

**The**  
**IFOAM STANDARD** for  
**ORGANIC PRODUCTION**  
and **PROCESSING**  
**Version 2010 – Draft version 0.1.**

# THE PRINCIPLES OF ORGANIC AGRICULTURE

## 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:

- The Principle of Health
- The Principle of Ecology
- The Principle of Fairness
- The 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.

## 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.

## **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.

## **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 behavior 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.

## **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.

## **SECTION A - GENERAL**

### **Scope of the IFOAM Standard**

Organic agriculture [also known as “Biological” or “Ecological” agriculture or protected equivalent terms (in other languages)] is a whole system approach based upon a set of processes resulting in a sustainable ecosystem, safe food, good nutrition, animal welfare and social justice. Organic production therefore is more than a system of production that includes or excludes certain inputs. IFOAM defines organic agriculture as “a production system that sustains the health of soils, ecosystems and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. Organic agriculture combines tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved”.

The IFOAM Standard (IS) is an internationally applicable organic standard developed by IFOAM. It is a good, practical interpretation of the IFOAM Standards Requirements (Common Objectives and Requirements of Organic Standards), hence belongs to the IFOAM Family of Standards. IFOAM recognizes the need to harmonize organic standards worldwide whenever possible, but also the need to have organic standards that are regionally adapted. The IFOAM Standard is an off-the-shelf standard which can be used by those wanting to outsource standard setting and maintenance and see the benefits of sharing the work with others and creating synergies on an international level. The IFOAM standard contains provisions for regional variations, in the form of regional or other exceptions at the discretion of the certification bodies.

The IFOAM Standard covers the areas of general organic management, crop production (including plant breeding), animal production (including beekeeping), aquaculture, wild collection, food processing and handling, labeling, and social justice.

### **Relevance to the IFOAM Accreditation and to International Reference**

The IFOAM Standards and the IFOAM Accreditation Requirements (IAR) are used by the International Organic Accreditation Service (IOAS) in the IFOAM accreditation process for organic certification bodies. The IOAS evaluates the standards (used by the certifier) against the IFOAM Standard and certification body performance against the IFOAM Accreditation Requirements.

All the requirements of the IFOAM Standard relevant to the certified farming or processing operations must be implemented by certification bodies in order to become IFOAM Accredited Certification Bodies (ACBs). In other words, certification bodies wishing to be IFOAM accredited must use either the IFOAM Standard itself, or a standard compliant with the IFOAM Standard.

The IFOAM Standard can also be used (against payment) by non accredited certification and standard-setting organizations as way to outsource their standard-

setting activity to IFOAM. In addition, governments and any standard setters can (and are recommended to) use freely the IFOAM Standard as a reference to develop their own regulation or standard.

## **Structure**

Requirements in the IFOAM Standard are organized according to the following structure:

1. Definitions
2. Organic Ecosystems
3. General Requirements for Crop Production and Animal Husbandry
4. Crop Production
5. Animal Husbandry
6. Aquaculture Production Standards
7. Processing and Handling
8. Labeling
9. Social Justice

Each section contains subsections which are all organized according to a similar structure, namely a statement of the general principle applicable to that section, followed by the requirements which have to be followed by the operators. The requirements are the minimum requirements that an operation must meet to be certified organic. All of the standards applicable to the particular farm and enterprise must be met before the operation may be certified as organic.

Technical terms are explained in the section on definitions below.

## **SECTION B – DEFINITIONS, PRINCIPLES, RECOMMENDATIONS AND STANDARDS**

### **1. DEFINITIONS**

**Aquaculture:** The managed production of aquatic plants and/or animals in fresh, brackish or salt water in a circumscribed environment.

**Ayurvedic:** Traditional Indian system of medicine.

**Biodiversity:** The variety of life forms and ecosystem types on Earth. Includes genetic diversity (i.e. diversity within species), species diversity (i.e. the number and variety of species) and ecosystem diversity (total number of ecosystem types).

**Breeding:** Selection of plants or animals to reproduce and / or to further develop desired characteristics in succeeding generations.

**Buffer Zone:** A clearly defined and identifiable boundary area bordering an organic production site that is established to limit application of, or contact with, prohibited substances from an adjacent area.

**Certification Body:** The body that conducts certification, as distinct from standard-setting and inspection.

**Contamination:** Pollution of organic product or land; or contact with any material that would render the product unsuitable for organic certification.

**Conventional:** Conventional means any material, production or processing practice that is not certified organic or organic “in-conversion”.

**Conversion Period:** The time between the start of the organic management and the certification of crops and animal husbandry as organic.

**Crop Rotation:** The practice of alternating the species or families of annual and/or biennial crops grown on a specific field in a planned pattern or sequence to break weed, pest and disease cycles and to maintain or improve soil fertility and organic matter content.

**Culture:** A microorganism, tissue, or organ, growing on or in a medium.

**Direct Source Organism:** The specific plant, animal, or microbe that produces a given input or ingredient, or which gives rise to a secondary or indirect organism that produces an input or ingredient.

**Disinfect:** To reduce, by physical or chemical means, the number of potentially harmful microorganisms in the environment, to a level that does not compromise food safety or suitability.

**Exception:** Permission granted to an operator by a certification body to be excluded from the need to comply with normal requirements of the standards. Exceptions are granted on the basis of clear criteria, with clear justification and for a limited time period only.

**Farm Unit:** The total area of land under control of one farmer or a collective of farmers, including all the farming activities or enterprises.

**Food Additive:** An enrichment, supplement or other substance which can be added to a foodstuff to affect its keeping quality, consistency, color, taste, smell or other technical property (For full definition, see Codex Alimentarius).

**Genetic Diversity:** Genetic diversity means the variability among living organisms from agricultural, forest and aquatic ecosystems; this includes diversity within species and between species.

**Genetic Engineering:** Genetic engineering is a set of techniques from molecular biology (such as recombinant DNA) by which the genetic material of plants, animals, microorganisms, cells and other biological units are altered in ways or with results that could not be obtained by methods of natural mating and reproduction or natural recombination. Techniques of genetic engineering include, but are not limited to: recombinant DNA, cell fusion, micro and macro injection, encapsulation. Genetically engineered organisms do not include organisms resulting from techniques such as conjugation, transduction and natural hybridization.

**Genetically Modified Organism (GMO):** A plant, animal, or microbe that is transformed by genetic engineering.

**Genetic Resources:** Genetic resources means genetic material of actual or potential value.

**Green Manure:** A crop that is incorporated into the soil for the purpose of soil improvement. This may include spontaneous crops, plants or weeds.

**Habitat:** The area over which a plant or animal species naturally exists; the area where a species occurs. Also used to indicate types of habitat, e.g. seashore, riverbank, woodland, grassland.

**High Conservation Value Area:** Areas that have been identified as having outstanding and critical importance due to their environmental, socioeconomic, biodiversity or landscape values.

**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.

**Hydroponic Systems:** Crop production systems in inert media or water solutions using dissociated nutrients as prime source of nutrient supply. Growing crops in water only is not considered a hydroponic system.

**Ingredient:** Any substance, including a food additive, used in the manufacture or preparation of a food or present in the final product although possibly in a modified form.

**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.

**Label:** Any written, printed or graphic representation that is present on a product, accompanies the product, or is displayed near the product.

**Landless animal husbandry systems:** systems by which the operator of the livestock does not manage agricultural land and/or has not established a long-term cooperation agreement with another operator managing organic agricultural land.

**Media (plural) or Medium (singular):** The substance in which an organism, tissue, or organ exists.

**Multiplication:** The growing on of seed stock or plant material to increase supply for future planting.

**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.

**Operator:** An individual or business enterprise, responsible for ensuring that products meet the certification requirements.

**Organic:** "Organic" refers to the farming system and products described in the IFOAM Standard and not to "organic chemistry".

**Organic Product:** A product which has been produced, processed, and/or handled in compliance with organic standards.

**Organic Seed and Plant Material:** Seed and planting material that is produced under certified organic management.

**Parallel Production:** Any production where the same unit is growing, breeding, handling or processing the same products in a certified organic system as well as a non-certified or nonorganic system. A situation with "organic" and "in conversion"

production of the same product is also parallel production. Parallel production is a special instance of split production.

**Processing Aid:** Any substance or material, not including apparatus or utensils, and not consumed as a food ingredient by itself, intentionally used in the processing of raw materials, foods 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.

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

**Sanitize:** To adequately treat produce or food-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.

**Soil fertility:** The potential capacity of the soil to supply nutrients required for plant growth.

**Soil health:** Soil health is the 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 unusual natural events.

**Soil quality:** Soil quality is the functional capacity of the soil, within ecosystem and land-use boundaries, to sustain biological productivity, maintain environmental quality and promote plant, animal and human health. Soil quality is a function of its 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.

**Split Production:** Where only part of the farm or processing unit is certified as organic. The remainder of the property can be (a) non-organic, (b) in conversion or (c) organic but not certified. Also see parallel production.

**Synthetic:** Manufactured by chemical and industrial processes. May include products not found in nature, or simulation of products from natural sources (but not extracted from natural raw materials).

## **2. ORGANIC ECOSYSTEMS**

### **2.1 *Ecosystem Management***

#### **General Principle**

Organic farming benefits the quality of ecosystems.

#### **Requirements**

**2.1.1** Operators shall design and implement measures to maintain and improve landscape and enhance biodiversity quality, by maintaining on-farm wildlife refuge habitats. Such measures 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;
- g. wildlife corridors that provide linkages and connectivity to native habitat.

**2.1.2** Clearing or destruction of High Conservation Value Areas is prohibited. Organic certification shall be denied to farming areas installed on land that has been obtained by clearing of High Conservation Value Areas in the 5 years preceding their certification application.

### **2.2 *Soil and Water Conservation***

#### **General Principle**

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

#### **Requirements**

**2.2.1** Operators shall take defined and appropriate measures to prevent erosion and minimize loss of topsoil. Such measures may include, but are not limited to: minimal tillage, contour plowing, crop selection, maintenance of soil plant cover and other management practices that conserve soil.

- 2.2.2 Land preparation by burning vegetation or crop residues is prohibited, except in cases where burning is used to suppress the spread of disease or to stimulate seed germination.
- 2.2.3 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.
- 2.2.4 Grazing management shall not degrade land or pollute water resources.
- 2.2.5 Operators shall prevent or remedy soil and water salinization.
- 2.2.6 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.

### 2.3 *Inappropriate technologies*

#### **General Principle**

Organic agriculture is based on the precautionary principle and should prevent significant risks by adopting appropriate technologies and rejecting unpredictable ones.

#### **Requirements**

- 2.3.1 Genetic engineering and nanotechnology are excluded from organic production and processing until their long-term environmental and health impact has been properly studied.
- 2.3.2 The deliberate use or negligent introduction of genetically engineered organisms or their derivatives is prohibited. This shall include animals, seed, propagation material, and farm inputs such as fertilizers, soil conditioners, or crop protection materials, but shall exclude vaccines.
- 2.3.2 Organic operators shall not use ingredients, additives or processing aids derived from GMOs.
- 2.3.3 Inputs, processing aids and ingredients shall be traced back one step in the biological chain to the direct source organism \*(see definition) from which they are produced to verify that they are not derived from GMOs.
- 2.3.4 On farms with split (including parallel) production, the use of genetically engineered organisms is not permitted in any production activity on the farm.
- 2.3.5 The use of nanomaterials is prohibited in organic production and processing, including in packaging and food contact surfaces.

**2.3.6** No substance allowed under this standard shall be allowed in nano form.

## **2.4** *Wild Harvested Products and Common/Public Land Management*

### **General Principle**

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

### **Requirements:**

- 2.4.1.** Wild harvested products shall only be certified organic if they are derived from a stable and sustainable growing environment. Products shall not be harvested at a rate that exceeds the sustainable yield of the ecosystem, or threaten the existence of plant, fungal or animal species, including those not directly exploited.
- 2.4.2** Operators shall harvest products only from a clearly defined area where prohibited substances have not been applied.
- 2.4.3** The collection or harvest area shall be at an appropriate distance from conventional farming or other pollution sources in order to avoid contamination.
- 2.4.4** The operator who manages the harvesting or gathering of common resource products shall be familiar with the defined collecting or harvesting area.
- 2.4.5.** 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.

### **3. GENERAL REQUIREMENTS FOR CROP PRODUCTION AND ANIMAL HUSBANDRY**

#### **3.1 *Split Production and Parallel Production***

##### **General Principle**

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

##### **Requirements:**

- 3.1.1** If the whole farm is not converted (split production) the organic and conventional parts of the farm shall be clearly and continuously separated.
- 3.1.2** Simultaneous production of the same organic and non-organic crops or animal products (parallel production) is only permitted where such production is undertaken in a way that allows clear and continuous separation of all product claimed as certified or certifiable as organic.
- 3.1.3** Prohibited materials shall be stored in separate locations from those where organic products are handled.

#### **3.2 *Maintenance of Organic Management***

##### **General Principle**

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

##### **Requirements:**

- 3.2.1** The production system shall not rely upon continuous switching between organic and conventional management.
- 3.2.2** In case of split or parallel production, the operator shall 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.

## 4 . CROP PRODUCTION

### 4.1 *Choice of Crops and Varieties and propagation of planting materials*

#### **General Principle**

Species and varieties cultivated in organic agriculture systems are selected for adaptability to the local soil and climatic conditions and tolerance to pests and diseases. All seeds and plant material are certified organic.

#### **Recommendation:**

The varieties should be from organic breeding programs (see 4.7).

#### **Requirements:**

**4.1.1** Operators shall use organically produced seed and plant material of appropriate varieties and quality.

Regional or other exception at certification body discretion

*When organic seed and plant materials can be shown to be not available in sufficient quantity or quality for the required variety or equivalent varieties, conventional materials may be used provided that they have not been treated with pesticides not otherwise permitted by this standard.*

*Where untreated conventional seeds and plant materials are not available, chemically treated seed and plant material may be used.*

*Where either of these exemptions are granted, the certification body shall set time limits.*

**4.1.2** Seeds and plant materials shall be propagated under organic management for one generation, in the case of annuals, and for perennials, two growing periods, or 12 months, whichever ever is the longer, before being certified as organic seed and plant material.

**4.1.3** Propagation can be based on generative propagation (seeds) as well as vegetative propagation derived from various plant organs like e.g.

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

**4.1.4** All multiplication practices except meristem culture shall be under organic management.

- 4.1.5** Seed treatments, vegetal propagation materials, bedding materials and substrates shall only consist of substances listed in appendices 1 and 2.

## **4.2 Conversion Period (Plant Production)**

### **General Principle**

A conversion period enables the establishment of an organic management system and builds soil health and fertility.

### **Requirements:**

- 4.2.1** All the requirements of this standard shall be met for the duration of the conversion period.
- 4.2.2** The start of the conversion period shall be calculated from the date of application for certification.

Regional or other exception at certification body discretion

*The conversion period may be calculated retroactive to the application only on the basis of sound and incontrovertible evidence of full application of the standard for a period at least as long as 4.2.3*

- 4.2.3** The length of the conversion period shall be at least:
- 24 months before sowing or planting in the case of annual production
  - 24 months before grazing or harvest for pastures and meadows
  - 36 months before harvest for other perennials

Regional or other exception at certification body discretion

*The conversion period may be shortened to 12 months provided that the producer can provide a plan to implement full compliance of this standard in the coming year.*

- 4.2.4** The length of the conversion period should be defined to provide for a period of at least 36 months from the last date of application of any prohibited input.
- 4.2.5** The conversion period may be extended by the certification body depending on conditions such as past use of the land, management capacity of the operator and environmental factors.

### **4.3 *Diversity in Crop Production***

#### **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 and provide support for a diversity of species, while encouraging nutrient cycling and mitigating soil and nutrient losses.

#### **Requirements:**

- 4.3.1** Crop rotations for annual crops shall be established, to manage pressure from pests, weeds and diseases and to maintain soil fertility, unless the operator demonstrates diversity in plant production by other means. Crop rotations shall be diverse and include soil-improving plants such as green manure, legumes or deep rooting plants.
- 4.3.2** For orchards and plantations, there shall be managed floor cover and/or diversity or refuge plantings.

### **4.4 *Soil Fertility and Fertilization***

#### **General Principle**

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

#### **Requirements:**

- 4.4.1** Soil organic matter, microbial activity and general soil health and fertility shall be maintained or improved. The operator shall prevent accumulation of heavy metals and other pollutants in the soils.
- 4.4.2** Material of microbial, plant or animal origin shall form the basis of the fertility program.
- 4.4.3** Nutrients and fertility products shall be applied in a way that does not harm soil, water, and biodiversity.
- 4.4.4** Material applied to the land or crop shall be in accordance with Appendix 2.
- 4.4.5** Manures containing human excrement must not be applied on soil that will be used to grow crops for human consumption within the next six months.

#### Regional or other exception at certification body discretion

*Exceptions may be made where detailed sanitation requirements prevent the transmission of pests, parasites and infectious agents and manures are not mixed with other household or industrial wastes that may contain prohibited substances.*

- 4.4.6 Manures containing human excrement (feces and urine) are prohibited for use on crops for human consumption
- 4.4.7 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 must be justified by appropriate soil and leaf analysis or diagnosed by an independent expert.
- 4.4.8 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, other than addition of water and mixing with other naturally occurring, permitted inputs.
- 4.4.9 Chilean nitrate and all synthetic fertilizers, including urea, are prohibited.
- 4.4.10 The production of terrestrial plants shall be soil-based. The production of such crops in hydroponic systems is prohibited.
- 4.4.11 For mushroom production, substrates shall be made of products of organic agriculture, or other non-chemically treated natural products such as peat, wood, mineral products or soil.

#### 4.5 *Pest, Disease and Weed Management*

##### **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, and other recognized organic practices as described in this standard.

##### **Requirements:**

- 4.5.1 The organic production system shall include positive processes/mechanisms to manage pests, weeds and diseases. These include:
  - a. choice of appropriate species and varieties;
  - b. appropriate rotation programs;
  - 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;
- i. mulching and mowing;
- k. grazing by animals;
- l. mechanical controls such as traps, barriers, light and sound.

**4.5.2** When the measures in 4.5.1 are not sufficient, pest, disease and weed management products that are prepared on the farm from local plants, animals and micro-organisms, or substances permitted under Appendix 3, may be used, provided that they do not jeopardize the ecosystem or the quality of organic products.

**4.5.3** Physical methods for pest, disease and weed management are permitted, including the application of heat.

**4.5.4** Thermal sterilization of soils is prohibited.

Regional or other exception at certification body discretion

*Exceptions may be granted to protect cropping structures in instances of severe disease or pest infestation that cannot be otherwise remedied through measures in 4.5.1 to 4.5.3.*

**4.5.5** Any formulated input shall have only active ingredients listed in Appendix 3. All other ingredients shall not be carcinogens, teratogens, mutagens, or neurotoxins.

## **4.6    *Avoiding Contamination***

### **General Principle**

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

### **Requirements:**

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

**4.6.2** All equipment from conventional farming systems shall be thoroughly cleaned of potentially contaminating materials before being used on organically managed areas.

**4.6.3** For synthetic structure coverings, mulches, fleeces, insect netting and silage wrapping, only products based on polyethylene and polypropylene or other polycarbonates are permitted. These shall be removed from the soil after use and shall not be burned on the farmland.

**4.6.4** The operator shall monitor crop, soil, water, inputs for risks of contamination by prohibited substances and environmental contaminants.

#### **4.7 *Breeding of organic varieties***

##### **General Principles**

Organic plant breeding and variety development is sustainable, enhances genetic diversity and relies on natural reproductive ability.

##### **Recommendation:**

Organic plant breeders may obtain plant variety protection, but organic varieties should not be patented.

##### **Requirements:**

- 4.7.1** To produce organic varieties, plant breeders shall select their varieties under organic conditions that comply with the requirements of this standard.
- 4.7.2** Organic plant breeders shall disclose the applied breeding techniques. To produce an organic variety, genetic engineering and irradiation is prohibited.
- 4.7.3** Organic plant breeder shall develop organic varieties only on the basis of genetic material that has not been exposed to genetic engineering.

## 5 . ANIMAL HUSBANDRY

### 5.1 *Animal Management*

#### **General Principle**

Organic livestock husbandry is based on the harmonious relationship between land, plants and livestock, respect for the physiological and behavioral needs of livestock and the feeding of good-quality organically grown feedstuffs.

#### **Requirements:**

- 5.1.1** Landless animal husbandry systems are prohibited.
- 5.1.2** The operator shall ensure that the environment, the facilities, stocking density and flock/herd size provides for the behavioral needs of the animals.
- 5.1.3** In particular, the operator shall ensure that the livestock has:
- a. sufficient free movement and opportunity to express normal patterns of behavior, such as space to stand naturally, lie down easily, turn around, groom themselves and assume all natural postures and movements such as stretching, perching and wing flapping;
  - b. sufficient fresh air, water, feed 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;

Regional or other exception at certification body discretion

*In holdings which, due to their geographical location and structural constraints where it is not possible to allow free movement of animals, tethering of animals may be allowed for a limited period of the year or of the day. In such cases, animals may not be able to turn around freely but other requirements of 5.1.3 must be fulfilled.*

- 5.1.4** 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.
- 5.1.5** Construction materials and production equipment that might significantly harm human or animal health shall not be used.
- 5.1.6** Operators shall manage pests 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 according to the Appendices of this standard;
- d. substances (other than pesticides) used in traps.

**5.1.7** When animals are housed, the operator shall ensure that:

- a. where animals require bedding, adequate natural materials are provided;
- d. 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;
- e. no animals shall be kept in cages;
- f. animals are protected from predation by wild and feral animals.

**5.1.8** Where livestock are housed, the minimum “on-ground” density for the in-door area shall be not more than the following:

<b>Type of animal</b>	<b>Maximum density</b>
Bovine and Equine (adults)	4 m <sup>2</sup> / animal
Ovine and caprine (adults)	1,5 m <sup>2</sup> / animal
Porcine (> 40kg) Sow with piglets	1 m <sup>2</sup> / animal 3 m <sup>2</sup> / sow
Poultry (adults)	6 birds / m <sup>2</sup>
Rabbits	0,3 m <sup>2</sup> / animal

**5.1.9** 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 in-door.

**5.1.10** 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 8 continuous hours without artificial light shall be respected.

## **5.2 Conversion Period**

### **General Principle**

The establishment of organic animal husbandry requires an interim period, the conversion period. Animal husbandry systems that change from conventional to

organic production require a conversion period to develop natural behavior, immunity and metabolic functions.

**Requirements:**

**5.2.1** 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.

**5.2.2** The start of the conversion period shall be calculated from the date of application for certification.

Regional or other exception at certification body discretion

*The conversion period may be calculated retroactive to the application only on the basis of sound and incontrovertible evidence of full application of the standard for a period at least as long as 4.2.3*

**5.2.3** Where conventional animals are converted to organic they shall undergo a onetime per animal minimum conversion period according to the following schedule. This does not preclude the need for the land to have been converted by the time of sale:

<b>Production</b>	<b>Conversion Period</b>
• Meat:	12 months
• Dairy, fibers and other non-slaughter animal products:	6 months

**5.3** *Animals Sources/Origin*

**General Principle**

Organic animals are born and raised on organic holdings.

**Requirements:**

**5.3.1** Animals shall be raised organically from birth.

Regional or other exception at certification body discretion

*When organic livestock is not available, conventional animals may be brought in according to the following age limits:*

- a. 2 day old poultry;*
- e. dairy calves up to 4 weeks old that have received colostrum and are fed a diet consisting mainly of full milk.*

**5.3.2** Breeding stock may be brought in from conventional farms to a yearly maximum of 10% of the adult animals of the same species on the farm.

Regional or other exception at certification body discretion

*Exceptions of more than 10% may be granted, limited to the following circumstances:*

- a. unforeseen severe natural or man-made events;*
- b. considerable enlargement of the farm;*
- c. establishment of a new type of animal production on the farm;*
- d. holdings with less than 10 animals.*

Female adult breeding replacements must be nulliparous and be converted to organic management prior to the start of their gestation.

#### **5.4 Breeds and Breeding**

##### **General Principle**

Breeds are adapted to local conditions.

##### **Requirements:**

- 5.4.1** Breeding systems shall be based on breeds that can reproduce successfully under natural conditions without human involvement.
- 5.4.2** Artificial insemination is permitted.
- 5.4.3** Embryo transfer techniques and cloning are prohibited.
- 5.4.4** Hormones are prohibited to induce ovulation and birth unless applied to individual animals for medical reasons and under veterinary supervision.

#### **5.5 Mutilations**

##### **General Principle**

Organic farming respects the animal's distinctive characteristics.

##### **Requirements:**

- 5.5.1** Mutilations are prohibited.

Regional or other exception at certification body discretion

*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;*
- d. ringing;*
- e. mulesing only for breeds that require mulesing.*

## **5.6 Animal Nutrition**

### **General Principle**

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

### **Requirements:**

**5.6.1** Animals shall be fed organic feed.

Regional or other exception at certification body discretion

*Operators may feed, until 31<sup>st</sup> December 2014, 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;*
- c. grazing of non-organic grass or vegetation during seasonal migration.*

*In no such case may the percentage of non-organic feed exceed 5% dry matter per animal calculated on an annual basis.*

*Operators may feed non-organic feed under specific conditions for a maximum of 10 days in the following cases:*

- a. unforeseen severe natural or man-made events;*
- b. extreme climatic or weather conditions.*

**5.6.2** 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 behavior.

**5.6.3** The prevailing part (at least more than 50%) of the feed shall come from the farm unit itself, surrounding natural grazing areas, or be produced in co-operation with other organic farms in the region.

Regional or other exception at certification body discretion

*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.*

**5.6.4** 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.

**5.6.5** The following substances are prohibited in the diet:

- a. farm animal byproducts (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. 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 coloring agents.

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

Regional or other exception at certification body discretion

*Synthetic vitamins, minerals and supplements may be used when natural sources are not available in sufficient quantity and quality.*

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

Regional or other exception at certification body discretion

*Ruminants may be fed with carried fresh fodder where this is a more sustainable way to use land resources than grazing. Animal welfare shall not be compromised.*

**5.6.8** Fodder preservatives such as the following may be used:

- a. bacteria, fungi and enzymes;
- b. by-products of food industry (e.g. molasses);
- c. plant based products.

Regional or other exception at certification body discretion

*Synthetic chemical fodder preservatives such as acetic, formic and propionic acid and vitamins and mineral are permitted in severe weather conditions.*

**5.6.9** Young stock from mammals shall be provided maternal milk or organic milk from their own species and shall be weaned only after a minimum period as specified below:

- a. Calves and foals: 3 months
- b. Pigs: 6 weeks
- c. Lambs and kid: 7 weeks

Regional or other exception at certification body discretion

*Operators may provide non-organic milk when organic milk is not available.  
Operators may provide milk replacers or other substitutes only in emergencies provided that they do not contain antibiotics, synthetic additives or slaughter products.*

## 5.7 *Veterinary Medicine*

### **General Principle**

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

### **Requirements:**

**5.7.1** The operator shall take all practical measures to ensure the health and well being 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-air runs, to encourage the natural immunological defense of animal to stimulate natural immunity and tolerance to diseases;
- c. provision of good quality organic feed;
- d. appropriate stocking densities;
- e. grazing rotation and management.

**5.7.2** 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 use in priority natural medicines and treatments, including homeopathy, Ayurvedic medicine and acupuncture whenever appropriate.

**5.7.3** Use of chemical 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.

Regional or other exception at certification body discretion

*The animal may retain its organic status if:*

- a. *the operator can demonstrate compliance with 5.7.1, and*
- b. *natural and alternative medicines and treatments are unlikely to be effective to cure sickness or injury, or are not available to the operator, and*
- b. *the chemical allopathic veterinary drugs or antibiotics are used under the supervision of a veterinarian, and*
- c. *withdrawal periods shall be not less than double of that required by legislation, or a minimum of 14 days, whichever is longer.*

- 5.7.4** Substances of synthetic origin used to stimulate production or suppress natural growth are prohibited.
- 5.7.5** 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.

## **5.8** *Transport and Slaughter*

### **General Principle**

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

### **Requirements:**

- 5.8.1** Animals shall be handled calmly and gently during transport and slaughter.
- 5.8.2** The use of electric prods and other such instruments is prohibited.
- 5.8.3** 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.
- 5.8.4** The operator shall ensure an adequate food and water supply during transport and at the slaughterhouse.
- 5.8.5** Animals shall not be treated with synthetic tranquilizers or stimulants prior to or during transport.
- 5.8.6** Each animal or group of animals shall be identifiable at each step in the transport and slaughter process.
- 5.8.7** Slaughterhouse journey times shall not exceed eight hours.

Regional or other exception at certification body discretion

*When there is no certified organic slaughterhouse within eight hours travel time, an animal may be transported for a period in excess.*

- 5.8.8** 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.

- 5.8.9** Each animal shall be stunned before being bled to death. The equipment used for stunning shall be in good working order.

Regional or other exception at certification body discretion

*Exceptions can be made according to cultural or religious practice. Where animals are bled without prior stunning this should take place in a calm environment.*

## **5.9 Bee Keeping**

### **General Principle**

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

### **Requirements:**

- 5.9.1** Hives shall be situated within a radius of at least 3 kms that 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.
- 5.9.2** The operator shall not place hives within foraging distance (5 kms) of fields or other areas with a high contamination risk (e.g. conventional fields, industrial zones and highways).
- 5.9.3** 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.
- 5.9.4** At the end of the production season, hives shall be left with reserves of honey and pollen sufficient for the colony to survive the dormancy period. Any supplementary feeding 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.
- 5.9.5** 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 year.
- 5.9.6** 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.

- 5.9.7** For pest and disease control the following are permitted:
- a. lactic, formic acid;
  - b. oxalic, 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.
- 5.9.8** 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;
  - c. treated hives shall be placed in isolation and undergo a conversion period of one year.
- 5.9.9** The practice of destroying the male brood is permitted only to contain infestation with *Varroa* (mites).
- 5.9.10** The health and welfare of the hive shall be primarily achieved by hygiene and hive management.
- 5.9.11** The destruction of bees in the combs as a method of harvesting of bee products is prohibited.
- 5.9.12** Mutilations, such as clipping of the wings of queen bees, are prohibited.
- 5.9.13** Artificial insemination of queen bees is permitted.
- 5.9.14** 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.
- 5.9.15** 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.

## **6 . AQUACULTURE PRODUCTION STANDARDS**

### **6.1     *Conversion to Organic Aquaculture***

#### **General Principle**

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

**Requirements:**

- 6.1.1 Operators shall comply with all the relevant general requirements of chapters 3 and 5.
- 6.1.2 The conversion period of the production unit shall be at least one life cycle of the organism or one year, whichever is shorter.
- 6.1.3 Operators shall ensure that conversion to organic aquaculture addresses environmental factors, and past use of the site with respect to waste, sediments and water quality.
- 6.1.4 Production units must be located at an appropriate minimum distance from contamination sources and conventional aquaculture.

**6.2 *Aquatic Ecosystems*****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.

**Requirements:**

- 6.2.1 Aquatic ecosystems shall be managed to comply with relevant requirements of chapter 2.
- 6.2.2 Operators shall take adequate measures to prevent escapes of introduced or cultivated species and document any that are known to occur.
- 6.2.3 Operators shall take verifiable and effective measures to minimize the release of nutrients and waste into the aquatic ecosystem.
- 6.2.4 Fertilizers and pesticides are prohibited unless they appear in Appendices 2 and 3.

**6.3 *Aquatic Plants*****General Principle**

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

**Requirements:**

- 6.3.1 Aquatic plant production shall comply with the relevant requirements of chapters 2 and 4.
- 6.3.2 Harvest of aquatic plants shall not disrupt the ecosystem or degrade the collection area or the surrounding aquatic and terrestrial environment.

**6.4 Breeds and Breeding**

**General Principle**

Organic animals begin life on organic units.

**Requirements:**

- 6.4.1 Animals shall be raised organically from birth.

Regional or other exception at certification body discretion

*When organic animals are not available, brought-in conventional animals shall spend not less than two thirds of their life span in the organic system.*

*When organic stock is not available, conventional sources may be used. To promote and establish the use of organic stock, the certification body shall set time limits for the selected use of non-organic sources.*

- 6.4.2 Operators shall not utilize artificially polyploid organisms or artificially produced monosex stock.
- 6.4.3 Aquatic animal production systems shall use breeds and breeding techniques suited to the region and the production method.

**6.5 Aquatic Animal Nutrition**

**General Principle**

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

**Requirements:**

- 6.5.1 Animals shall be fed organic feed.

Regional or other exception at certification body discretion

*Operators may feed, up to 31<sup>st</sup> December 2014, a limited percentage of non-organic feed under specific conditions for a limited time in the following cases:*

- a. organic feed is of inadequate quantity or quality;*
- b. areas where organic aquaculture is in early stages of development.*

*In no case may the percentage of non-organic feed exceed 5% dry matter calculated on an annual basis.*

**6.5.2** The dietary requirements for aquatic animals shall comply with the requirements of 5.6.4 and 5.6.5.

**6.5.3** Use of water containing human excrement is prohibited.

## **6.6 Aquatic Animal Health and Welfare**

### **General Principles**

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

### **Requirements:**

**6.6.1** Operators shall comply with relevant requirements of section 5.7.

**6.6.2** Prophylactic use of veterinary drugs is prohibited.

**6.6.3** 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.

**6.6.4** Synthetic hormones and growth promoters are prohibited for use to artificially stimulate growth or reproduction.

**6.6.5** Stocking densities do not compromise animal welfare.

**6.6.6** 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.

## **6.7 Aquatic Animal Transport and Slaughter**

### **General Principle**

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

### **Requirements:**

- 6.7.1** Operators shall comply with relevant requirements of section 5.8.
- 6.7.2** The operator shall handle live organisms in ways that are compatible with their physiological requirements.
- 6.7.3** 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;
  - e.** escape.
- 6.7.4** 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.
- 6.7.5** Animals shall be handled, transported and slaughtered in a way that minimizes stress and suffering, and respects species-specific needs.

## 7 . PROCESSING AND HANDLING

### 7.1 *General*

#### **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.

#### **Requirements:**

- 7.1.1 Handlers and processors shall not co-mingle organic products with non-organic products and shall ensure traceability in the organic processing and handling chain.
- 7.1.2 All organic products shall be clearly identified as such, and stored and transported in a way that prevents contact with conventional product through the entire process.
- 7.1.3 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.
- 7.1.4 The handler or processor shall take, identify and minimize risks of environmental pollution resulting from their activity.

### 7.2 *Ingredients*

#### **General Principle**

Organic processed products are made from organic ingredients.

#### **Requirements:**

- 7.2.1 All ingredients used in an organic processed product shall be organically produced except for those additives and processing aids that appear in Appendix 4.

Regional or other exception at certification body discretion

In cases where an ingredient of organic origin is unavailable in sufficient quality or quantity (price not being a reason for unavailability), operators may use non-organic raw materials, provided that:

- a. they are not genetically engineered or contain nanomaterials , and
- b. the current lack of availability in that region is officially recognized<sup>1</sup>  
*or prior permission from the certification body is obtained*, and
- c. the requirements from 8.1.2 are applied.

- 7.2.2 Using organic and non-organic qualities of the same ingredient in a single product is prohibited.
- 7.2.3 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.
- 7.2.4 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.
- 7.2.5 Preparations of micro-organisms and enzymes commonly used in food processing may be used, with the exception of genetically engineered micro-organisms and their products. Processors shall use micro-organisms grown on substrates that consist entirely of organic ingredients and substances on Appendix 4, if available. This includes cultures that are prepared or multiplied in-house.

### 7.3 *Processing Methods*

#### **General Principle**

Organic food is processed by biological, mechanical and physical methods in a way that maintains the vital quality of each ingredient and the finished product.

#### **Requirements:**

- 7.3.1 Techniques used to process organic food shall be biological, physical, and mechanical in nature. Any additives, processing aids, or other material that reacts chemically with organic food or modifies it must appear in Appendix 4 and shall be used in accordance with noted restrictions.
- 7.3.2 Extraction shall only take place with water, ethanol, plant and animal oils, vinegar, carbon dioxide, and nitrogen. These shall be of a quality appropriate for their purpose.
- 7.3.3 Irradiation is not permitted.
- 7.3.4 Filtration equipment shall not contain asbestos, or utilize techniques or substances that may negatively affect the product. Filtration agents and

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<sup>1</sup> This may be by inclusion on a government or certification body list of permitted non organic agricultural ingredients.

adjuvants are considered processing aids and therefore must appear in Appendix 4.

- 7.3.5** The following conditions of storage are permitted (for allowed substances in these conditions, see Appendix 4):
- a. controlled atmosphere;
  - b. temperature control;
  - c. drying;
  - d. humidity regulation.
- Ethylene gas is permitted for ripening.
- 7.3.6** Intentional manufacture or use of nanomaterials in organic products is prohibited.
- 7.3.7** Equipment surfaces and utensils that might come into contact with organic food shall be free of nanomaterials, unless there is verified absence of contamination risk.

#### **7.4 *Pest and Disease Control***

##### **General Principle**

Organic food is protected from pests and diseases by the use of good manufacturing practices that include proper cleaning, sanitation and hygiene, without the use of chemical treatment or irradiation.

##### **Requirements:**

- 7.4.1** 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, ultra-sound, light and UV-light, temperature control, controlled atmosphere and diatomaceous earth.
  - c. substances according to the Appendices of this standard;
  - d. substances (other than pesticides) used in traps.
- 7.4.2** Prohibited pest control practices include, but are not limited to, the following substances and methods:
- a. pesticides not contained in Appendix 3;
  - b. fumigation with ethylene oxide, methyl bromide, aluminum phosphide or other substance not contained in Appendix 4;
  - c. ionizing radiation.
- 7.4.3** 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 product 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 documented.

## **7.5 Packaging**

### **General Principle**

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

### **Requirements:**

- 7.5.1** 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.
- 7.5.2** 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 must be considered. Polyvinyl chloride (PVC) and other chlorine-based plastics shall be avoided. Aluminum shall be avoided.

## **7.6 Cleaning, Disinfecting, and Sanitizing of Food Processing Facilities**

### **General Principle**

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

### **Requirements:**

- 7.6.1** Operators shall take all necessary precautions to protect organic food against contamination by substances prohibited in organic farming and handling, pests, disease-causing organisms, and foreign substances.
- 7.6.2** Only water and substances that appear in Appendix 4, Table 2 may be used as equipment cleansers and equipment disinfectants that may come into direct contact with organic food. Substances other than those appearing on Appendix 4 are only allowed if they are legally required.

**7.6.3** Operations that use cleaners, sanitizers, and disinfectants on food contact surfaces shall use them in a way that does not contaminate the food.

**7.6.4** The operator shall perform an intervening event between the use of any cleaner, sanitizer, or disinfectant and the contact of organic food with that surface sufficient to prevent residual contamination of that organic food.

## **8 . LABELING**

### **8.1 General**

#### **General Principle**

Organic products are clearly and accurately labeled as organic.

#### **Requirements**

**8.1.1** Labels must identify the following:

- a. the person or company legally responsible for the product
- b. the body that assures conformity to the applicable organic standard.

**8.1.2** Processed products shall be labeled according to the following minimum requirements:

- a. Where 95 to 100% of the ingredients (by weight) are organic, the product may be labeled as “organic”.
- b. Where less than 95% but not less than 70% of the ingredients (by weight) are organic, these product cannot be labeled as “organic”, but phrases such as “made with organic ingredients” can be used, provided the proportion of organic ingredients is clearly stated.
- c. Where less than 70% of the ingredients (by weight) are organic, the product cannot be labeled 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.

Notes on calculating percentages:

Water and salt are not included in the percentage calculations of organic ingredients.

**8.1.3** 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.

## 9. SOCIAL JUSTICE

### General Principle

Social justice and social rights are an integral part of organic agriculture and processing.

### Recommendation:

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

### Requirements:

- 9.1.** Operators shall have and enforce a policy on social justice. This policy shall comply with the minimum national requirements and with all ILO conventions relating to labor welfare and the UN Charter of Rights for Children. This policy shall ensure that all permanent employees and their families shall have access to potable water, food, housing, education, transportation and health services.

Regional or other exception at certification body discretion

*Operators who hire fewer than ten (10) persons for labor and those who operate under a state system that enforces social laws are not required to have such a policy.*

- 9.2.** In cases where production is based on violation of human rights and clear cases of social injustice, including indigenous land rights, that product cannot be declared as organic.

- 9.3** Operators shall not use forced or involuntary labor.

- 9.4** Employees and contractors of organic operations shall have the freedom to associate, to organize and to bargain collectively.

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

- 9.6** Operators shall not hire child labor.

Regional or other exception at certification body discretion

*Children are allowed to experience work on their family’s farm or a neighboring farm provided that:*

- a. such work is not dangerous or hazardous to their health and safety;*

- |  |
|--|
| <p>b. <i>it does not jeopardize the children's educational, moral, social, and physical development;</i></p> <p>c. <i>children are supervised by adults or have authorization from a legal guardian.</i></p> |
|--|

- 9.7** Operators shall provide written terms and conditions of employment to both permanent and temporary employees. The terms and conditions must specify at least: wages and method of payment, location and type of work, hours of work and overtime, holiday pay, sick pay or sickness benefit and other benefits such as maternity and paternity leave.

Regional or other exception at certification body discretion

<p><i>In cases where:</i></p> <ul style="list-style-type: none"><li>- <i>the operator is unable to write, or</i></li><li>- <i>workers are hired for periods of less than 3 days, or</i></li><li>- <i>emergency labor is needed to address unpredictable problems</i></li></ul> <p><i>oral mutual agreements on the terms and conditions of employment are sufficient.</i></p>
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- 9.8** Workers must have adequate protection from noise, dust, light and exposure to chemicals in all production and processing operations.

## **SECTION C – APPENDICES**

## **APPENDIX 1: CRITERIA FOR THE EVALUATION OF INPUTS, ADDITIVES AND PROCESSING AIDS FOR ORGANIC PRODUCTION AND PROCESSING**

### **General Principles**

Organic production and processing systems are based on the use of natural, biological, renewable, and regenerative resources. Organic agriculture maintains soil fertility primarily through the recycling of organic matter. Nutrient availability is primarily dependent on the activity of soil organisms. Pests, diseases, and weeds are managed primarily through cultural practices. Organic livestock are nourished primarily through organically produced feed and forage, and are kept in living conditions that allow for natural behavior and avoidance of stress. Organic foods and other products are made from organically produced ingredients that are processed primarily by biological, mechanical, and physical means.

### **Input Lists**

The following Appendices contain lists of the inputs, food additives, processing aids, and other substances that are allowed for use in organic production, handling, and processing under this standard. These lists will be amended based on a review by the IFOAM Standard Committee, taking into account the below criteria for evaluation of inputs. The process for members or other stakeholders to request adding, deleting or otherwise changing the status of an input is located in IFOAM Policy 20 on the revision of the IFOAM Norms, which is accessible on the IFOAM website, [www.ifoam.org](http://www.ifoam.org), or can be ordered from the IFOAM Head Office ([ogs@ifoam.org](mailto:ogs@ifoam.org)).

### **Production Input Criteria**

Inputs used in organic production are consistent with the principles of organic farming outlined in the relevant chapters of the IFOAM Standard and are evaluated against criteria based upon the Precautionary Principle:

*‘When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically. In this context the proponent of an activity, rather than the public, should bear the burden of proof.’*

*‘The process of applying the Precautionary Principle must be open, informed and democratic and must include potentially affected parties. It must also involve an examination of the full range of alternatives, including no action.’*

### **The criteria used to evaluate organic production inputs are based on the following principles:**

**Necessity and alternatives:** Any input used is necessary for sustainable production, is essential to maintain the quantity and quality of the product, and is the best available technology.

**Source and manufacturing process:** Organic production is based on the use of natural, biological, and renewable resources.

**Environment:** Organic production and processing is sustainable for the environment.

**Human health:** Organic techniques promote human health and food safety. Quality: Organic methods improve or maintain product quality.

**Social, Economic, and Ethical:** Inputs used in organic production meet consumer

perceptions and expectations without resistance or opposition. Organic production is socially just and economically sustainable, and organic methods respect cultural diversity and protect animal welfare.

Dossiers for a given substance must address these criteria based on the data requirements and decision rules stated in the criteria below, and meet the criteria to be added to the Appendices.

## **A) Crop and Livestock Criteria**

The following criteria are applied to inputs that are used to evaluate dossiers submitted for crop production. The current IFOAM Standard does not have a separate appendix for livestock inputs. Development of a procedure and application of the criteria to inputs used in livestock production is a work in progress. See chapter 5 for livestock standards and inputs that may be used in organic livestock production.

### ***1. Necessity and Alternatives***

All dossiers shall document the necessity of the substance, its essential nature in organic production systems, and the availability of alternative methods, practices, and inputs.

- 1.1 The input is necessary to produce crops or livestock in sufficient quantity and of suitable quality; to cycle nutrients; to enhance biological activity; to provide a balanced animal diet; to protect crops and livestock from pests, parasites, and diseases; to regulate growth; and to maintain and improve soil quality.
- 1.2 A given substance shall be evaluated with reference to other available inputs or practices that may be used as alternatives to the substance.
- 1.3 Every input shall be evaluated in the context in which the product will be used (e.g. crop, volume, frequency of application, specific purpose).

### ***2. Source and Manufacturing Process***

All dossiers shall document sources and manufacturing processes.

- 2.1 Biological substances require a description of the source organism(s), a verifiable statement that they are not genetically engineered as defined by IFOAM, and the processes required to breed, culture, produce, multiply, extract, or otherwise prepare the substance for use. Naturally occurring plants, animals, fungi, bacteria and other organisms are generally allowed. Substances that undergo physical transformations, such as by mechanical processing, or biological methods, like composting, fermentation, and enzymatic digestion are also generally allowed. Limitations and prohibitions may be set based on consideration of the other criteria. Substances that are modified by chemical reaction are considered synthetic and therefore subject to protocol 2.3 below.
- 2.2 Natural non-renewable resources—such as mined minerals—require a description of the deposit or occurrence in nature. Non-renewable resources are generally restricted or limited in their use. They may be used as a supplement to renewable biological resources, provided they are extracted by physical and mechanical means, and are not rendered synthetic by chemical reaction. Inputs with high levels of natural environmental contaminants, such as heavy metals, radioactive isotopes, and salinity, may be prohibited or further restricted.
- 2.3 Synthetic substances from non-renewable resources are generally prohibited. Synthetic, nature-identical products that are not available in sufficient quantities and qualities in their natural form may be allowed, provided that all other

criteria are satisfied.

- 2.4 Inputs that are extracted, recovered, or manufactured by means that are environmentally destructive may be restricted or prohibited.

### **3. *Environment***

All dossiers shall document the substance's environmental impact.

- 3.1 The environmental impact of a substance includes, but is not limited to, the following parameters: Acute toxicity, persistence, degradability, areas of concentration; biological, chemical, and physical interactions with the environment, including known synergistic effects with other inputs used in organic production.
- 3.2 Effect of substance on the agro-ecosystem, including soil health; the effects of the substance on soil organisms; soil fertility and structure; crops and livestock.
- 3.3 Substances with high salt indexes, measured toxicity to non-target organisms, and persistent adverse effects may be prohibited or restricted in their use.
- 3.4 Inputs used for crop production shall be considered for their impact on livestock and wildlife.

### **4. *Human Health***

All dossiers shall document the impacts of the substance on human health.

- 4.1 Documentation about human health includes, but is not limited to: acute and chronic toxicity, half-lives, degradants, and metabolites. Substances reported to have adverse effects may be prohibited or restricted in their use to reduce potential risks to human health.
- 4.2 Dossiers shall document any human who might be exposed by all possible pathways, at every stage: workers and farmers who extract, manufacture, apply, or otherwise use the substance; neighbors who may be exposed through its release into the environment; and consumers exposed by ingestion of food-borne residues.

### **5. *Quality***

All dossiers shall document the substance's effect on product quality. Quality includes, but is not limited to, nutrition, flavor, taste, storage, and appearance of the raw product.

### **6. *Social, Economic, and Ethical Considerations***

All dossiers shall document the substance's social, economic, and cultural implications.

- 6.1 Social and economic implications include, but are not limited to, the impact of the substance on the communities where they are made and used, whether the use of the substance favors any economic structure and scale, and the historical use of the substance in traditional foods.
- 6.2 Consumer perceptions of the compatibility of inputs shall be taken into account. Inputs should not meet resistance or opposition of consumers of organic products. An input might be reasonably considered by consumers to be incompatible with organic production in situations where there is scientific uncertainty about the impact of the substance on the environment or human health. Inputs should respect the general opinion of consumers about what is natural and organic, e.g. genetic engineering is neither natural nor organic.
- 6.3 Inputs used for animal feed and livestock production shall be evaluated for their

impact on animal health, welfare, and behavior. Medications must either alleviate or prevent animal suffering. Animal inputs that cause suffering or have a negative influence on the natural behavior or physical functioning of animals kept at the farm may be prohibited or restricted.

## **B) Processing and Handling Criteria**

### ***Introduction***

These criteria apply to the evaluation of food additives and food processing aids. Substances used for technical, sensory, and dietary purposes are subject to these criteria. The criteria may also apply to substances in contact with food. For food processing, an input, non-organic ingredient, additive, or processing aid shall be essential to maintain or improve human health, environmental safety, animal welfare, product quality, production efficiency, consumer acceptance, ecological protection, biodiversity, or landscape. Carriers and preservatives used in the preparation of additives and processing aids must also be taken into consideration. The following aspects and criteria should be used to evaluate additives and processing aids in organic food products. All of the criteria below shall be fully and positively documented in a dossier and review for an input to be allowed in organic processing.

### ***1. Necessity and Alternatives***

All dossiers shall document the necessity of the additive, processing aid, or carrier, its essential nature in organic processing and for the proposed application, and the availability of alternative methods, practices, and inputs.

Each substance shall be evaluated with respect to its specific uses and applications, and shall be added when it is demonstrated to be absolutely essential and necessary for the production of a specific food that is consistent with organic principles stated in the IFOAM Standard.

- 1.1. All dossiers shall take into consideration the technical feasibility of the following alternatives:
  - a) Whole foods that are organically produced according to the standard.
  - b) Foods that are organically produced and processed according to the standard.
  - c) Purified products of raw materials of non-agricultural origin, e.g. salt.
  - d) Purified products of raw materials of an agricultural origin that have not been organically produced and processed according to the standard but appear on Appendix 4.
- 1.2 If an ingredient is required to manufacture a processed food product to independently established minimum technical specifications recognized by consumers, and no organic substitute is available, then a non-organic ingredient can be deemed essential.
- 1.3 A given additive, processing aid, or carrier shall be evaluated with reference to other available ingredients or techniques that may be used as alternatives to the substance.
- 1.4 A substance is considered essential if a processed food product requires that substance in order to meet established standards of identity, governmental regulations, or widely accepted consumer expectations.

## **2. Source and Manufacturing Process**

All dossiers shall document the substance's sources and manufacturing processes.

- 2.1 Additives and processing aids from biological sources, such as fermentation cultures, enzymes, flavors, and gums must be derived from naturally occurring organisms by the use of biological, mechanical, and physical methods. Non-organic forms are allowed in organic products only if there are no organic sources.
- 2.2 Natural non-renewable resources — such as salt and mined minerals — must be obtained by physical and mechanical means, and are not rendered synthetic by chemical reaction. Dossiers must document and meet Food Chemical Codex specifications for natural contaminants, such as heavy metals, radioactive isotopes, and salinity, and may be prohibited or restricted based on unacceptable levels of contamination.
- 2.3 Synthetic nature-identical products that are not available in sufficient quantities and qualities in their natural form may be allowed provided all other criteria are satisfied.
- 2.4 Synthetic substances from non-renewable resources are generally prohibited as additives and processing aids.

## **3. Environment**

All dossiers shall document the substance's environmental impact.

Documentation for environmental impact: The release of any harmful waste stream or by-products from both manufacturing and use in processing. Food additives and processing aids that result in toxic by-products or polluting waste may be restricted or prohibited. This includes persistence, degradation, and areas of concentration.

## **4. Human Health**

All dossiers shall document the impacts of the substance on human health.

- 4.1 Documentation about human health includes, but is not limited to: acute and chronic toxicity, allergenicity, half-lives, degradants, and metabolites. Substances reported to have adverse effects may be prohibited or restricted in their use to reduce potential risks to human health.
- 4.2 Dossiers shall document any human who might be exposed by all possible pathways: workers and farmers who manufacture, apply, or otherwise use the substance; neighbors who may be exposed through release into the environment; and consumers exposed by ingestion of food-borne residues.
- 4.3 IFOAM will consider only processing aids and additives evaluated by the Joint FAO/ WHO Expert Committee on Food Additives (JECFA) of the Codex Alimentarius.
  - a) A food additive shall have an Acceptable Daily Intake (ADI) level that is either 'not specified' or 'not limited' to qualify for use without limitation.
  - b) A food additive with any other status shall either be prohibited or have specific use restrictions to limit dietary exposure.
  - c) Evaluation of food additives shall also take into account known allergenicity and immunological responses.
- 4.4 Information about the practical daily intake of the substance by several groups of human should be taken into account. It should be demonstrated that no group has a normal intake, which is higher than the accepted ADI.

### ***5. Quality (in processed products)***

- 5.1 All dossiers shall document the substance's effect on overall product quality, including, but not limited to, nutrition, flavor, taste, storage, and appearance.
- 5.2 Additives and processing aids shall not detract from the nutritional quality of the product.
- 5.3 A substance shall not be used solely or primarily as a preservative, to create, recreate or improve characteristics such as flavors, colors, or textures, or to restore or improve nutritive value lost during processing, except where the replacement of nutrients is required by law.
- 5.4 Non-organic ingredients, additives, or processing aids used to process organic products shall not compromise the authenticity or overall quality of the product or deceive the consumer of the product's value.
- 5.5 Each additive shall be evaluated with respect to its specific uses and applications without preference for any specific techniques or equipment, and shall be added to the list only when it is demonstrated to be absolutely essential and necessary for the formulation and production of a specific food that is consistent with organic principles stated in the IFOAM Standard.

### ***6. Social, Economic, and Ethical Considerations***

- 6.1 All dossiers shall document the substance's social, economic, and cultural, implications.
- 6.2 Social, economic, implications include, but are not limited to, adverse impacts on communities caused by the manufacture and use of the substance, whether certain economic structures or scales are favored by the use of the processing aid; and the historical use of the additive or processing aid in traditional foods.
- 6.3 Consumer perceptions of the compatibility of additives and processing aids shall be taken into account. Any additives and processing aids shall respect consumer preferences and be accepted by organic consumers. An input might be reasonably considered by consumers to be incompatible with organic production in situations where there is scientific uncertainty about the impact of the substance on the environment or human health. Inputs should respect the general opinion of consumers about what is natural and organic, e.g. genetic engineering is neither natural nor organic.

### **C) Evaluation Criteria for Materials used in Organic Fiber Processing**

In addition to the above applicable criteria, the following additional considerations apply to substances used to process and handle fiber:

Substances may be allowed in organic textile processing only if they are biodegradable, generally recognized as safe and hypoallergenic.

Substances shall be prohibited in organic textile processing if they are carcinogenic, mutagenic, teratogenic, toxic, or produced by genetically modified organisms or ionizing radiation.

## APPENDIX 2: FERTILIZERS AND SOIL CONDITIONERS

SUBSTANCES DESCRIPTION, COMPOSITIONAL REQUIREMENTS	CONDITIONS FOR USE
<b>I. PLANT AND ANIMAL ORIGIN</b>	
Farmyard manure, slurry and urine	
Guano	
Source separated human excrement	Must be monitored for contamination and must not be directly applied on edible parts nor on annual fruit or vegetable crops. Only under the exception listed under 4.4.5.
Vermicastings	
Blood meal, meat meal, bone, bone meal	
Hoof and horn meal, feather meal, fish and shell 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, straw	
Wood, bark, sawdust, wood shavings, wood ash, wood charcoal	Only if un-chemically treated
Seaweed and seaweed products	As far as obtained by: (i) physical processes including dehydration, freezing and grinding; (ii) extraction with water or potassium hydroxide solutions, provided that the minimum amount of solvent necessary is used for extraction; (iii) fermentation.
Peat (prohibited for soil conditioning)	Excluding synthetic additives; permitted only in horticulture (floriculture, nursery plants, potting mixes).
Plant preparations and extracts	
Compost made from ingredients listed in this appendix, spent mushroom waste, humus from worms and insects, urban composts and household wastes from separated sources which are monitored for contamination	

<b>II. MINERAL ORIGIN</b>	
<b>Calcareous and magnesium amendments:</b>	
Limestone, gypsum, marl, maerl, chalk, sugar beet lime,	
calcium chloride,	
Magnesium rock, kieserite and Epsom salt (magnesium sulfate)	
Other non-synthetic calcareous and magnesium amendments	
Clay (e.g. bentonite, perlite, vermiculite, zeolite)	
Mineral potassium (e.g. sulfate of potash, muriate of potash, kainite, sylvanite, patenkali)	Shall be obtained by physical procedures but not enriched by mechanical processes
Phosphates in non-synthetic form (e.g. rock phosphate, colloidal phosphate, apatite)	Cadmium content less than or equal to 90 mg/kg of P <sub>2</sub> O <sub>5</sub>
Pulverized rock, stone meal	
Sodium chloride	
Sulfur	
Trace elements, e.g.: boric acid, sodiumborate, calciumborate, borethanolamin, copper oxide, copper sulfate, copper hydroxide, copper silicate, copper carbonate, copper citrate ferric oxide, ferric sulfate, ferrous sulfate, iron citrate, iron sulfate, or iron tartrate manganous oxide, manganese sulfate and manganese carbonate sodiummolybdate, molybdc oxide zinc carbonate, zinc oxide, zinc silicate, and zinc sulfate	Use restricted to cases where soil/plant nutrient deficiency is documented by soil or tissue testing or diagnosed by an independent expert. Micronutrients in either chloride or nitrate forms are prohibited; Micronutrients may not be used as a defoliant, herbicide, or desiccant.

<b>III. MICROBIOLOGICAL</b>	
Biodegradable processing by-products of microbial origin, e.g. by-products of brewery or distillery processing	
Microbiological preparations based on naturally occurring organisms	
<b>IV. OTHERS</b>	
Biodynamic preparations	
Calcium lignosulfonate	

### APPENDIX 3: CROP PROTECTANTS AND GROWTH REGULATORS

SUBSTANCES DESCRIPTION, COMPOSITIONAL REQUIREMENTS	CONDITIONS FOR USE
<b>I. PLANT AND ANIMAL ORIGIN</b>	
Algal preparations	As far as obtained by: (i) physical processes including dehydration, freezing and grinding; (ii) extraction with water or potassium hydroxide solutions, provided that the minimum amount of solvent necessary is used for extraction; (iii) fermentation.
Animal preparations and oils	
Beeswax	
Chitin nematicides (natural origin)	Not processed by acid hydrolysis
Coffee grounds	
Corn gluten meal	
Dairy products (e.g. milk, casein)	
Gelatine	
Lecithin	
Natural acids (e.g. vinegar)	
Neem ( <i>Azadirachta indica</i> )	
Plant oils	
Plant preparations	
Plant based repellents	
Propolis	
Pyrethrum ( <i>Chrysanthemum cinerariaefolium</i> )	The synergist Piperonyl butoxide is prohibited.
Quassia ( <i>Quassia amara</i> )	
Rotenone ( <i>Derris elliptica</i> , <i>Lonchocarpus</i> spp. <i>Tephrosia</i> spp.)	Not near waterways. Subject to approval by the CB
Ryania ( <i>Ryania speciosa</i> )	
Sabadilla	
<b>II. MINERAL ORIGIN</b>	
Chloride of lime (calcium chloride)	
Clay (e.g. bentonite, perlite, vermiculite, zeolite)	
Copper salts (e.g. sulfate, hydroxide, oxychloride, octanoate)	Max 6 kg Cu/ha per year (on a rolling average basis)
Diatomaceous earth	
Light mineral oils (paraffin)	
Lime sulfur (Calcium polysulfide)	
Potassium bicarbonate	

<b>SUBSTANCES DESCRIPTION, COMPOSITIONAL REQUIREMENTS</b>	<b>CONDITIONS FOR USE</b>
Calcium hydroxide (hydrated lime)	For foliar application only
Silicates (e.g. sodium silicates, quartz)	
Sodium bicarbonate	
Sulfur	
<b>III. MICROORGANISMS</b>	
Fungal preparations (e.g. spinosad)	
Bacterial preparations (e.g. Bacillus thuringiensis)	
Release of parasites, predators and sterilized insects	
Viral preparations (e.g. granulosis virus)	
<b>IV. OTHERS</b>	
Biodynamic preparations	
Carbon dioxide	
Ethyl alcohol	
Homeopathic and Ayurvedic preparations	
Iron phosphates (for use as molluscicide)	
Seasalt and salty water	
Soft soap	
<b>V. TRAPS, BARRIERS, REPELLENTS</b>	
Physical methods (e.g. chromatic traps, mechanical traps)	
Mulches, nets	
Pheromones – in traps and dispensers only	

**APPENDIX 4 – TABLE 1: LIST OF APPROVED ADDITIVES<sup>2</sup> AND PROCESSING AIDS**

Substances of certified organic origin must be used if commercially available. If organic sources are not available, natural sources must be used if commercially available. Only if organic and natural sources are not available, synthetic forms of the substances below may be used.

<b>INT'L NUM- BERIN G SYSTE M</b>	<b>PRODUCT</b>	<b>ADDITIV E</b>	<b>PRO C. AID</b>	<b>LIMITATION/NOT E</b>
INS 170	Calcium carbonate	X	X	Not for coloring
INS 184	Tannic acid		X	Filtration aid for wine
INS 220	Sulfur 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	Obtained without bleaches
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	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		

<sup>2</sup> Food additives may contain carriers, which shall be evaluated.

<b>INT'L NUM- BERIN G SYSTE M</b>	<b>PRODUCT</b>	<b>ADDITIV E</b>	<b>PRO C. AID</b>	<b>LIMITATION/NOT E</b>
INS 415	Xanthan gum	X		
INS 428	Gelatin		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, confectionery, 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	Sulfuric acid		X	PH adjustment of water during sugar processing
INS 516	Calcium sulfate	X		For soybean products, confectionery and in bakers' yeast
INS 517	Ammonium sulfate	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 526	Calcium hydroxide	X	X	Food additive for maize tortilla flour Processing aid for sugar
INS 551	Silicon dioxide (amorphous)		X	
INS 553	Talc		X	
INS 558	Bentonite		X	Only for fruit and vegetable products
INS 901	Beeswax		X	
INS 903	Carnauba wax		X	

INT'L NUM- BERIN G SYSTE M	PRODUCT	ADDITIV E	PRO C. AID	LIMITATION/NOT E
INS 938	Argon	X		
INS 941	Nitrogen	X	X	
INS 948	Oxygen	X	X	
	Activated carbon		X	
	Casein		X	Only for wine
	Cellulose		X	
	Diatomaceous earth		X	
	Ethanol		X	
	Isinglass		X	Only for wine
	Kaolin		X	
	Perlite		X	
	Preparations of bark		X	Only for sugar

### Flavoring Agents

#### Operators may use:

- organic flavoring extracts (including volatile oils), and, if not available,
- natural flavoring preparations approved by the certification body. Such approval shall include assessment that natural flavors shall meet the following criteria:
  - the sources are plant, animal or mineral
  - the process of production is in accordance with a recognized organic standard
  - be produced by means of solvents such as vegetal oil, water, ethanol, carbon dioxide and mechanical and physical processes.

#### Preparations of Micro-organisms and Enzymes for use in food processing (see 6.2.4.)

These may be used as ingredient or processing aids with approval from the certification body:

- Organic certified micro-organisms
- Preparations of micro-organisms
- Enzymes and enzyme preparations

**APPENDIX 4 – TABLE 2: LIST OF EQUIPMENT CLEANSERS AND EQUIPMENT DISINFECTANTS THAT MAY COME INTO DIRECT CONTACT WITH FOOD**

<b>PRODUCT</b>	<b>LIMITATION/NOTE</b>
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	
Sodium carbonate	
Sodium hydroxide (caustic soda)	
Sodium hypochlorite	An intervening event or action must occur to eliminate risks of contamination
Sodium soap	