

**ECOLOGICAL ORGANIC STANDARD for GHANA**

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## **Foreword**

In November 2017, the Dutch Ministry of Foreign Affairs provided funding to IFOAM- Organics International and its partner Agro Eco-Louis Bolk Institute to implement the "*Organic Market for Development*"(OM4D) project in four West African countries: Ghana, Burkina Faso, Togo, and Sao Tome and Principe.

One of the objectives of the project is to strengthen the domestic market for organic products in the four target countries through the establishment of a Participatory Guarantee System (PGS). It is against this backdrop that a multi-stakeholder committee was set up in Ghana to steer the establishment of a local guarantee system (PGS-Participatory Guarantee System) and in the process create an organic standard applicable within the Ghanaian context. The committee over a two-year period developed an organic standard for Ghana which is to serve as a guiding document for organic production in the Country.

The Standard was also assessed for equivalence against the Common Objectives and Requirements of Organic Standards (COROS). The COROS articulates the broad objectives that the production rules in organic standards and regulations commonly seek to achieve, and presents common detailed requirements that relate to these various objectives. Subjecting the Ecological Organic Standard of Ghana (EOSG) to the COROS review assures international equivalence of EOSG with international organic standards. The Ghana Standard successfully passed the assessment against the COROS and is therefore recognized in the IFOAM Family of Standards, thus creating opportunities for PGS Ghana to engage in trade agreements. The approval and launch of the Standard occur at an opportune moment historically, where several African countries have opened their markets under the Continental Free Trade Agreement to enable duty-free trading of goods and services across borders.

The Standard shall be reviewed in due course to adjust to new discoveries and innovations within the organic sector. It is expected that newer versions of the standard that are developed by the committee shall be made available to all PGS and organic stakeholders.

## **Introduction**

The history, culture and social values of West Africans and thus Ghanaians, are rooted in agriculture. Agriculture is the most important source of livelihood for a very large proportion of the population. The sustainable management of the agriculture production process is therefore crucial if livelihoods are to be sustained in a world with changes in climate and economy.

Organic agriculture is a comprehensive integrated production system that sustains the health of soils, ecosystems, animals and people. The principles of organic agriculture are summarized in the four principles of health, ecology, fairness and care which inspire the worldwide organic movement.

The four core principles of health, ecology, fairness and care are brought to life in agriculture by working in respect with ecological processes, natural biodiversity, soil bioactivity and cycles adapted to local conditions, rather than using inputs with adverse effects. Organic agriculture aims to optimize the health and productivity of interdependent communities of soil life, plants, animals and people.

It builds on West Africa's rich heritage of indigenous knowledge combined with modern science, technologies proven through experimental practices, adapting to increase climate-resilience and robustness in food-security and the livelihood of farmers.

Organic agriculture combines tradition, innovation and science to benefit and improve our shared environment and promote fair relationships and a good quality of life for all involved. The system is often further described by standards, which govern labeling and claims for organic products.

This standard is the first version of the Ghanaian standard and regulatory statutes for a Participatory Guarantee System (PGS). PGS Ghana integrates the traditional ways of farming, together with innovative marketing strategies. By providing farmers, producers and consumer a large range of selling platforms for their produce and products. The Ghanaian Participatory Guarantee System contributes to the country food security and food safety by adding value to the produce from the raw farmer to the big producers nationwide. This system supports the promotion of Ghanaian produce and products and contribute to the agriculture sector in the country.



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## **Ghana Ecological Organic Production Product Standard**

### **1. IFOAM principles of organic agriculture**

#### **1.1. Preamble**

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

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

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

Organic agriculture is based on:

- 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.

#### **A.1. The principle of health**

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



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

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

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

### **A.2. 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. External Inputs should be reduced by reuse, recycling and efficient management of materials and energy in order to maintain and improve environmental quality and conserve resources.

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

### **A.3. The principle of fairness**

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

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

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

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

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

### **A.4. 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.

### **1.2. Scope**

This Ecological Organic Standard of Ghana provides requirements and definition for organic production. It covers plant production, animal husbandry, beekeeping, the collection of wild products, aquaculture and the processing and labelling of the products therefrom. It does not cover procedures for verification such as inspection or certification of products, which are available in supportive documents to this standard.

### **1.3. Normative references**

This Ghana Ecological Organic Standard incorporates by dated or undated references and provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this Ghana Ecological Organic Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

*CAC/GL 32, Codex Alimentarius — Guidelines for the production, processing, labelling, and marketing of organically produced foods*

IFOAM Standards for Organic Production and Processing. Version 2005.

East African Organic Standard, EAS 456:2007

## **2. Terms and definitions**

For the purposes of this standard, the following definitions apply:

### **2.2.1. Allopathic**

Relating to or being a system of medicine that aims to combat disease by using remedies (such as drugs or surgery) which produce effects that are different from or incompatible with those of the disease being treated.

### **2.2.2. Biodiversity**

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

### **2.2.3. Breeding**

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

**2.2.4. Buffer zone**

A clearly defined and identifiable boundary area bordering an organic production site and adjacent areas. It is established to avoid contact with substances which shall not be used at an organic production site according to this standard (Contamination)

**2.2.5. Child**

In cases involving employment in hazardous sectors, *child* denotes a person under the age of 18 years

**2.2.6. Child labour**

Any employment that interferes with the legal rights of a child and culturally appropriate educational needs

**2.2.7. Contamination**

Pollution of organic product or land or contact with any material that would render the product unsuitable for organic production or as an organic product

**2.2.8. Conventional**

Any material, production, or processing practice that is not organic or organic “in-conversion”

**2.2.9. Conversion period**

The time between the start of organic management and the time when crops and animal products qualify as organic

**2.2.10. Crop rotation**

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

**2.2.11. Food additive**

Any substance not normally consumed as a food by itself and not normally used as a typical ingredient of the food, whether or not it has nutritive value, the intentional addition of which to food for a technological (including organoleptic) purpose in the manufacture, processing, preparation, treatment, packing, packaging,

transport or holding of such food results, or may be reasonably expected to result, (directly or indirectly) in it or its by-products becoming a component of or otherwise affecting the characteristics of such foods. The term does not include contaminants, or substances added to food for maintaining or improving nutritional qualities, or sodium chloride

**2.2.12. Food fortification**

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

**2.2.13. Genetic engineering**

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 modification include, but are not limited to, recombinant DNA, cell fusion, micro and macro injection, encapsulation, gene deletion and doubling. Genetically engineered organisms do not include organisms resulting from techniques such as conjugation, transduction and natural hybridization

**2.2.14. Genetically modified organism (GMO)**

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

**2.2.15. Green manure**

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

**2.2.16. Habitat**

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

**2.2.17. Ingredient**

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

**2.2.18. Ionizing radiation**

Processing of food products by gamma rays, X-rays or accelerated electrons capable of altering a food'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

**2.2.19. Label**

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

**2.2.20. Local management team**

The executives and management leaders of PGS – Ghana

**2.2.21. 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

**2.2.22. Operator**

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

**2.2.23. Organic**

Refers to the farming system and products described in this standard. Organic does not refer to organic chemistry

**2.2.24. Organic agriculture**

A farming system in compliance with this standard

**2.2.25. Organic product**

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

**2.2.26. Organic seed and planting material**

Seed and planting material that is produced by organic agriculture

**2.2.27. Parallel production**

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

**2.2.28. Processing aid**

Any substance (not including apparatuses or utensils) not consumed as a food itself and which is used in the processing of raw materials, foods, or ingredients to fulfil a certain technical purpose during treatment or processing and which may result in the presence of residues or derivatives in the final product

**2.2.29. Propagation**

The reproduction of plants sexually (i.e., seed) or asexually (i.e., cuttings, root division)

**2.2.30. Shall**

A required state or action

**2.2.31. Should**

A recommended, desirable or expected state or action

**2.2.32. Synthetic**

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

**2.2.33. Synthetic pesticide**

Synthetic product intended to prevent, eliminate or control a pest

**2.2.34. Traceability**

The ability to follow the movement of a food through specified stage(s) of production, processing and distribution

**2.2.35. In-conversion**

A crop which is grown both as organic and non-organic (conventional or in-conversion) on the same farm

**3. General requirements for organic production**

The requirements of this clause shall apply to all categories of organic production and to all operators.

**3.1. Documentation and transparency**

**3.1.1.**The operator shall maintain records of the production, appropriate for the scale of production.

**3.1.2.**The operator shall give interested parties relevant information about the operation as per the requirement of this standard.

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

**3.2. Contamination**

**3.2.1.** Any party may request the PGS-Ghana to consider adding, deleting, or changing the status of an input in the annexes of this standard. The PGS Ghana will review all requests and evaluate each request against the relevant criteria for approval of substances and the best available information, and decide if the requested change will be incorporated.

**3.2.2.** The operator shall avoid using chemical products that may endanger human health or the environment. Where there are products that are considered to be less harmful, they shall be used.

Weed problems may be controlled through: Plastic or other synthetic mulches: Provided, that, they are removed from the field at the end of the growing or harvest season.

**3.2.2.**The operator shall take relevant precautionary measures to avoid the contamination of organic sites and products. Where there is a reasonable suspicion of substantial contamination by, for example, soil, water, air, inputs or ingredients, appropriate actions shall be taken.

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

**3.2.4.**Chemical products shall be properly labelled and safely stored.

**3.3. Genetically Modified Organisms (GMOs)**

**3.3.1.**Genetically modified organisms or their derivatives shall not be used or introduced. This includes animals, seed, propagating material, farm inputs such as fertilizers, soil conditioners and crop-protection materials.



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

**3.3.3.**Genetically modified organisms shall also not be used on farm in conversions to in the conventional production on farms that are not fully converted to organic production.

### **3.4. Fairness, respect and Social justice**

**3.4.1.**Employees and workers shall be guaranteed basic human rights and fair working conditions in accordance with national and international conventions and laws.

**3.4.2.**The operator shall not use forced or involuntary labour.

**3.4.3.**Employees, casual workers and contractors of organic operations shall have the freedom to associate, the right to organize, and the right to bargain collectively.

**3.4.4.** Employees shall have equal opportunities and shall not be subjected to discrimination regardless of colour, creed, ethnicity or gender.

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

**3.4.6.** An operator shall provide right and adequate tools for work for employees, casual workers and contractors.

**3.4.7.** The operator shall provide adequate health and safety measures for employees, casual workers and contractors.

**3.4.8.** An operator employing 10 or more permanent workers shall have a documented policy covering the aspect of 3.4.

### **3.5. Adherence to relevant legislation**

The operator shall act in accordance with relevant national legislation that regulates their businesses.

### **3.6. Knowledge about organic production**

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

## **4. Organic Ecosystems**

### **4.1. Ecosystem Management**

Organic farming seeks to benefit the quality of ecosystems.

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

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

**4.1.2.** Clearing or destruction of High Conservation Value Areas is prohibited. Farming areas installed on land that has been obtained by clearing of High Conservation Value Areas in the preceding 5 years shall not be considered compliant with this standard.

## **4.2. Inappropriate technologies**

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

**4.2.1.**The deliberate use or negligent introduction of genetically engineered organisms or their derivatives is prohibited. This shall include animals, seed, propagation material, feed, and farm inputs such as fertilizers, soil conditioners, or crop protection materials, but shall exclude vaccines.

**4.2.2.**Organic operators shall not use ingredients, additives or processing aids derived from GMOs.

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

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

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

## **5. Crop production**

### **5.1. Conversion period and requirements**

**5.1.1.**Start of the conversion period. The conversion period shall start when the operator has notified PGS Ghana, submitted needed information on the production and committed to follow the standards."

**5.1.2.** The length of the conversion period of land shall be at least:

- 12 months before sowing or planting in the case of annual production
- 12 months before grazing or harvest for perennial pastures and meadows

18 months before harvest for other perennials (e.g. tree crops).

If land that has been in fallow for at least three year is brought into production, no conversion period shall apply for that land.

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

**5.1.3.** Proper records shall be maintained for a land under conversion and crops produced during the conversion period shall not be sold as organic but as “organic in-conversion”.

**5.1.4.**

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

## **5.2. Farm conversion and parallel production**

**5.2.1.**A farmer may be allowed to practice parallel production. In doing so, however, the farmer must demonstrate with records and other agronomic best practices that good separation is practiced preventing cross-contamination as well as mixing of organic and non-organic produce.

These practices include the use of separate facilities (buildings, stores, equipment and machinery). The farmer shall demonstrate through records and practices that strict adherence is applied to

1. Avoid the use of same machinery and equipment on conventional and organic farms (If the same machinery and equipment is used for conventional and organic farms. There must be a cleaning protocol that compliant to the clause 5.10.2. on contamination.)
2. Separate storage facilities are provided for organic and conventional equipment, machinery, fertilizers and plant protection products.
3. Separate store house for crops from organic and conventional farms
4. Records on yields and sales are well maintained at all time for verification

**5.2.2.**If the whole farm is not converted, the organic, in-conversion and conventional parts of the farm shall be clearly and continuously separated.

**5.2.3.** Land converted to organic production shall not be alternated (switched back and forth) between organic and conventional production.

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

### **5.3. Biodiversity**

**5.3.1.** The operator shall demonstrate practices and care for biodiversity throughout the farm holding.

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

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

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

**5.3.4.** Natural boundaries such as hedges, paths and ditches should be maintained.

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

### **5.4 Farming system diversity**

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

For annual crops, crop rotation shall be practised.

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

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

**5.5. Soil and water conservation, including erosion control**

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

5.5.1. Terrestrial crops shall be grown in soil-based systems.

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

5.5.3. Relevant measures shall be taken to prevent or remedy the salinization of soil and water.

5.5.4 Burning of vegetation shall be restricted and controlled to protect organic matter and biodiversity.

**Note:** Exceptions may be granted in cases where burning is used to suppress the spread of disease, to stimulate seed germination, to remove intractable residues, or other such exceptional cases.

5.5.5. 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.

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

5.5.7. The operator shall not deplete or excessively exploit water resources and shall seek to conserve water resources and quality. Where necessary, the operator shall collect or harvest rainwater.

**5.6. Soil fertility management**

5.6.1. Appropriate use and recycling of nutrients, an appropriate crop rotation, and efforts to minimise nutrient losses shall be implemented by the operator.

5.6.2. Material of microbial, plant or animal origin shall form the basis of the soil fertility programme.

Fertilizers of mineral origin shall only be applied in the form in which they naturally exist and are extracted. They shall not be rendered more soluble by chemical treatment, other than the addition of water. Mineral fertilizers may only be used for long-term fertility needs along with other techniques such as organic-matter additions, green manures, crop rotations and nitrogen fixation by plants.

5.6.3. Fertilizers and soil conditioners shall be in accordance with Annex B.

Fertilizers and soil conditioners of natural origin may be used unless listed in Annex C.

Fertilizers and soil conditioners of synthetic origin may only be used if listed in Annex B.

### **5.7. Pest, disease and weed management**

5.7.1. Physical, cultural and biological methods for pest, disease and weed management, including the application of heat, may be used.

5.7.2. Inputs for pest, disease, weed or growth management shall be in accordance with Annex B and C.

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

Active ingredients of synthetic origin may be used if listed in Annex B.

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

### **5.8. Seeds, seedlings, and planting materials**

5.8.1. Seeds, seedlings and planting materials from organic production shall be used. If organic seeds, seedlings and planting materials are not commercially available, then conventional, chemically untreated seed, seedlings and planting material may be used.

Only if these are not commercially available may chemically treated seeds, seedlings and planting materials be used. The operator shall demonstrate the apparent need for such use.

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

## **5.9. Mushroom production**

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

**5.9.2.** Inputs used in mushroom production shall be in accordance with 5.6, 5.7 and 5.8.

### **5.9.3. Site Location and Buffers**

Growers shall maintain an adequate buffer between their operation and potential sources of contamination, such as from another farming operation, to minimize the risk of contamination from the drift of pesticides, herbicides, and other prohibited substances.

The required size of the buffer will vary based on the neighbouring activities, what substances are used, how they are applied, prevailing wind patterns, and any physical barriers between potential sources of risk and mushroom production site.

### **5.9.4. Management of Production Site**

The production site should be maintained in a way that prevents contact with prohibited substances. The plant materials or wood used for the construction of the mushroom house, racks, substrate holding containers, boxes, trays, shall be free from prohibited substance treatment. Organic and non-organic production units must be in separate facilities, separate by space and have separate ventilation systems, boxes, trays, tool, substrate, holding racks including facilities for compost production.

### **5.9.5. Mushroom Seed (Fungus spawn)**

Organic spawn (seed) shall be used. In case of non-availability of organic spawn, conventionally grown spawn may be used.

### **5.9.6. Conversion Period**

In converting existing non-organic mushroom production systems for organic production, the operator shall implement a cleaning protocol as pertains to this standard using organic cleaning agents.



**5.9.7. Pest Control and Sanitation**

Preventive pest and disease management shall be the preferred approach.

**5.10. Contamination**

**5.10.1.** Where there is an apparent and substantial risk of contamination from adjacent farms, the operator shall implement measures, including barriers and buffer zones, to avoid or limit the contamination. Buffer zone of 5-20 meters distance shall separate an organic from a conventional farm depending on each farm situations. Hedgerows shall be in place to separate organic farm from conventional farm.

**5.10.2.** Machines, equipment and tools (e.g., seed drills, fertilizer spreaders and spraying equipment) used in non-organic production shall be cleaned before they are used in organic production.

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

**5.11. Draught animals**

Draught animals, when used in organic plant production, shall be treated according to the animal management standards (6.2) Working conditions for draught animals shall not be detrimental to the health and development of the animal.

**5.12. Water Usage**

**5.12.1.** Water should not pose any contamination risk to crops and subsequently to humans. Periodic analysis of water may be carried out as a guarantee of food safety.

**5.12.1.** Water obtained from gutters, gullies, sewage drains, industrial waste ponds or catchments, or any other water source that may be contaminated with animal or human sewage, industrial waste, municipal waste and effluents, is prohibited for use in organic systems.

**6. Animal husbandry**

**6.1. Conversion and brought-in animals**

**6.1.1.** Animals shall be raised organically from birth. Where organic livestock is not available, conventional animals may be brought in, according to the following maximum age limits. Older animals may be brought in for breeding purposes only.

<b>Species</b>	<b>Age</b>
Day-old chicks for meat production	2 days
Hens for egg production	18-week-old
Other poultry	2-week-old
Rabbits	8-week-old
Piglets	3 months old
Calves	3 months
Goats and sheep	3 months

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

<b>Type of Species</b>	<b>Period of conversion</b>
Poultry	45 days
Rabbits	45 days
Sheep	3 months
Goats	3 months
Pigs	3 months
Meat production cows	12 months
Dairy production all species	3 months
Layer eggs	45 days

**6.2. Animal management**

**6.2.1. Stock Identification**

The producer shall be able to identify all the stock of animals on their field either in lots or individually as appropriate.

**6.2.2. Parallel production**

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

**6.2.3.** All animals shall be kept under good animal husbandry practices. Animals shall have access to sufficient fresh air, water and feed.

- a. Animals shall have access to protection from direct sunlight, excessive noise, heat, rain, mud and wind to reduce stress and ensure their well-being.
- b. Animals shall not be mistreated. The use of tranquilizer, stimulants and injurious device is prohibited.
- c. Water obtained from gutters, gullies, sewage drains, industrial waste ponds or catchments, or any other water source that may be contaminated with animal or human sewage, industrial waste, municipal waste and effluents is prohibited for use in organic systems.

**6.2.4.** Animals shall have the living conditions and be managed according to their natural behavioural needs. For example:

- a. Pigs shall be provided with material to root.
- b. Goats shall have the possibility of climbing.
- c. Chickens shall have the possibility of scratching and of taking regular dust bath. Animals shall have the living conditions and be managed in a way that prevents abnormal behaviour, injury and disease.

**6.2.5.** Animals shall have sufficient space for free movement, according to their natural behaviour.

**6.2.6.** Housing conditions shall ensure sufficient lying and resting areas that correspond to the natural needs of the animals. Animals shall have a dry resting area whenever possible. They shall also be provided with natural bedding where appropriate.

6.2.7. Pens and holding areas shall be cleaned regularly.

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

- a. preventative methods such as disruption, elimination of habitat and access to facilities;
- b. mechanical, physical and biological methods

- c. substances (other than pesticides) used in traps
- d. substances listed in Annex F of this standard;

6.2.9. Tethering may be practised, provided it does not affect the well-being of the animal. The animal shall have access to adequate feed, shade and water. The method of tethering shall enable the animal to freely move within the grazing area without getting entangled or choked. The tethering shall not cause wounds or otherwise physically harm animals.

6.2.10 Animals shall have the opportunity to feed according to their natural behaviour, e.g., grazing. However, where the bringing of fodder is a more sustainable way to use land resources than grazing, animals may be fed with brought fodder, provided that the animals have access to an outdoor run on a regular basis.

6.2.11 Grazing management shall not degrade soil, pasture and water resources.

### **6.3. Breeding**

6.3.1. Organic animal management uses breeds that reproduce successfully under natural conditions and without routine human involvement.

6.3.2 Artificial insemination may be practiced.

6.3.3. Embryo-transfer techniques and cloning shall not be practiced or used.

### **6.4. Mutilation**

Mutilation shall not be practiced, except in the following cases and only on young animals

- a. Castration,
- b. Ringing
- c. Dehorning

In these instances, mutilation shall be done in such a way that the suffering of the animal is minimized. Anesthetics shall be used where appropriate.

**6.5. Animal Nutrition**

- 6.5.1.** Animals shall be fed 100 % organic feedstuff. Where the quantity or quality of commercially available organic feed is inadequate, the daily maximum percentage of non-organic feed shall be 40 %, calculated on a dry-matter basis. The substitution with non-organic feed is limited to one feed production season and will be reviewed at the end of the season.
- 6.5.2.** All animals shall have access to fresh fodder. Ruminants shall get fresh fodder daily through grazing or feeding. Where such fodder is not available, preserved fodder may be used.
- 6.5.3.** To ensure a connection between plant production and animal husbandry, at least 60 % of the feed shall come from the farm itself or be produced in cooperation with other organic farms in the region.
- 6.5.4.** The following products shall not be included in the feed:
- a. Meat, bone and other abattoir waste products to ruminants and non-ruminants
  - b. Chicken manure or other animal manure to ruminants and non-ruminants
  - c. Feeds subjected to solvent extraction (e.g., hexane) or the addition of other chemical agents
  - d. Urea and other synthetic nitrogen compounds
  - e. Synthetic growth promoters or stimulants
  - f. Antibiotics
  - g. Synthetic appetizers
  - h. Artificial colouring agents
  - i. Genetically engineered organisms or products thereof
  - j. Slaughter products
- 6.5.5.** Feed preservatives may not be used except for
- a. Plant-based products,
  - b. By-products from the food industry (e.g., molasses),
  - c. Bacteria, fungi and enzymes,
- 6.5.6.** Animals may be fed vitamins, trace elements and supplements from natural sources. Synthetic vitamins, minerals and supplements may be used where natural sources are lacking in quantity or quality.
- 6.5.7.** Young stock from mammals shall be raised on maternal milk or organic whole milk from their own species. Young animals shall be allowed to suckle.

Where organic whole milk is not available, conventional whole milk shall be used. Milk replacements may be used only in emergencies and shall not contain ingredients mentioned in 6.5.3.

**6.5.8.** Animals shall be weaned only after a minimum time that takes into account the natural behaviour and physical needs of the animal.

## **6.6. Healthcare practices**

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.

**6.6.1.** 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 defence 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.

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

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

The animal may retain its organic status if:

- a. The operator can demonstrate compliance with 6.6.1, 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
- c. The chemically synthesized allopathic veterinary medical products or antibiotics are used under the

supervision of a veterinarian, and

- d. Withdrawal periods shall be not less than double of that required by legislation, or a minimum of 14 days, whichever is longer.
- e. This exception is granted for a maximum of three courses of remedial treatments with chemically synthesized allopathic veterinary medicinal products or antibiotics within 12 months, or one course of treatment if the productive lifecycle of the animal is less than one year.

**6.6.4.** Prophylactic use of any synthetic allopathic veterinary drug is prohibited.

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

**6.6.6.** Vaccinations are allowed only in the following cases:

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

**6.6.7.** Hormonal treatment may be used only for therapeutic reasons and under veterinary supervision.

**6.6.8.** Synthetic growth promoters or substances used for the purpose of stimulating production shall not be used.

## **6.7. Transport and slaughtering**

Slaughtering and slaughtering facilities shall comply with national health regulations (e.g FDA, Municipal Assembly guidelines)

Handling, including transport and slaughter, shall be carried out calmly and gently and involve the minimum of physical and mental strain or stress for the animal.

The animals shall be provided with conditions that minimise stress and other adverse effects of

- a. Hunger and thirst,
- b. Extreme temperatures or extreme relative humidity,
- c. Mixing different groups, sexes, age, and health status.
- d. The use of tranquilizer, stimulants and injurious device is prohibited.

Animal products shall be transported under hygienic conditions to prevent contaminations from the food contact surface and the environment.





## **7. Beekeeping**

### **7.1. Conversion and brought-in bees and swarms**

- 7.1.1.** Bee colonies may be converted to organic production. The conversion period for a colony is one honey harvest cycle.
- 7.1.2.** If the wax has been contaminated with pesticides it shall be replaced by organic wax at the start of the conversion period.
- 7.1.3.** Introduced bees shall come from organic production units where available or otherwise from traditional beekeeping. Swarms from other areas such as the wild or apiaries, can be used without a conversion time if there is no risk of contamination.

### **7.2. Location and construction**

- 7.2.1.** Hives shall be situated in organically managed fields and/or wild natural areas. Hives shall be placed in an area with sufficient forage, access to water, honeydew, nectar and pollen.
- 7.2.2.** Organic wax shall be used for starter combs. Where organic wax is not available, conventional wax may be used. The conventional wax shall not be contaminated with synthetic pesticides.
- 7.2.3.** Hives shall consist of materials presenting no risk of toxic effects to the bees or the bee products.

### **7.3. Feed**

- 7.3.1.** The honeydew, nectar and pollen shall mainly come from plants that are either wild or that fulfil organic crop requirements.
- 7.3.2.** Supplementary feeding of colonies can be undertaken to overcome temporary feed shortages due to climatic or other exceptional circumstances. In such cases, organically produced honey or sugars shall be used, where available.

## **7.4. Husbandry**

**7.4.1.**The health of bee colonies shall be maintained by good management practices, with emphasis on disease prevention through breed selection and hive management. This includes:

- a. The use of breeds that adapt well to local conditions;
- b. Renewal of queen bees, where necessary;
- c. Regular cleaning and disinfecting of equipment;
- d. Regular renewal of beeswax;
- e. Availability in hives of sufficient pollen and honey;
- f. Placing of hives so that the temperature is favourable to the bees;
- g. Inspection of hives to detect any anomalies;
- h. Disinfection, isolation or destruction of contaminated hives and materials.

**7.4.2.**For pest and disease control, the following may be used:

- Lactic, oxalic, acetic acid;
- Sulphur;
- Natural etheric oils (e.g., menthol, eucalyptol, camphor, thymol, lemongrass oil);
- *Bacillus thuringiensis*;
- Steam and direct flame;
- Glycerol;
- Phytotherapeutic treatment;
- Wood ash;
- Caustic soda for hive disinfection

Should these processes and substances fail, synthetic veterinary drugs, antibiotics or synthetic pesticides may be used. If they are used, the colony shall undergo a new conversion period and honey produced during this period shall not be sold as organic honey

Used any type of used or un-used engine oil shall not be used for pest control.

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

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

**7.4.5.**Artificial insemination of queen bees is permitted.

## **7.5. Harvest**

**7.5.1.**At the harvest, colonies shall be left with reserves of honey, brood and pollen sufficient for the survival of the colony.

**7.5.2.**Synthetic repellents shall not be used during the harvest of bee products. Smoking shall be kept to a minimum. Smoking materials shall be of natural origin.

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

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

## **8. Aquaculture Production**

### **8.1. Conversion to Organic Aquaculture**

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

**8.1.1.** Operators shall comply with all the relevant general requirements of chapters 3, 4 and 6.

**8.1.2.** The conversion period of the production facilities

Production facilities:

- a. Dugout ponds units that cannot be drained and cleaned including their existing aquatic organisms shall undergo a conversion period of 36 months.

- b. Dugout ponds units that can be drained and cleaned including their existing aquatic organisms or have been fallowed shall undergo a conversion period of 12 months
- c. Units that are absorbent but can be drained and cleaned from existing aquatic animals shall undergo no conversion period but shall be cleaned with the organic cleaning agents as specify in this standard.

**8.1.3.** 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.

**8.1.4.** Production units must be located at an appropriate minimum distance from contamination sources and conventional aquaculture.

## **8.2. Aquatic Ecosystems**

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.

**8.2.1.** Aquatic ecosystems shall be managed to comply with relevant requirements of chapter 4.

**8.2.2.** Operators shall take adequate measures to prevent escapes of introduced or cultivated species and document any that are known to occur.

**8.2.3.** Operators shall take verifiable and effective measures to minimize the release of nutrients and waste into the aquatic ecosystem.

**8.2.4.** Fertilizers and pesticides are prohibited unless they appear in the Annex B.

## **8.3. Aquatic Plants**

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

**8.3.1.** Aquatic plant production shall comply with the relevant requirements of chapters 4 and 5.

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

## **8.4. Breeds and Breeding**

Organic aquatic animals begin life on organic units.

**8.4.1.** Aquatic animals shall be raised organically from a hatchling. Where organic seeds are not available, seeds from conventional aquatic animals may be brought in, according to the following maximum age limits:

- 8 weeks for Fish
- 12 weeks for Shrimps
- 12 weeks for mollusks

**8.4.2.** Operators shall not utilize artificially polyploid organisms or artificially produced monosex stock.

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

## **8.5. Aquatic Animal Nutrition**

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

**8.5.1.** Aquatic animals shall be fed organic feed.

Operators may feed 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.

**NOTE:** Non-organic aquatic animal protein and oil sources must be from independently verified sustainable sources.

**8.5.2.** The dietary requirements for aquatic animals shall entail prohibition of prophylactic use of any synthetic allopathic veterinary drug and substances of synthetic origin used to stimulate production or suppress natural growth are prohibited.

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

## **8.6. Aquatic Animal Health and Welfare**

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.

- 8.6.1.** Operators shall comply with relevant requirements of section 6.6.
- 8.6.2.** Prophylactic use of veterinary drugs is prohibited.
- 8.6.3.** 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.
- 8.6.4.** Synthetic hormones and growth promoters are prohibited for the use of artificially stimulating growth or reproduction.
- 8.6.5.** Stocking densities do not compromise animal welfare.
- 8.6.6.** Operators shall routinely monitor water quality, stocking densities, health, and behaviour of each cohort (school) and manage the operation to maintain water quality, health, and natural behaviour.

### **8.7. Aquatic Animal Transport and Slaughter**

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

- 8.7.1.** Operators shall comply with relevant requirements of section 6.
- 8.7.2.** The operator shall handle live organisms in ways that are compatible with their physiological requirements.
- 8.7.3.** 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.
- 8.7.4.** Aquatic animals shall be handled, transported and slaughtered in a way that minimizes stress and suffering, and respects species-specific needs.

**9. Wild Harvested Products and Common/Public Land Management**

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.

- 9.1.** Wild harvested organic products shall originate from a stable and sustainable growing environment. The harvest shall not be at a rate that exceeds the sustainable yield of the species or the ecosystem, and it shall not threaten the existence of plant, fungal, or animal species, including those not directly exploited.
- 9.2.** The operator shall harvest products only from a clearly defined area where synthetic pesticides and other substances not allowed by this standard have not been applied for at least one and half years before harvest. The harvest area shall be at an appropriate distance from conventional farms and sources of contamination.
- 9.3.** The operator who manages the harvesting or gathering of common resource products shall be familiar with the defined collecting or harvesting area, including the impacts of collectors not involved in the organic scheme.
- 9.4.** Operators shall take measures to ensure that wild, sedentary aquatic species are collected only from areas where the water is not contaminated by substances prohibited in these standards.

## **10. Handling, storage and processing**

### **10.1. Separation**

- 10.1.1.** The integrity of organic products shall be maintained throughout the phases of post-harvest handling, storage, processing and transport.
- 10.1.2.** All organic products shall be clearly identified as organic. Throughout the entire process of storage and transportation, the products shall be stored and transported in a way that prevents their contact or mixing with non-organic products.

### **10.2. Ingredients**

- 10.2.1.** All ingredients used in processed organic products shall be organically produced where commercially available in sufficient quality and quantity.
- 10.2.2.** The use of the same ingredient in both organic and non-organic form in a single product is prohibited.

**NOTE:** The labelling requirements in clause 11 apply. Water and edible salt may be used as ingredients in the production of organic products and are not included in the percentage calculations of organic ingredients.

### **10.3. Technologies**

- 10.3.1.** Technologies used to process and preserve organic products shall be biological, physical or mechanical. Ionizing radiation shall not be used.
- 10.3.2.** Only water, ethanol, plant and animal oils, vinegar, carbon dioxide, and nitrogen may be used as solvents for extraction.
- 10.3.3.** Equipment shall not contain substances that may negatively affect the product.
- 10.3.4.** Controlled atmosphere may be used for storage.



#### **10.4. Additives and processing aids**

- 10.4.1.** Preparations of enzymes and micro-organisms (with the exception of genetically engineered micro-organisms and their derivatives) may be used in food processing.
- 10.4.2.** Synthetic substances (including nature-identical colourings, flavourings, and taste-enhancing) shall not be used.
- 10.4.3.** Food additives and processing aids must appear in Annex D. Substances from natural sources and organic origin are preferred.

#### **10.5. Food fortification**

Synthetically produced minerals (including trace substances), vitamins, amino acids and other nitrogen compounds may be used for food fortification purposes only where legally required or in cases in which dietary or nutritional deficiency can be demonstrated.

#### **10.6. Packaging materials**

- 10.6.1.** Packaging materials shall not contaminate the organic product.
- 10.6.2.** Organic products shall not be packaged in materials that have been used for or treated with chemical fertilizers or pesticides or other substances that may compromise the organic integrity of the product.
- 10.6.3.** Environmentally adapted packaging shall be preferred. Polyvinyl chloride (PVC) and other chlorine-based plastics shall be avoided if possible.

#### **10.7. Hygiene and pest management**

- 10.7.1.** Pest-management measures shall be established and maintained to ensure that areas used for the storing, handling and processing of organic products are effectively protected against pests.

**10.7.2.** Water and substances that appear in Annex E, may be used as equipment cleansers and equipment disinfectants that may come into direct contact with the product. Operations that use other cleaners, sanitizers, and disinfectants on product contact surfaces shall use them in a way that does not contaminate the product. The operator shall perform an intervening event between the use of any cleaner, sanitizer, or disinfectant and the contact of organic product with that surface sufficient to prevent residual contamination of that organic product.

**10.7.3.** Management of pests shall be achieved mainly by means of hygiene, cleaning and sanitation.

**10.7.4** To manage pests, the following methods may be used:

- Preventive methods such as disruption, elimination of habitat, and access to facilities
- Mechanical, physical and biological methods
- Substances listed in Annex F

**10.7.5.** If the methods listed above are unsuccessful, conventional pest control (e.g. fumigations) may be used, with maximum care, under the following conditions:

- Ethylene oxide, methyl bromide, aluminum phosphide or ionizing radiation may not be used.
- Organic products shall be moved out of the treated area.
- The operator shall take precautions to prevent contamination and include measures to decontaminate the equipment or facilities
- The treatment shall be carried out under the supervision of a qualified person or organization
- Records of date, substance and area treated shall be kept of all pest-control and fumigation

**10.7.6.** The pest controller contracted to carry out 10.7.4 above shall be a licenced according to national regulations

## **11. Labeling**

**11.1.** A raw or processed product labelled as "organic" shall contain, by weight, excluding water and edible salt, no less than 95% organic ingredients. The remaining ingredients may include non-organic ingredients

fulfilling the relevant parts of this standard.

- 11.2.** A product labelled as “made with organic ingredient(s)” shall contain, by weight, excluding water and edible salt, at least 70 % organic ingredients. The remaining ingredients may include non- organic ingredients fulfilling the relevant parts of this standard.
- 11.3.** For a product in which less than 70 % of the ingredients are organic, the word *organic* may be stated in the ingredient panel or in conjunction with the organic ingredient.
- 11.4.** All ingredients of a multi-ingredient product shall be listed on the product label in order of their weight percentage. It shall be apparent which ingredients are of organic origin and which are not. All additives shall be listed with their full and scientific name. Where 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.
- 11.5.** Products that are produced according to this standard and certified by PGS Ghana may be labelled as organic or ecological products. The labelling must include:
- The name and contact address of the responsible operator.
  - The PGS Ghana Organic seal.
- 11.6.** Labelling shall follow the applicable legislation.
- 11.7.** A statement that the product is “produced according to the Ecological Organic Standard of Ghana” may be made on the labels.

**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.

The following Appendices contain lists of the inputs, 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 PGS Ghana, 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 described in the PGS Ghana Manual of Procedures.

All substances used in organic production and processing should meet the following criteria:

- i. Use of the substance is consistent with the principles and objectives of organic agriculture
- ii. The substance is necessary/essential for its intended use.
- iii. Approved alternatives are not available in sufficient quantity and/or quality
- iv. Manufacture, use and disposal of the substance does not result in, or contribute to harmful effects on the environment
- v. The substance has the lowest negative impact on human or animal health or the environment when compared to alternative substances.
- vi. The consumer is not deceived concerning the nature and quality of the substance
- vii. Consideration is given to social and economic impacts of sourcing and manufacturing the substance.

In addition, the following criteria should be applied in the evaluation process:

- a. if the substance is used for fertilization and/or soil conditioning purposes:

- it is essential for obtaining or maintaining the fertility of the soil or to fulfill specific nutritional requirements of crops, or specific soil-conditioning and rotation purposes which cannot be satisfied by other organic fertility practices.
- the ingredients are of biological or mineral origin and may have undergone the following processes: physical (e.g., mechanical, thermal), enzymatic, microbial (e.g., composting, fermentation);
  - Synthetic nature identical products that are not available in sufficient quantity and quality in their natural form maybe allowed provided all other criteria are satisfied.
  - use does not have a harmful impact on the balance of the soil ecosystem or the physical characteristics of the soil, or water and air quality.
  - use may be restricted to specific conditions, specific regions or specific commodities.
  
- b. if the substance is used for plant protection, growth regulation or weed control:
  - it must be essential for the control of a harmful organism or a particular disease for which other biological, physical, or plant breeding alternatives and/or other management practices consistent with this IBS are not effective.
  - it has the least harmful impact (compared to alternatives) on the environment, the ecological balance (in particular non-target organisms) and the health of consumers human, livestock, aquatic animals and bees.
  - substances must be of biological or mineral origin and may undergo the following processes: physical (e.g. mechanical, thermal), enzymatic, microbial (e.g. composting, digestion);
    - Synthetic substances may be used by exception such as the use in traps or dispensers, or substances that do not come into direct contact with produce, or those for which no natural or nature identical alternative is available provided that all other criteria are met.
    - use may be restricted to specific target organisms, conditions, specific regions or specific commodities;
  
- c. if the substance is used as an additive and/or processing aid in the preparation or preservation of the product:
  - it must otherwise be impossible to produce or preserve the product
    - The substance is found in nature, and may have undergone mechanical/physical processes (e.g. extraction, precipitation), biological/enzymatic processes and microbial processes (e.g. fermentation).

- Synthetic nature identical products that are not available in sufficient quantity and quality in their natural form maybe allowed provided all other criteria are satisfied.

**Annex B**  
**LIST OF SUBSTANCES WHICH MAY BE USED IN ORGANIC PLANT PRODUCTION**

**Table B.1 – Fertilizers and soil conditioners**

<b>Description, compositional requirements of substance</b>	<b>Conditions for use</b>
<b>i.) Plant and animal origin</b>	
Farmyard manure, slurry, and urine	
Dried farmyard manure and dehydrated poultry manure	
Composted animal excrements, including poultry manure and composted farmyard manure included	
Liquid animal excrements	Use after controlled fermentation and/or appropriate dilution
Guano	
Source-separated human excrement from separated sources which are monitored for contamination	Not to be directly applied on edible parts.
Vermicastings	Not to be applied later than six weeks before harvest.
Blood meal, meat meal, bone, bone meal	
Hoof and horn meal, feather meal, fish and fish products, wool, fur, hair, dairy products	
Biogas digestate containing animal by-products co-digested with material of plant or animal origin	
Biodegradable processing by-products, plant or animal origin (e.g., by-products of food, feed, oilseed, brewery, distillery or textile processing)	Free of significant contaminants; or composted before bringing onto organic land and confirmed free of significant contaminants
Crop and vegetable residues, mulch, green manure, cover crops (leguminous crops such as lablab and mucuna), straw	
Wood, bark, sawdust, wood shavings, wood ash, wood charcoal	

Hydrolysed proteins of plant origin	
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; only for inclusion in potting mixes
Plant preparations and extracts	
Compost made from ingredients listed in this annex, spent mushroom waste, humus from worms and insects, urban composts from separated sources which are monitored for contamination	
Egg shells	
Mollusc waste	Only from sustainable fisheries or organic aquaculture
Chitin (Polysaccharide obtained from the shell of crustaceans)	Only if obtained from sustainable fisheries
Organic rich sediment from fresh water bodies formed under exclusion of oxygen(e.g. sapropel)	Only organic sediments that are by-products of fresh water body management or extracted from former freshwater areas. When applicable, extraction should be done in a way to cause minimal impact on the aquatic system. Only sediments derived from sources free from contaminations of pesticides, persistent organic pollutants and petrol like substances. Maximum concentrations in mg/kg of dry matter: cadmium: 0,7; copper: 70; nickel: 25; lead: 45; zinc: 200; mercury: 0,4; chromium (total): 70; chromium (VI): not detectable
Biochar — pyrolysis product made from a wide variety of organic materials of plant origin and applied as a soil conditioner	Only from plant materials



<b>ii. Mineral Origin</b>	
Aluminium-calcium phosphate	Cadmium content less than or equal to 90 mg/kg of P205, Use limited to basic soils (pH > 7.5)
Basic slag	
Non-synthetic Calcareous and magnesium amendments	
Limestone, gypsum, marl, maerl, chalk, sugar beet lime, calcium chloride	
Magnesium rock, kieserite and Epsom salt (magnesium sulphate)	
Mineral potassium (e.g., sulphate of potash, muriate of potash, kainite, sylvanite, Patentkali)	Shall be obtained by physical procedures but not enriched by chemical processes
Natural phosphates	
Pulverized rock, stone meal	
Clay (e.g., bentonite, perlite, vermiculite, zeolite) and stone meal	
Sodium chloride	
Trace elements, micronutrients, e.g.:boric acid, sodiumborate, calciumborate, borethanolamin,cobalt- acetate, cobalt-sulphate,copper oxide, copper sulfate, copper hydroxide, copper silicate, copper carbonate, copper citrateferric oxide, ferric sulfate, ferrous sulfate, iron citrate, iron sulfate, or iron tartrate manganous oxide, manganese sulfate and manganese carbonateselenic acid, selenous acid, sodiummolybdate, molybdic oxidezinc 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.
Sulphur	
Stillage and stillage extract	Ammonium stillage excluded
Mollusc waste	Only from sustainable fisheries or organic aquaculture

Leonardite (Raw organic sediment rich in humic acids)	Only if obtained as a by-product of mining activities
Humic and fulvic acids	Only if obtained by inorganic salts/solutions excluding ammonium salts; or obtained from drinking water purification
Xylite	Only if obtained as a by-product of mining activities (e.g. by-product of brown coal mining)
<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	

**Table B.2 – Crop protectants and growth regulators**

<b>Description, Compositional Requirements of Substance</b>	<b>Conditions for use</b>
<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 (weed control)	
Dairy products (e.g., milk, casein)	
Gelatine	
Lecithin	
Natural acids (e.g., vinegar)	
Neem ( <i>Azadirachta indica</i> )	
Plant oils (e.g., castor oil)	
Plant preparations and plant teas (e.g., chilli, tithonia (Africa sunflower), <i>Tagetes sp.</i> , Mexican marigold)	
Plant-based repellents	
Propolis	
Pyrethrum ( <i>Chrysanthemum cinerariaefolium</i> )	The synergist piperonyl butoxide shall not be used.
Quassia ( <i>Quassia amara</i> )	
Rotenone ( <i>Derris elliptica</i> , <i>Lonchocarpus spp.</i> , <i>Thephrosia spp.</i> )	Studies show a link between rotenone and Parkinson's disease; therefore, any use should be limited and include precautionary measures.
Ryania ( <i>Ryania speciosa</i> )	
Sabadilla ( <i>Sabadilla officinarum</i> )	
Seaweed, seaweed meal, and seaweed extracts	
Tobacco tea (pure nicotine shall not be used)	
<b>ii) Mineral origin</b>	
Chloride of lime (calcium chloride)	
Clay (e.g., bentonite, perlite, vermiculite, zeolite)	
Copper salts (e.g., sulphate, hydroxide, oxychloride, octanoate)	Max 8 kg/ha per year (on a rolling average basis)
Diatomaceous earth	
Light mineral oils (paraffin)	
Lime sulphur (Calcium polysulfide)	
Potassium bicarbonate	
Potassium permanganate	
Quicklime	
Silicates (e.g., sodium silicates, quartz)	

Sodium bicarbonate	
Sulphur	
<b>iii) Micro-organisms</b>	
Fungal preparations	
Bacterial preparations (e.g., <i>Bacillus thuringiensis</i> )	
Release of parasites, predators, and sterilized insects	
Viral preparations (e.g., granulosis virus)	
<b>iv) Others</b>	
Biodynamic preparations	
Calcium hydroxide	
Carbon dioxide	
Ethyl alcohol	
Homeopathic and ayurvedic preparations	
Iron phosphates (for use as molluscicide)	
Sea salt and saltwater	
Soda	
Soft soap	
Sulphur dioxide	
<b>v) Traps, barriers, repellents</b>	
Physical methods (e.g., chromatic traps, mechanical traps)	
Mulches, nets	
Pheromones (in traps and dispensers only)	

## Annex C

**LIST OF NATURAL SUBSTANCES WHICH MAY NOT BE USED IN ORGANIC PLANT PRODUCTION**

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

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

## Annex D

**LIST OF APPROVED ADDITIVES AND PROCESSING / POST-HARVEST HANDLING 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 NUMBERING SYSTEM</b>	<b>PRODUCT</b>	<b>ADDITIVE</b>	<b>PROC. &amp; Post Har. Han. AID</b>	<b>LIMITATION/ NOTE</b>
INS 153	Wood Ash	X		Traditional Cheese
INS 170	Calcium carbonate	X	X	Not for coloring
INS 181	Tannic		X	Only for wine
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	Alginate acid	X		
INS 401	Sodium alginate	X		
INS 402	Potassium alginate	X		
INS 406	Agar	X		
INS 407	Carrageenan	X		

INS 410	Locust bean gum	X		
INS 412	Guar gum	X		
INS 413	Tragacanth gum	X		
INS 414	Arabic gum	X		Only for milk products, fat products, confectionary, sweets, eggs
INS 415	Xanthan gum	X		Only fat, fruit and vegetable products and cakes and biscuits
INS 416	Karaya gum	X		
INS 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	As processing aid for pH adjustment of water during sugar processing. As additive for wine and apple cider production
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 525	Potassium hydroxide		X	pH adjustment for sugar processing
INS 526	Calcium hydroxide	X	X	Food additive for maize and tortilla flour; processing aid for sugar
INS 551	Silicon dioxide (amorphous)		X	For wine, fruit and vegetable processing
INS 553	Talc		X	
INS 558	Bentonite		X	Only for fruit and vegetable products
INS 901	Beeswax		X	
INS 903	Carnauba wax		X	Only for fruit and vegetable products
INS 938	Argon	X		
INS 941	Nitrogen	X	X	
INS 948	Oxygen	X	X	
	Activated carbon		X	
	Bentonite		X	Only for fruit and vegetable products
	Casein		X	Only for wine
	Cellulose		X	
	Diatomaceous earth		X	Only for sweeteners and wine
	Egg-white albumen		X	Only for wine
	Ethanol		X	
	Ethylene		X	De-greening of citrus and ripening
	Gelatine		X	Only for wine, fruit, and vegetables
	Hazelnut shells		X	
	Isinglass		X	Only for wine
	Kaolin		X	
	Perlite		X	
	Plant and animal oils		X	
	Preparations of bark		X	
	Vegetable oil		X	Greasing or releasing agent
	Water		X	

**Flavoring Agents Operators may use:**

- Organic flavoring extracts (including volatile oils), and, if not available,
- Natural flavoring preparations approved by the control 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; they are produced by means of solvents such as vegetal oils, water, ethanol, carbon dioxide and mechanical and physical processes.



**Annex E**  
**LIST OF EQUIPMENT CLEANSERS AND EQUIPMENT DISINFECTANTS**

<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	An intervening event or action must occur to eliminate risks of contamination
Sodium carbonate	

Sodium hydroxide (caustic soda) .	An intervening event or action must occur to eliminate risks of contamination
Sodium hypochlorite .	An intervening event or action must occur to eliminate risks of contamination
Sodium soap .	An intervening event or action must occur to eliminate risks of contamination

**Annex F**  
**SUBSTANCES FOR PEST AND DISEASE CONTROL AND DISINFECTION IN LIVESTOCK HOUSING AND EQUIPMENT**

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

Water Stream