indigenous land rights.

14.3.3 Operators shall not use forced or involuntary labor or apply any pressure such as retaining part of the workers' wages, property or documents.

14.3.4 Operators shall not interfere with the right of their employees, suppliers, farmers and contractors to organize and to bargain collectively, free from interference, intimidation and retaliation.

14.3.5 Operators shall provide their employees and contractors equal opportunity and treatment, and shall not act in a discriminatory way.

14.3.6 Operators shall have a disciplinary procedure with a system of warning before any suspension or dismissal. Workers dismissed shall be given full details of reasons for dismissal.

14.3.7 Employees shall be granted the right to take at least one day off after six consecutive days of work. Operators shall not require workers to work more than the contracted hours and the national or regional sectorial legislation. Overtime shall be remunerated in the form of supplementary payments or time off in lieu.

14.3.8 Operators shall never require an employee to work who is ill or requiring medical attention and shall not sanction an employee for the sole fact of missing work due to illness.

14.3.9 The operator shall not hire child labour. Children may work on their family's farm or a neighbouring farm provided that such work is not dangerous to their health and safety and does not jeopardize their educational, moral, social and physical development. Such work shall be supervised by adults and authorized by a legal guardian.

14.3.10 Operators shall pay employees wages and benefits that meet legal minimum requirements of the operation's jurisdiction or, in the absence of this minimum, the sectorial benchmark.

14.3.11 Operators shall provide written terms and conditions of employment to both permanent and temporary employees, in a language and presentation understandable to the worker. The terms and conditions must specify at least:

- a) wages;
- b) frequency and method of payment;
- c) location, type and hours of work;
- d) recognition of workers' freedom of association;
- e) disciplinary procedure;
- f) health and safety procedure;
- g) eligibility and terms of overtime, holiday pay, sickness benefit and other benefits such as maternity and paternity leave; and
- h) worker's right to terminate employment.

14.3.12 Operators shall ensure that the workers understand the terms of their employment contract. Operators shall respect the terms of the contract in good faith, including timely payment of wages.

14.3.13 In cases where:

- a) the operator is unable to write;
- b) workers are hired for periods of less than 6 days; and
- c) emergency labour is needed to address unpredictable problems

Oral mutual agreements on the terms and conditions of employment are sufficient.

14.3.14 Operators shall ensure adequate access to potable water.

14.3.15 Operators shall provide appropriate safety training and equipment to protect workers from noise, dust, sunlight and exposure to chemicals or other hazards in all production and processing operations.

14.3.16 Operators shall provide residential employees with habitable housing and access to potable water; to sanitary and cooking facilities and to basic medical care. If families reside on the operation, the operator shall also enable access to basic medical care for family members and to school for children.

14.3.17 Operators shall comply with minimum national social requirements in the countries of operation.

14.3.18 Operators with more than 5 employees must have a written employment policy and maintain records to demonstrate full compliance with the requirements of this section. Workers will have access to their own files.

14.3.19 Requirements in this section apply equally to all workers on the operation regardless of how they are employed, except for subcontractors performing non-production core business functions such as plumbing, machine repair, or electrical work.

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Annex A

(informative)

IFOAM principles of organic agriculture

A.1 Preamble

These Principles are the roots from which organic agriculture grows and develops. They express the contribution that organic agriculture can make to the world and a vision to improve all agriculture in a global context.

Agriculture is one of humankind's most basic activities because all people need to nourish themselves daily. History, culture and community values are embedded in agriculture. The Principles apply to agriculture in the broadest sense, including the way people tend soils, water, plants and animals in order to produce, prepare and distribute food and other goods. They concern the way people interact with living landscapes, relate to one another and shape the legacy of future generations.

The Principles of Organic Agriculture serve to inspire the organic movement in its full diversity. They guide IFOAMs development of positions, programs and standards. Furthermore, they are presented with a vision of their world-wide adoption.

Organic agriculture is based on following principles:

- a) principle of health;
- b) principle of ecology;
- c) principle of fairness; and
- d) principle of care.

Each principle is articulated through a statement followed by an explanation. The principles are to be used as a whole. They are composed as ethical principles to inspire action.

A.2 The principle of health

Organic agriculture should sustain and enhance the health of soil, plant, animal, human and planet as one and indivisible.

This principle points out that the health of individuals and communities cannot be separated from the health of ecosystems — healthy soils produce healthy crops that foster the health of animals and people.

Health is the wholeness and integrity of living systems. It is not simply the absence of illness, but the maintenance of physical, mental, social and ecological well-being. Immunity, resilience and regeneration are key characteristics of health.

The role of organic agriculture, whether in farming, processing, distribution, or consumption, is to sustain and enhance the health of ecosystems and organisms from the smallest in the soil to human beings. In particular, organic agriculture is intended to produce high quality, nutritious food that contributes to preventive health care and well-being. In view of this it should avoid the use of fertilizers, pesticides, animal drugs and food additives that may have adverse health effects.

A.3 The principle of ecology

Organic agriculture should be based on living ecological systems and cycles, work with them, emulate them and help sustain them.

This principle roots organic agriculture within living ecological systems. It states that production is to be based on ecological processes, and recycling. Nourishment and well-being are achieved through the ecology of the specific production environment. For example, in the case of crops this is the living soil; for animals it is the farm ecosystem; for fish and marine organisms, the aquatic environment.

Organic farming, pastoral and wild harvest systems should fit the cycles and ecological balances in nature. These cycles are universal but their operation is site-specific. Organic management must be adapted to local conditions, ecology, culture and scale. Inputs should be reduced by reuse, recycling and efficient management of materials and energy in order to maintain and improve environmental quality and conserve resources.

Organic agriculture should attain ecological balance through the design of farming systems, establishment of habitats and maintenance of genetic and agricultural diversity. Those who produce, process, trade, or consume organic products should protect and benefit the common environment including landscapes, climate, habitats, biodiversity, air and water.

A.4 The principle of fairness

Organic agriculture should build on relationships that ensure fairness with regard to the common environment and life opportunities.

Fairness is characterized by equity, respect, justice and stewardship of the shared world, both among people and in their relations to other living beings.

This principle emphasizes that those involved in organic agriculture should conduct human relationships in a manner that ensures fairness at all levels and to all parties – farmers, workers, processors, distributors, traders and consumers. Organic agriculture should provide everyone involved with a good quality of life, and contribute to food sovereignty and reduction of poverty. It aims to produce a sufficient supply of good quality food and other products.

This principle insists that animals should be provided with the conditions and opportunities of life that accord with their physiology, natural behaviour and well-being.

Natural and environmental resources that are used for production and consumption should be managed in a way that is socially and ecologically just and should be held in trust for future generations. Fairness requires systems of production, distribution and trade that are open and equitable and account for real environmental and social costs.

A.5 The principle of care

Organic agriculture should be managed in a precautionary and responsible manner to protect the health and well-being of current and future generations and the environment.

Organic agriculture is a living and dynamic system that responds to internal and external demands and conditions. Practitioners of organic agriculture can enhance efficiency and increase productivity, but this should not be at the risk of jeopardizing health and well-being. Consequently, new technologies need to be assessed and existing methods reviewed. Given the incomplete understanding of ecosystems and agriculture, care must be taken.

This principle states that precaution and responsibility are the key concerns in management, development and technology choices in organic agriculture. Science is necessary to ensure that organic agriculture is healthy, safe and ecologically sound.

However, scientific knowledge alone is not sufficient. Practical experience, accumulated wisdom and traditional and indigenous knowledge offer valid solutions, tested by time. Organic agriculture should prevent significant risks by adopting appropriate technologies and rejecting unpredictable ones, such as genetic engineering. Decisions should reflect the values and needs of all who might be affected, through transparent and participatory processes.

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Annex B

(informative)

List of substances which may be used in organic plant production

The list is indicative, i.e., there may be other substances that may be used in organic production according to this standard as long as they follow the criteria in the IFOAM Standards or CAC/GL 32.

Table B.1 — Fertilizers and soil conditioners

Description, compositional requirements of substance		Conditions for use
i) Plant and animal origin	Farmyard manure, slurry, and urine	
	Guano	
	Source-separated human excrement from separated sources which are monitored for contamination	Not to be directly applied on edible parts. Not to be applied later than six weeks before harvest.
	Vermicastings	
	Blood meal, meat meal, bone, bone meal	
	Hoof and horn meal, feather meal, fish and fish products, wool, fur, hair, dairy products	
	Biodegradable processing by-products, plant or animal origin (e.g., by-products of food, feed, oilseed, brewery, distillery or textile processing)	
	Crop and vegetable residues, mulch, green manure, cover crops (leguminous crops such as lablab and mucona), straw	
	Wood, bark, sawdust, wood shavings, wood ash, wood charcoal	
	Seaweed and seaweed products	
	Peat (prohibited for soil conditioning)	Excluding synthetic additives; only for inclusion in potting mixes
	Plant preparations and extracts	
	Compost made from ingredients listed in this annex, spent mushroom waste, humus from worms and insects, urban composts from separated sources which are monitored for contamination	
ii) Mineral origin	Basic slag	
	Calcareous and magnesium amendments	
	Limestone, gypsum, marl, maerl, chalk, sugar beet lime, calcium chloride	
	Magnesium rock, kieserite and Epsom salt (magnesium sulphate)	
	Mineral potassium (e.g., sulphate of potash, muriate of potash, kainite, sylvanite, patentkali)	Shall be obtained by physical procedures but not enriched by chemical processes
	Natural phosphates	
	Pulverized rock, stone meal	

	Clay (e.g., bentonite, perlite, vermiculite, zeolite)	
	Sodium chloride	
	Trace elements, micronutrients	
	Sulphur	
iii) Microbiological	Biodegradable processing by-products of microbial origin (e.g., by-products of brewery or distillery processing)	
	Microbiological preparations based on naturally occurring organisms	
iv) Others	Biodynamic preparations	
	Calcium lignosulfonate	

Table B.2 — Crop protectants and growth regulators

Description, compositional requirements of substance		Conditions for use
i) Plant and animal origin	Algal preparations	
	Animal preparations and oils	
	Beeswax	
	Chitin nematicides (natural origin)	
	Coffee grounds	
	Corn gluten meal (weed control)	
	Dairy products (e.g., milk, casein)	
	Gelatine	
	Lecithin	
	Natural acids (e.g., vinegar)	
	Neem (<i>Azadirachta indica</i>)	
	Plant oils (e.g., castor oil)	
	Plant preparations and plant teas (e.g., chilli, tithonia (Africa sunflower), <i>Tagetes sp.</i> , Mexican marigold)	
	Plant-based repellents	
	Propolis	
	Pyrethrum (<i>Chrysanthemum cinerariaefolium</i>)	The synergist piperonyl butoxide shall not be used.
	Quassia (<i>Quassia amara</i>)	
	Rotenone (<i>Derris elliptica</i> , <i>Lonchocarpus spp.</i> , <i>Thephrosia spp.</i>)	Studies show a link between rotenone and Parkinson's disease; therefore, any use should be limited and include precautionary
	Ryania (<i>Ryania speciosa</i>)	
Sabadilla		

	Seaweed, seaweed meal, and seaweed extracts	
	Tobacco tea (pure nicotine shall not be used)	
ii) Mineral Origin	Chloride of lime	
	Clay (e.g., bentonite, perlite, vermiculite, zeolite)	
	Copper salts (e.g., sulphate, hydroxide, oxychloride, octanoate)	Max 8 kg/ha per year (on a rolling average basis)
	Diatomaceous earth	
	Light mineral oils (paraffin)	
	Lime sulphur (Calcium polysulfide)	
	Potassium bicarbonate	
	Potassium permanganate	
	Quicklime	
	Silicates (e.g., sodium silicates, quartz)	
	Sodium bicarbonate	
	Sulphur	
iii) Micro-organisms	Fungal preparations	
	Bacterial preparations (e.g., Bacillus thuringiensis)	
	Release of parasites, predators, and sterilized insects	
	Viral preparations (e.g., granulosis virus)	
iv) Others	Biodynamic preparations	
	Calcium hydroxide	
	Carbon dioxide	
	Ethyl alcohol	
	Homeopathic and ayurvedic preparations	
	Iron phosphates (for use as molluscicide)	
	Sea salt and saltwater	
	Soda	
	Soft soap	
	Sulphur dioxide	
v) Traps, barriers, repellents	Physical methods (e.g., chromatic traps, mechanical traps)	
	Mulches, nets	
	Pheromones (in traps and dispensers only)	

Annex C

(normative)

List of natural substances which shall not be used in organic plant production

This list, which is informative, contains natural substances which may not be used in organic production according to this standard.

Table C — Natural substances which may not be used in organic plant production

Description, compositional requirements of substance	Comments
Nicotine (pure)	Tobacco tea is allowed; however; safety measures shall be taken to reduce skin contact
Chilean nitrate	Chilean nitrate (sodium nitrate) may not be used on certified organic farms because it contains sodium which could build up and be harmful to the crop

Annex D

(informative)

List of additives and processing aids for organic food processing

The list is indicative, i.e. there may be other substances that may be used in organic production according to this standard as long as they follow the criteria in the IFOAM Standards or CAC/GL 32.

Table D — Additives and processing aids for organic food processing

International Numbering System (INS)	Product	Additive	Processing aid	Limitation/note
INS 153	Wood ash	X		Traditional cheeses
INS 170	Calcium carbonate	X	X	
INS 181	Tannin		X	Only for wine
INS 184	Tannic acid		X	Filtration aid for wine
INS 220	Sulphur dioxide	X		Only for wine
INS 224	Potassium metabisulphite	X		Only for wine
INS 270	Lactic acid	X	X	
INS 290	Carbon dioxide	X	X	
INS 296	L-malic acid	X	X	
INS 300	Ascorbic acid	X		
INS 306	Tocopherols, mixed natural concentrates	X		
INS 322	Lecithin	X	X	
INS 330	Citric acid	X	X	
INS 331	Sodium citrates	X		
INS 332	Potassium citrates	X		
INS 333	Calcium citrates	X		
INS 334	Tartaric acid and salts	X	X	Only for wine
INS 335	Sodium tartrate	X	X	
INS 336	Potassium tartrate	X	X	
INS 341	Mono calcium phosphate	X		Only for "raising flour"
INS 342	Ammonium phosphate	X		Restricted to 0.3 gm/L in wine
INS 400	Alginic acid	X		
INS 401	Sodium alginate	X		
INS 402	Potassium alginate	X		
INS 406	Agar	X		
INS 407	Carrageenan	X		
INS 410	Locust bean gum	X		

INS 412	Guar gum	X		
INS 413	Tragacanth gum	X		
INS 414	Arabic gum	X		Only for milk products, fat products, confectionary, sweets, eggs
INS 415	Xanthan gum	X		Only fat, fruit and vegetable products and cakes and biscuits
INS 416	Karaya gum	X		
INS 440	Pectin	X		Unmodified
INS 500	Sodium carbonates	X	X	
INS 501	Potassium carbonates	X	X	
INS 503	Ammonium carbonates	X		Only for cereal products, confectionary, cakes and biscuits
INS 504	Magnesium carbonates	X		
INS 508	Potassium chloride	X		
INS 509	Calcium chloride	X	X	
INS 511	Magnesium chloride	X	X	Only for soybean products
INS 513	Sulphuric acid		X	pH adjustment of water during sugar processing
INS 516	Calcium sulphate	X		For soybean products, confectionary and in bakers' yeast
INS 517	Ammonium sulphate	X		Only for wine, restricted to 0.3 mg/l
INS 524	Sodium hydroxide	X	X	For sugar processing and for the surface treatment of traditional bakery products
INS 525	Potassium hydroxide		X	pH adjustment for sugar processing
INS 526	Calcium hydroxide	X	X	Food additive for maize and tortilla flour; processing aid for sugar
INS 551	Silicon dioxide (amorphous)		X	For wine, fruit and vegetable processing
INS 553	Talc		X	
INS 901	Beeswax		X	
INS 903	Carnauba wax		X	
INS 938	Argon	X		
INS 941	Nitrogen	X	X	
INS 948	Oxygen	X	X	
	Activated carbon		X	
	Bentonite		X	Only for fruit and vegetable products
	Casein		X	Only for wine
	Diatomaceous earth		X	Only for sweeteners and wine
	Egg-white albumen		X	Only for wine
	Ethanol		X	
	Gelatine		X	Only for wine, fruit, and vegetables
	Hazelnut shells		X	
	Isinglass		X	Only for wine

	Kaolin		X	
	Perlite		X	
	Preparations of bark		X	
	Vegetable oil		X	Greasing or releasing agent
	Water		X	

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Annex E

(informative)

Indicative list of equipment cleansers and equipment disinfectants

Table E — Equipment cleansers and equipment disinfectants

Product	Limitation/note
Acetic acid	
Alcohol, ethyl (ethanol)	
Alcohol, isopropyl (isopropanol)	
Calcium hydroxide (slaked lime)	
Calcium hypochlorite	An intervening event or action must occur to eliminate risks of contamination
Calcium oxide (quicklime)	
Chloride of lime (calcium oxychloride, calcium chloride, and calcium hydroxide)	
Chlorine dioxide	An intervening event or action must occur to eliminate risks of contamination
Citric acid	
Formic acid	
Hydrogen peroxide	
Lactic acid	
Natural essences of plants	
Oxalic acid	
Ozone	
Peracetic acid	
Phosphoric acid	Only for dairy equipment
Plant extracts	
Potassium soap	An intervening event or action must occur to eliminate risks of contamination
Sodium carbonate	
Sodium hydroxide (caustic soda)	An intervening event or action must occur to eliminate risks of contamination
Sodium hypochlorite	An intervening event or action must occur to eliminate risks of contamination
Sodium soap	An intervening event or action must occur to eliminate risks of contamination

Annex F

(informative)

substances for pest and disease control and disinfection in livestock housing and equipment

Product
Alkali carbonates
Calcium oxide (lime, quicklime)
Caustic potash (potassium hydroxide)
Caustic soda (sodium hydroxide)
Citric, peracetic acid, formic, lactic, oxalic and acetic acid
Cleaning and disinfection products for teats and milking facilities
Ethanol and isopropanol
Hydrogen peroxide
Iodine
Milk of lime (=slack lime, cal, picklinglime, hydrated lime, slaked lime) = calcium hydroxide
Natural essences of plants
Nitric acid (dairy equipment)
Phosphoric acid (dairy equipment)
Potassium and sodium soap
Sodium carbonate
Sodium hypochlorite (e.g. as liquid bleach)
Water and steam

Bibliography

- [1] CAC/GL 32, *Codex Alimentarius — Guidelines for the production, processing, labelling, and marketing of organically produced foods*
- [2] The IFOAM Norms for Organic Production and Processing Version 2014

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