

Organic Agriculture Standard in Nigeria

REVISED VERSION



Natural and Healthy

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Published by
**Association of Organic Agriculture
Practitioners of Nigeria**

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INTRODUCTION

Organic agriculture entails production system that sustains the health of soils, ecosystems, biodiversity and people. It is also a system of production which does not use synthetic fertilizers and drugs, pesticides, herbicides, growth regulators, antibiotics, hormone stimulant and/or livestock feed additives to grow crops and raise animals. It combines traditional knowledge, innovation, modern science, technologies and practices to benefit the shared environment and promote fair relationships and a good quality of life for all involved. The aims of organic agriculture are embedded in the four principles of health, ecology, fairness and care.

The Organic Agriculture Standard in Nigeria is written for organic agriculture production in Nigeria with reference to the East African Organic and IFOAM Organics International standards. It has been adapted to conditions in Nigeria. The aim is to unify standard for production, processing, storage, labeling and marketing systems of organic agricultural produce and products in Nigeria. It can be used for self-assessment by producers and certification bodies in accordance with IFOAM Organics International accreditation.

The Organic Agriculture Standard in Nigeria is intended for the development of organic production and trade activities in Nigeria. The standards can be a platform for developing consumers' trust and formulates stand points which can be used for international negotiations on standards. Furthermore, it can be a basis for equivalence agreements with other countries.

The Organic Agriculture Standard in Nigeria has been written for easy access and understanding of the users. The standard is not over prescriptive, since organic agriculture is adapted to local conditions. The standard covers plant production, animal husbandry, bee-keeping, aquaculture, wild collection, processing, and products, regardless of their final use.

Organic agriculture in Nigeria is evolving and dynamic. New knowledge is continuously being generated. As a result, this standard will be revised regularly to incorporate new issues in the field of organic agriculture. The revision will involve consultation with appropriate stakeholders.

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1. Scope

Key players in organic agriculture following this Organic Standard in Nigeria can claim in the market place that their produce or products are organic and produced according to this standard. Therefore, the standard extends from primary production and handling to processing and labeling.

This Organic Standard covers plant production, animal husbandry, bee-keeping, collection in the wild products and processing therefrom, regardless of their final use.

The National Organic Standard in Nigeria covers requirements for organic production, but not detailed inspection or certification requirements. It can, however, be used for both self-assessment and certification.

2. Normative references

The following standard contains provisions which, through reference in this text, constitute parts of this Standard.

Codex Alimentarius: Guidelines for the production, processing, labeling, and marketing of organically produced foods (**CAC/GL 32 – 1999, Rev. 1 – 2001**). *These are referred to in the text as Codex Alimentarius Guidelines.*

IFOAM Organics International Basic Standards for Organic Production and Processing. Version 2005. These are referred to in the text as IFOAM Organics International Basic Standards.

3. Terms and definitions

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

biodiversity: the variety of life forms and ecosystem types on Earth. Includes genetic diversity (i.e., diversity within and between species), species diversity (i.e., the number and variety of species), 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 and adjacent areas that are established to avoid contact with substances which shall not be used according to this standard. **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.

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

conversion period: the time between the start of organic management and the time when crops and animal products qualify as organic.

crop rotation: the practice of alternating the species or families of annual and/or biennial crops

grown in a certain field in a planned 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.

food additive: an enrichment, supplement, or other substance which can be added to a foodstuff to affect its keeping quality, consistency, colour, taste, smell, or other technical property.

food additive means 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.

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.

genetically modified organism (GMO): a plant, animal, or microbe that has been transformed by genetic engineering.

green manure (e.g. cover crops): a crop that is incorporated into the soil for the purpose of soil improvement and which 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, and grassland.

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): processing of food products by ionizing radiation, specifically 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.

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

monoculture: Rearing of single species

operator: an individual or organization responsible for ensuring that products meet this standard.
organic: *organic* refers to the farming system and products described in this standard. *Organic* does not refer to organic chemistry.

organic agriculture: farming system (and products thereof) in compliance with these standards.

organic product: a product which has been produced, processed, and/or handled in compliance with this standard.

organic seed and plant material: seed and planting material that is produced under organic management.

parallel production: any production where 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.

Polyculture: rearing of multispecies

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

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

shall: a required state or action.

should: a recommended, desirable, or expected state or action.

sustainable exploitation: a stock that is managed/exploited in such a way that the current use of the stock will not be prejudiced and does not have a negative impact on the eco-systems.

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).

Unsustainable exploitation: a stock that is exploited without consideration for sustainability and ecosystem or stock that are threatened or endangered or from overexploited fisheries.

4. General requirements for organic production

4.1 General

4.1.1 Operators shall avoid using chemical products that may endanger human health or the environment. If there are products that are considered to be less harmful, they shall be

used. Only identifiable and traceable products should be used.

- 4.1.2 Operators shall take relevant precautionary and approved measures to avoid contamination of organic sites and products. Contamination of organic products that results from circumstances beyond the control of the operator may alter the organic status of the operation, the product, or both.

Products with undesired substances, such as residues of pesticides or concentrations of heavy metals beyond the maximum tolerable level shall not be sold as organic.

- 4.1.3 The operator shall act in accordance with relevant legislation.

4.2 Genetically Modified Organism

- 4.2.1 The deliberate use or negligent introduction of genetically modified organisms or their derivatives to organic farming systems or products shall not be used. This shall include animals, seed, propagation material, and farm inputs such as fertilizers, soil conditioners, or crop-protection materials.

- 4.2.2 Organically processed products 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 from which they are produced in order to verify that they are not derived from GMOs.

- 4.2.4 Genetically modified organisms shall not be used in the conventional production activity on farms not fully converted to organic production.

4.3 Social justice

- 4.3.1 Operators shall have a policy on social justice. Operators who hire fewer than 10 persons for labour are not required to have such a policy.

- 4.3.2 In cases where production is based on a violation of the Universal Declaration of Human Rights of the United Nations, that product shall not be declared organic.

- 4.3.3 Operators shall not use forced or involuntary labour.

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

- 4.3.5 Employees shall have equal opportunity and adequate wages when performing the same level of work, regardless of colour, creed, or gender.

4.3.6 Operators 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
- it does not jeopardize the children's educational, moral, social, and physical development

- they are supervised by adults or have authorization from a legal guardian.
- 4.3.7 *Health and safety*: standards shall contain regulations on health and safety measures in organic workplaces (farms, processing, etc.). If so, suggestions for appropriate text are welcome.
- 4.3.8 *Fair trading conditions*: standards shall contain regulations on fair trading practices. If so, suggestions for appropriate text are welcome.

4.4 Documentation and transparency

- 4.4.1 Operators shall maintain records of their production, appropriate for the scale of production and the competence of the operators.
- 4.4.2 Operators shall give interested parties relevant information about their production.

5. Plant Production

5.0 Starting Organic Crop production

- The land should be somewhat virgin or be under fallow for a minimum period of three years
- The history of the land should be backed up with soil testing analysis showing the heavy metal content of the land to be below the permissible level recommended by the FAO
- The risks of contamination from the neighbouring land users should be very low
- The land area should be large enough to accommodate buffer zone
- The buffer zone shall be 40 meter
- In case of parallel production of both organic and conventional on the same farm, the organic and conventional parts of the farm shall be clearly and continuously separated.

5.1 Conversion of conventionally managed land or crops to organic

- 5.1.1 The conversion period is a minimum of three years for all crops.
- 5.1.2 The conversion period may be extended depending on past land use (for example, heavy use of pesticides with a risk of contamination of products).
- 5.1.3 During the conversion period, the management of the land shall fulfill the requirements of this standard.
- 5.2 Farm conversion and parallel production
 - 5.2.1 The whole farm should be converted to organic production. If the whole farm is not converted, the organic and conventional parts of the farm shall be clearly and continuously separated.
 - 5.2.2 Land converted to organic production shall not be alternated (switched back and forth) between organic and conventional production. Proper documentation of farm procedure,

record keeping, is required.

- 5.2.3 A crop which is grown 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 clear and continuous separation of the organic and non-organic production (i.e. 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 Primary ecosystems such as primary forests and wetlands shall not be cleared or drained for the purpose of establishing production according to this standard.
- 5.3.2 To the extent possible and appropriate for the crop and the conditions, trees shall be left in the fields.
- 5.3.3 Boundaries such as hedges, roads, paths, and ditches should be used. They 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. As for the issue of roads going through the farms' buffer zones, this will be limited to minimize contamination.
- 5.3.4 Care for biodiversity should manifest itself throughout the holding to enhance landscape features, habitat, wild plants, and animal species.

5.4 Farming system diversity

- 5.4.1 Diversity in plant production and activity to secure organic matter, fertility, microbial activity, and general soil health shall be ensured by crop rotation, variation in plantings, intercropping, agroforestry, or other appropriate measures.
- 5.4.2 For annual crops, a crop rotation shall be established. For perennial crops, other plants shall be intercropped. For perennial crops that are grown as monocultures where intercropping is not possible (e.g., sugarcane), other means of diversity shall be applied to the growing system.
- 5.5 Soil and water conservation, including erosion control
- 5.5.1 Soil conservation shall be an integral part of the organic farming system. In order to prevent erosion by wind and water, all operators shall take measures appropriate to the specific local condition of climate, soil, slope, and land use. Examples are the use of windbreaks, soil cover, cover crops, minimum cultivation, terraces, contour planting, and late removal of crop residues.
- 5.5.2 Relevant measures shall be taken to prevent or remedy the salinization of soil and water, such as natural rocks (gypsum, sulphur, ash, etc.).
- 5.5.3 Preparing land by burning vegetation shall be restricted and controlled to protect organic

matter and biodiversity.

5.5.4 Grazing management shall not degrade land or pollute water resources.

5.5.5 Operators shall not deplete or excessively exploit water resources, and they shall seek to preserve water quality. Where possible, they shall recycle rainwater and monitor water extraction. Water harvest shall be practiced where appropriate.

5.6 Fertilizers and soil conditioners

5.6.1 Economizing and recycling of nutrient substances, an appropriate crop rotation, and the intention of minimizing nutrient leaching are all requirements for organic production.

5.6.2 Material of microbial, plant, or animal origin shall form the basis of the soil fertility programme. The source of the manure has to be organic. When manure from organic source is not available, manure from conventional farm must be well cured before use.

5.6.3 Mineral fertilizers may only be used (with approval from Certification Bodies) in a programme addressing long-term fertility needs together with other techniques such as organic-matter additions, green manures, rotations, and nitrogen fixation by plants. Fertilizers and soil conditioners of natural origin may be used if they are not listed as not allowed in appendix 3. Fertilizers and soil conditioners of synthetic origin shall not be used if not listed as allowed in appendix 2. Products approved for use in organic agriculture according to the IFOAM Basic Standards and Codex Alimentarius Guidelines are allowed.

5.6.4 No synthetic nitrogenous fertilizers, including urea, shall be used.

5.7 Pest, disease, and weed management

5.7.1 Physical methods for pest, disease, and weed management, including the application of heat and flooding, may be used. Cultural methods such as early planting, delay planting, cover crops, mulching and spatial crop intensification can be used.

5.7.2 Products for the management of pests, disease, and weeds that are prepared at the farm from local plants, animals, and micro-organisms (that are not GMO) may be used, if not listed as not allowed in appendix 3.

5.7.3 Active ingredients of natural origin in inputs for pest, disease, weed, or growth management may be used if not listed as not allowed in appendix 3. Active ingredients of synthetic origin shall not be used if not stated as allowed in appendix 2. Products approved for use in organic agriculture (Certified organic products) according to the IFOAM Basic Standards and Codex Alimentarius Guidelines are allowed.

5.7.4 All other ingredients in an input (non-active ingredients such as carriers and wetting agents) shall not be carcinogens, teratogens, mutagens, or neurotoxins.

5.8 Criteria for accepting and excluding inputs

5.8.1 The criteria to use for judging acceptance of inputs according to 5.6.3 and 5.7.3 are those in the IFOAM Basic Standards and Codex Alimentarius Guidelines.

5.9 Seeds, seedlings, and planting materials

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

Only if these are not commercially available, chemically treated seeds, seedlings, and planting materials may be used, provided that they are not GMOs. The operator shall demonstrate the apparent need for such use. Where possible, the chemical used shall be washed off before planting. Also, where possible, such seeds shall be pre-germinated in pots and transplant.

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

5.10 Crop production in the Screen or Green house

Crops could be produced in the screen house. However, the soil to be used must come from an organically certified land. Iron water tank should be avoided to prevent pollution due to rust. Vertical farming is also allowed provided the soil is from organically certified land.

5.11 Aquaponic system

Aquaponic system of farming shall be allowed, provided the water and nutrients sources are organically complaints. The system must also ensure no pollution and the materials used as anchor (e.g. coconut husk) for the plants should be from organic systems. The anchor from a natural farm may only be allowed if one from the organic system is not available.

5.12 Mushroom production

5.12.1 The culture media for mushroom production shall contain ingredients such as organic grain and straw when applicable. All substrates and growing media shall be prepared on the farm in compliance with organic standards or sourced from certified organic sources. In case of unavailability of certified organic systems, chemically untreated conventionally grown raw materials up to a maximum limit of 25% for making substrate may be allowed. In cases where raw crop residue/ biomass is used without composting as a substrate, such as straw, hey or grains, they shall be sourced from organic operations certified as per crop production standards. Logs, sawdust or other wood-based material, when used as substrate, shall come from wood, trees or logs that have not been treated with prohibited substances. Other ingredients in the culture media and the inputs used in the mushroom production shall be in compliance with the standards for crop production.

5.12.2 Site Location and Buffers

Growers must 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 the mushroom production site.

5.12.3. 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, separated by space and time and have separate ventilation systems, boxes, trays, tools, substrate holding racks including facilities for compost production.

5.12.4 Mushroom seed (Fungus spawn)

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

5.12.5 Conversion of conventional mushroom production to organic mushroom production

The conversion period is a minimum of three years for existing mushroom production systems. During the conversion period all management practices must be in compliance with organic standards. In case of new installations where the entire production system is being implemented in compliance with these standards, two or more production cycles must have been produced under organic conditions compliant with this standard prior to products being sold as organic.

5.12.6 Pest control and sanitation

Preventive pest and disease management shall be the preferred approach.

5.13 Contamination

5.13.1 When there is an apparent and substantial risk of contamination from adjacent farms, the farmer shall employ measures, including barriers and buffer zones, to avoid or limit the contamination.

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

6. Animal Husbandry

6.1 Animal management

6.1.1 Animals shall have access to fresh air, water, and feed and shall be handled according to the natural behavior of the animal. They shall have access to protection from direct sunlight, excessive noise, heat, rain, mud, and wind to reduce stress.

6.1.2 Animals shall be able to have sufficiently free movement, according to their natural behavior.

6.1.3 Housing conditions shall ensure enough lying and resting areas that correspond to the natural needs of the animals. Animals shall be provided with natural bedding where appropriate. Poultry, rabbits, pigs, and guinea pigs shall be kept in accordance with good animal husbandry practices.

6.1.4 Extensive mode of livestock management may be practiced on natural land, provided the grazing management does not degrade soil and water resources.

6.1.5 Tethering may be practiced, provided it does not affect the well-being of the animal. The animal shall have access to feed, shade, and water when needed, and shall be allowed regularly to move. The tethering shall not cause wounds or physically harm the animals.

6.1.6 Animals shall have the possibility of grazing.

Animals 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. Where fodder is carried, animals shall on a regular basis have access to an outdoor run.

6.1.7 Management system is Outside Intensive System

6.1.8 Breeds shall be sourced from indigenous breed from certified organic farms.

6.2 Conversion, bought-in animals, and parallel production

6.2.1 When converting to organic production, animals shall undergo a conversion period according to the following:

- meat	12 months	24 months
- dairy	3 months	24 months
- eggs	45 days	6 months
- poultry and rabbits	45 days	6 months

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

- 2-day-old chicks for meat production
- 18-week-old hens for egg production
- 2 weeks old for any other poultry
- 4 months old for piglets 2 months
- 3 months old for calves; before the calves are sold as organic, one year of organic management is required.
- 8 weeks for fingerlings

6.2.3 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 production.

6.3 Breeding

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

6.3.2 Artificial insemination may be practiced.

In aquaculture systems; artificial propagation techniques can be used with the use of natural hormones only.

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

6.3.4 Only indigenous aquaculture species shall be used in organic aquaculture

6.4 Mutilations

6.4.1 Mutilations shall not be done, except in the following cases:

- castration
- ringing
- dehorning (only of young animals)
- disbudding of horns
- artificial propagation (aquaculture)

Mutilations shall be done in such a way that the pains on the animal are minimized. Anesthetics shall be used where appropriate.

6.5 Animal nutrition

6.5.1 Animals shall be fed 100% organic feedstuff. [If/when] the quantity or quality of organic feed is inadequate, the daily maximum percentage of non-organic feed is 40% (calculated in dry matter).

6.5.2 Ruminants shall get fresh fodder through grazing or feeding. When such fodder is not available, dried fodder may be used.

6.5.3 To ensure a connection between plant production and animal husbandry, at least 50% of feed shall come from the farm itself or be produced in cooperation with other organic farms.

6.5.4 The following products shall not be included in the feed:

- meat, bone, and other abattoir waste products to ruminants
- chicken manure or other manure to ruminants
- amino-acid isolates to solvent extraction (e.g., hexane or the addition of other chemical agents)
- urea and other synthetic nitrogenous compounds
- synthetic growth promoters or stimulants
- synthetic antibiotics
- preservatives (except when used as a processing aid)
- synthetic appetizers
- artificial colouring agents
- genetically engineered organisms or products thereof

6.5.5 Animals may be fed vitamins, trace elements, and supplements from natural sources. Synthetic vitamins, minerals, and supplements may be used when natural sources are lacking in quantity or quality (not more than 40%).

6.5.6 Young stock from mammals shall be raised on maternal milk or organic whole milk from their own species. If organic whole milk is not available, conventional whole milk shall be

used. Milk replacements are allowed only in emergencies and shall not contain ingredients mentioned in 6.5.4. Fish fry shall be raised with zooplankton and artemia.

6.6 Disease management

6.6.1 Disease prevention in organic livestock production shall be based on the following:

- the choice of appropriate breeds or strains of animals
- the application of animal-husbandry practices appropriate to each species, encouraging strong resistance to disease and the prevention of infections
- the use of good quality organic feed, regular exercise, and access to pasture or runs in the open air
- ensuring an appropriate density of livestock

6.6.2 If an animal becomes sick or injured despite preventative measures, it shall be treated promptly and adequately. As a first option, phyto-therapeutic and other alternative treatments shall be used if they are proven to be effective in curing sickness or healing an injury.

An operator may use chemical allopathic veterinary drugs or antibiotics only if

- preventive and alternative practices are unlikely to be effective in curing sickness or healing an injury
- [they are used under the supervision of a veterinarian]

Withholding periods shall not be less than double the period required by legislation or a minimum of 48 hours, whichever is longer

Operators shall not withhold medication of sick or injured animals, even if the use of such medication will cause the animal to lose its organic status.

6.6.3 Hormonal treatment may be used only for therapeutic reasons and under certified organic veterinary supervision.

6.6.4 Growth stimulants or substances used for the purpose of stimulating growth or production shall not be used.

6.7 Transport and Slaughter

6.7.1 Animals shall be handled in a caring manner during transport and slaughter.

The animals shall be provided with conditions that minimize the adverse effects of hunger and thirst, extreme temperatures or relative humidity stress [mixing different groups and sexes]

7. Bee-keeping

7.1 Apiary Management

7.1.1: Location of Apiary

- Hives shall be situated in organically managed fields and/or wild natural areas.

- Hives may be placed 3 km radii in an area that ensures non-use of agro-chemicals, access to sources of nectar, and pollen that meet organic crop production requirements.
- Apiaries must provide adequate and sufficient bee forage plants such as eucalyptus trees, citrus spp., sunflower and other flowering plants.
- Bees should have access to clean, hygienic water. Also, the location of the apiary should be at a site where the presence of the bees is unlikely to cause a public nuisance.
- Forage plants must be free from potential pollution from vehicle exhausts, smoke from incinerators or chemical-laden plants. The health of bee colonies shall be maintained by good agricultural practices, with emphasis on disease prevention through breed selection and hive management.
- Foraging radius of 3 km shall be maintained from the apiary to sources of contaminants.
- Ensure non-use of synthetic materials, for example, avoid the use of agrochemical products (dust, sprays, etc.) in and outside the hives and apiaries.
- **These includes**
 - the use of indigenous breeds that adapt well to local conditions
 - renewal of queen bees, if necessary. Queen bees' wings shall not be clipped.
 - regular cleaning of hives and bee equipment with clean water
 - regular renewal of beeswax
 - availability of hives of sufficient pollen and honey
 - systematic inspection of hives to detect any anomalies
 - systematic control of male broods in the hive
 - infested hives should be cleaned with lemon juice or natural bio-pesticides. If pest infestation is high the hives can be destroyed, if need be.
 - avoid all forms of burning close to the apiary.

7.1.2 Hive materials

Hives shall consist of materials presenting no risk of toxic effects to the bees or contamination of the environment or the bee products. Natural materials should be used in building bee hives; and wooden, untreated, hives are more preferable.

7.2 Handling of Bees and harvesting of bee products

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

- Persons engaged in the extraction of the honey shall be free from any contagious disease, shall wear clean clothes and clean their hands with a disinfectant soap.
- 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 sugar-cane syrup shall be used, if available.
- Smoking shall be kept to a minimum when working in the apiary. Smoking materials shall be of natural origin. The use of chemical repellents is prohibited during honey extraction operations.

7.3 Conversion of conventional beekeeping to organic beekeeping

- Bee colonies can be converted to organic bee colonies within a period of three years.

During conversion, the bee colonies shall be isolated and the foundation comb shall be made from organic wax.

- Bee products can be sold as organically produced when the requirements of these standards have been complied for at least three years. The non-contaminated conventional wax may be used for starter combs/ foundation combs. However, beeswax for new foundations shall be sourced from the organic production unit.

7.4 Pest control

- For pest and disease control, the following may be used:
 - lactic, oxalic, acetic acid
 - sulphur
 - natural etheric oils (e.g. menthol, eucalyptol, camphor)
 - Bacillus thuringiensis*
 - glycerol
 - phytotherapeutic treatment
- Treated hives shall undergo a conversion period of three years.

7.5 Packaging of bee products

Extracted honey shall be stored in containers such as glass jars and stainless steel. Plastics and other plastic products or derivatives shall not be used as storage containers.

8. Aquaculture

8.1 Organic aquaculture production system/facilities

Organic aquaculture facilities should have plants within the facility. Construction materials and a housing containing leachable toxic chemical agents should not be used.

Production system/facilities that could be used include but not limited to

- Cages
- Earthen ponds
- Concrete tanks
- Recirculation systems are permitted if the system supports the health, growth, and well-being of the species.

8.1.2. Water quality and environment

- Culture systems should be sited in locations where the water is not subject to contamination by products or substances not authorized for organic production, or pollutants that would compromise the organic nature of the products.
- The environmental effects of aquaculture operation and the monitored, measures should be put in place to minimize negative impacts on the surrounding aquatic and terrestrial environments.
- Open water units shall be sited and managed in such a way that sediment build-up underneath the unit does not exceed the assimilation capacity of the local environment.

- Nutrient cycling through practices such as Integrated Multi-Trophic Aquaculture is encouraged.
- Effluent monitoring shall be carried out, at least annually, and farms shall be equipped with waste management facilities such as natural filter beds, settlement ponds, or biological filters, seaweeds, aquatic plants and/or animals that contribute to improving the quality of the effluent.
- Mechanical filters are permitted.
- Feed waste, manure and mortalities that have been collected shall be recycled.
- Retired equipment that was used in rearing aquaculture animals shall be re-used or recycled where possible.

8.2 Practices

- 8.2.1 Culture system shall not be intensive.
- 8.2.2 Monoculture is not allowed.
- 8.2.3 Cultch disinfection is permitted, provided that the substances used comply with the standard specified in this document.

8.3 Conversion period/brought in animals and parallel production

The following transition periods for aquaculture production units shall apply for the following types of aquaculture:

- Facilities that cannot be drained and cleaned including their existing aquatic organisms 36 months
- Facilities that can be drained or have been fallowed including their existing aquatic organisms. 12 months,
- Facilities that have been drained, cleaned, disinfected and rinsed for existing aquatic animals; no conversion period for new stock. 12 months
- Open water facilities, a transition period of at least or one production cycle. 12 months

- 8.3.1 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 fingerlings
 - 12 Weeks for shrimps
 - 12 Weeks for mollusks

- 8.3.2 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. There should be a clear and continuous separation between organic and non-organic production.

Organic facilities shall normally be upstream and there shall be no interference of water used in conventional farm/pond with organic farm/pond.

8.4 Breeding and seed collection

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

- 8.4.1 Breeding can be induced using natural hormones and substances
Breeding should not involve the sacrificing of any of the parents or fish from unsustainable fisheries.
- 8.4.2 Species that cannot spawn naturally in captivity may be induced using exogenous releasing hormones **only** if other methods are not available. Such brood stock shall lose organic status when slaughtered.
- 8.4.4 Genetic engineering techniques are prohibited.
- 8.4.5 Sex reversal or its equivalent should not be practised.
- 8.4.6 The collection of wild seed should
- be done according to local regulations;
 - not compromise the ecological integrity of the aquatic ecosystem;
 - ensure sustainable wild populations; and
 - minimize over exploitation/setting of wild seed, when possible.
 - not include the use of epinephrine to expedite exploitation/setting.
 - not involve the use of tires and PVC in setting substrate.

8.5 Feed and Feeding

- 8.6.1 Aquaculture animals shall have access to natural food generated from the environment.
- 8.6.2 Manure, liming materials used shall be consistent with organic standards.
- 8.6.3 Aquatic animals should be fed 100% organic feedstuff. If/when the quantity or quality of organic feed is inadequate, the daily maximum percentage of non-organic feed is 40% (calculated in dry matter).
- 8.6.3 Feeding and feed rations supplied to aquaculture animals shall be compatible with diets occurring in the natural environment and be designed according to the specific nutritional needs of the species.
- 8.6.4 Fish meal and fish oil derived from aquatic animals and other feed sources shall be organic, when commercially available.

- 8.6.5 When organic fish meal or fish oil is not commercially available, it shall be preferentially sourced from trimming of fish already caught for human consumption in sustainable fisheries.
- 8.6.6 None synthetic vitamins and minerals should be used. Synthetic vitamins and minerals are allowed ONLY if the none synthetics are not available, but with the approval of a certification body.
- 8.6.8 The following should not be used in organic aquaculture:
- Growth stimulants or substances used for the purpose of stimulating growth or production
 - Urea, antibiotics and hormones used to promote growth and synthetic growth agents
 - Silage preservation products except for products listed in par. 10.2
 - Synthetic appetite-enhancers or synthetic flavor-enhancers
 - Synthetic coloring agents.

8.7 Disease management

- 8.7.1 Disease prevention in organic aquaculture production shall be based on the following:
- aquaculture animals shall have ready access to an appropriate diet in sufficient quantities and with a composition that maintains full health and vigour.
 - aquaculture animals are in close contact with their environment.
 - the application of appropriate cultural practices such as maintenance of good water quality, prevention of wide species and environmental management
 - diseases shall be prevented or rapidly diagnosed and treated.
 - aquaculture animals shall have sufficient space, proper facilities and, where appropriate, the company of the animal's own kind.
 - conditions that produce unacceptable levels of stress caused by anxiety, fear, distress, boredom, sickness, pain, hunger and so on shall be minimized.
 - the choice of appropriate breeds or strains of stock
 - the use of good quality organic feed, regular exercise, and access to pasture or runs in the open air
 - ensuring an appropriate density of stock
- 8.7.2 Aquaculture facilities shall be designed, operated and managed in a manner that seeks to maximize the welfare and minimize the stress on aquaculture animals, and minimize the spread of disease within the facility, and to all adjoining ecosystems and native fish species.
- 8.7.3 If an aquatic animal becomes sick or injured despite preventive measures, it shall be treated promptly and adequately.
- 8.7.4 Injured animals should be separated for treatment where possible. Phytotherapeutic and other alternative treatments shall be applied to them if they are proven to be effective in curing sickness or healing an injury.
- 8.7.5 Chemical allopathic veterinary drugs or antibiotics could be used only if preventive and alternative practices are unlikely to be effective in curing sickness or healing an injury.

When veterinary drugs are used, the withdrawal period shall be equivalent to double the label or veterinary prescription requirement, or 14 days, whichever is longer, shall be observed before treated aquaculture animals can be considered organic. However, broodstock treated with antibiotics may continue to be used within the organic aquaculture system, but shall never be organic for slaughter purposes.

- 8.7.7 Hormonal treatment may be used only for therapeutic reasons and under certified organic veterinary supervision.
- 8.7.8 If necessary to prevent disease, an appropriate fallowing period shall be applied after each production cycle. During fallowing, the cage or other structure used for aquaculture animal production is emptied, cleaned and left empty before being used again.
- 8.7.9 Unconsumed/unused fish feed, faeces and dead animals shall be managed to support the health and welfare of the animal(s).
- 8.7.10 Hygienic routines shall be carried out as well as routine examinations to detect nascent diseases and production disturbances. Preventive measures should be taken.
- 8.7.11 Products from sick aquaculture animals or those undergoing treatment with restricted substances shall not be organic or fed to organic aquaculture animals or livestock.
- 8.7.12. In addition to the treatments allowed for combating illness or injury, anesthetics may be administered to minimize pain, stress and suffering not more than twice a year when handling individual fish (e.g. vaccination, weight counts, parasite counting, fin clipping, tagging, or surgery).

8.8. Predator, pest and weed control

- 8.8.1 All predator and pest control practices shall target specific animals, with minimal impact on aquatic animal and wildlife habitat.
- 8.8.2 Predator exclusion devices (e.g. predator netting on clam beaches and vertical fencing) shall be secured at all times to ensure they do not present undue risk of entanglement or injury to wildlife.
- 8.8.3 Materials and methods permitted in pest control:
 - Physical barriers (e.g. clam netting, vertical predator fences, traps, natural bait as an attractant to traps)
 - Manual removal
 - High-pressure water washing
 - Dehydration through exposure to air and sun
 - Hot water treatment
 - Substances permitted by the organic standard in Nigeria
 - Dips with substances permitted in par. 10.3
 - Release of natural predators

- Creation of environments fostering natural predators.
- Disturbance of endangered aquatic organisms or critical animal habitat is prohibited.
- Unnecessary destruction of aquatic organisms or aquatic habitat is prohibited.
- Killing, capturing or injuring migratory birds and disturbing their nests is prohibited.

The following materials and methods are prohibited in pest control:

- Fumigants
- Synthetic pesticides, petroleum distillates and solvents

8.9 Harvesting, Transporting Live Aquaculture Animals and Slaughtering

8.9.1 Techniques used to capture, handle and harvest aquaculture animals shall be selected such that they cause minimal physiological stress or injury, and that natural habitats are preserved. In order to keep stress levels to a minimum. Only essential handling shall take place.

8.9.2 Transportation facilities (vehicles and boats) used should be appropriate to the types of live aquaculture animals being transported. Water quality and population densities should be appropriate especially for those to be delivered live in the market.

8.9.3 Tranquillizing chemicals, paralyzing toxins and carbon dioxide should not be used.

8.9.4 Slaughtering shall minimize pre-slaughter and slaughter stress. Slaughtering should not be by suffocation.

8.9.5 Slaughter techniques shall render aquaculture vertebrate animals immediately unconscious and insensible to pain. Choice of slaughtering methods should take into consideration differences in harvesting sizes, species, and production sites.

8.9.6 Aquaculture vertebrate animals shall not be slaughtered in ponds, cages or tanks where other aquaculture animals are living.

8.9.7 Harvesting, transporting, slaughtering and subsequent handling of organic and non-organic aquaculture animals shall be clearly separated in time or space in order to completely avoid commingling.

8.10. Prohibited Substances, Techniques or Ingredients in Organic Production and Handling

The following items and methods are prohibited in organic aquaculture:

- i. All materials and products (except vaccines) produced from genetic engineering because they are not compatible with the general principles of organic production and therefore are not accepted under this standard. Synthetic pesticides (e.g. defoliant and desiccants, fungicides, insecticides and rodenticides), wood preservatives (e.g. arsenate) or other pesticides, except as specified in this standard
- ii. Sewage sludge, in any form
- iii. Cloned farm animals and their descendants.

- iv. Intentionally manufactured nano-technology products or nano-processes except naturally occurring nanolised particles or those produced incidentally through normal processes such as grinding flour.
- v. Fish meal not produced from the sustainable fishing enterprise.
- vi. Amino-acid isolates to solvent extraction (e.g., hexane or the addition of other chemical agents)
- vii. Preservatives (except when used as a processing aid)
- viii. Artificial colouring agents
- ix. Equipment, packaging materials and storage containers, or bins that contain a synthetic fungicide, preservative or fumigant
- x. Cloned farm animals and their descendants. A producer shall know the lineage of any non-organic animal brought under organic management
- xi. Intentionally manufactured nano-technology products, or nano-processes involving intentional manipulation of matter at the nanoscale to achieve new properties or functions that are different than properties and functions of the materials at the macro scale, except naturally occurring nano-sized particles, or those produced incidentally through normal processes such as grinding flour, or nano-sized particles used in a way that guarantees no transference to product.

9. Wild collection of honey and other wild products

- 9.1 Wild harvested products are organic if they are derived from a stable and sustainable growing environment. The harvest shall not be at a rate that exceeds the sustainable yield of the ecosystem, and it shall not threaten the existence of plant, fungal, or animal species, including those not directly exploited.
- 9.2 Operators shall harvest products only from a clearly defined area where chemical pesticides and other substances not allowed by this standard have not been applied for at least three years before harvest. The harvest area shall be at an appropriate distance from conventional farms and sources of contamination.

10. Handling, storage, and processing

10.1 Separation

- 10.1.1 The integrity of organic products shall be maintained throughout the phases of handling, storage, processing, and transport.
- 10.1.2 All organic products shall be clearly identified as such. Throughout the entire process of storage and transportation, the products shall be stored and transported in a way that prevents contact or mixing with non-organic products.
- 10.1.3 The operator shall take all measures necessary to prevent organic products from being contaminated.
- 10.1.4 Non-organically and organically grown products may only be stored together if they are packaged and labeled ready for sale. Storage facilities and containers for unpackaged produce must be kept separate and be specially labeled

10.2 Ingredients

- 10.2.1 All ingredients used in organically processed products shall be organically produced when available in sufficient quality and quantity. *Note: The labeling rules apply.*
- 10.2.2 When possible, food additives and processing aids produced with organic raw materials shall be used.
- 10.2.3 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.

10.3 Techniques

- 10.3.1 Techniques used to process and preserve organic products shall be biological, physical, or mechanical radiation shall not be used.
- 10.3.2 Extraction shall take place only with water, ethanol, plant and animal oils, vinegar, carbon dioxide, and nitrogen.
- 10.3.3 Filtration equipment shall not contain asbestos or utilize techniques or 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 Processing aids are substances or materials (excluding utensils and technical equipment) that are not normally in themselves regarded as foodstuffs and that are purposely brought into contact with foodstuffs at one stage or another of their processing. Since these processing aids are removed or largely disappear during the process, only traces, if any, become components of the foodstuff concerned.
- 10.4.2 All usage of additives and processing aids is to be avoided as far as possible. Only substances obtained through physical separation processes, cooking processes and/or fermentation are permitted as additives.
- 10.4.3 Preparations of enzymes and microorganisms used in food processing may be used with the exception of genetically engineered microorganisms and their products.
- 10.4.4 Minerals (including trace substances), vitamins, amino acids, and other nitrogen compounds may be used only where legally required or in cases in which dietary or nutritional deficiency can be demonstrated.
- 10.4.5 Synthetic and nature-identical colourings, flavourings, and taste enhancing substances shall not be used. Only natural substances may be used.
- 10.4.6 Food additives and processing aids for organic farming can be found in appendix 4.

10.4.7 Criteria for approval or disapproval of additives and processing aids are those defined in the IFOAM Basic Standards and the Codex Alimentarius Guidelines.

10.5 Packaging materials

10.5.1 Packaging material shall not contaminate the organic product.

10.5.2 Packaging materials and storage containers or bins that contain synthetic fungicides, preservatives, or fumigants shall not be used.

10.5.3 Organic produce shall not be packaged in bags or containers that have been used for chemical fertilizers or pesticides or other substances that may compromise the organic integrity of the organic product.

10.5.4 Environmentally adapted packaging shall be preferred. PVC and other chlorine-based plastics shall be avoided to the extent possible. Operators should adopt practices to minimize packaging materials.

10.5.5 When you are transporting organic or in-conversion crops to other units, including wholesalers and retailers, you must make sure they are in suitable packaging or containers. They must be closed to prevent substitution and labelled or accompanied by a document that shows:

Your company name and address, and owner if different

The name and organic status of the product

The certification code, and

Traceability code.

10.6 Pest management

10.6.1 Pest-control 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.

10.6.2 You must control pests and disease by carefully designing and managing your whole farm system to achieve health, diversity and vitality in your soils and crops. You will then encourage natural growth and a balanced farm ecosystem.

10.6.3 Pest and pathogen control shall be achieved mainly by means of scrupulous cleaning and hygiene.

10.6.4 To manage pests, the following methods may be used:

- preventative methods such as disruption, elimination of habitat, and access to facilities
- mechanical, physical, and biological methods
- substances approved in this standard

- 10.6.5 If the methods listed above are unsuccessful, conventional pest and disease control may be used. The use shall not contaminate the organic product. 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.
- 10.6.6 In cases in which the fumigation of premises, plant, or equipment is required, the treatment shall be carried out under the supervision of a suitably qualified person or organization. Chemical substances shall be properly labeled and stored.
- 10.6.7 Records of date, substance, and area treated shall be kept of all pest-control and fumigation measures taken.
- 10.6.8 These are the substances and methods for pest and disease control that shall not be used:
- fumigation with ethylene oxide, methyl bromide, and aluminium phosphide
 - ionizing radiation (irradiation)

II. Labeling

- 11.1 Products produced in accordance with these standards may be labeled "PGS Certified Organic" based on the percentage organic materials contained excluding water and salt. Only prescribed label given below should be used for raw or processed agricultural product certified with this standard.
- 11.2 A raw or processed product sold, labelled, or represented as "100% organic" shall contain, by weight, excluding water and salt, 100% organic ingredients.
- 11.3 A raw or processed agricultural product sold, labeled, or represented as "organic" shall contain, by weight, excluding water and salt, not less than 95% organic ingredients. The remaining ingredients may include non-organic ingredients or substances fulfilling these standards.
- 11.4 A multi-ingredient product sold, labelled or represented as "With organic" shall contain, by weight, excluding water and salt, at least 70% organic ingredients. The remaining ingredients may include non-organic ingredients fulfilling these standards.
- 11.5 Any product / produce undergoing certification with this Standard for the first time and has fulfilled 10.2 to 10.4 may be labeled "PGS Certified In - Conversion".
- 11.6 For a product in which less than 70% of the ingredients are organic, "organic" may be stated in the ingredient panel or in conjunction with the organic ingredient.
- 11.7 The name and contacts of the responsible producer shall appear on the packaging material on which this label is appearing.
- 11.8 A statement that the product is "produced according to Organic Agriculture Standard in Nigeria" may be made on the labels.

Appendix I. **IFOAM 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 it is all that 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 in which people interact with living landscapes, relate with 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. In addition, they are presented with a vision of their worldwide 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, it is 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 relationship with 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.

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 of others. 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.

Appendix 2. List of substances which may be used in organic plant production

Indicative

Note to the reader: These lists are now basically the full lists from the IFOAM Basic Standards and the Codex Alimentarius Guidelines. By reference in the text, these inputs will be accepted in use. However, many of them are currently not in country. Is it a better solution to list only products that are currently in use, taking into consideration that the other substances can be used when the need arises, through the reference to IFOAM and the Codex in the standard? (text to be taken out of final version of standard).

Fertilizers and soil conditioners

Description, Compositional Requirements of Substance	Conditions for use
I. Plant and Animal Origin	
Farmyard manure, slurry, and urine	
Guano	
Source separated human excrement from separated sources which are monitored for contamination	Not to be directly applied on edible parts
Vermicastings	
Blood meal, meat meal, bone, bone meal	
Hoof and horn meal, feather meal, fish and fish products, wool, fur, hair, dairy products	
Biodegradable processing by-products, plant or animal origin (e.g., by-products of food, feed, oilseed, brewery, distillery, or textile processing)	
Crop and vegetable residues, mulch, green manure, straw	
Wood, bark, sawdust, wood shavings, wood ash, wood charcoal	
Seaweed and seaweed products	
Peat (prohibited for soil conditioning)	Excluding synthetic additives; only for inclusion in potting mixes
Plant preparations and extracts	
Compost made from ingredients listed in this appendix, spent mushroom waste, humus from worms and insects, urban composts from separated sources which are monitored for contamination	

II. Mineral Origin	
Basic slag	
Calcareous and magnesium amendments	
Limestone, gypsum, marl, maerl, chalk, sugar beet lime, calcium chloride,	
Magnesium rock, kieserite and Epsom salt (magnesium sulphate)	
Mineral potassium (e.g., sulphate of potash, muriate of potash, kainite, sylvanite, patentkali)	Shall be obtained by physical procedures but not enriched by chemical processes
Natural phosphates	
Pulverized rock, stone meal	
Clay (e.g., bentonite, perlite, vermiculite, zeolite)	
Sodium chloride	
Trace elements	
Sulphur	
III. Microbiological	
Biodegradable processing by-products of microbial origin (e.g., by-products of brewery or distillery processing)	
Microbiological preparations based on naturally occurring organisms	
IV. Others	
Biodynamic preparations	
Calcium lignosulfonate	

Crop Protectants and Growth Regulators

Description, Compositional Requirements of Substance	Conditions for use
I. Plant and Animal Origin	
Algal preparations	
Animal preparations and oils	
Beeswax	

Chitin nematicides (natural origin)	
Coffee grounds	
Corn gluten meal (weed control)	
Dairy products (e.g., milk, casein)	
Gelatine	
Lecithin	
Natural acids (e.g., vinegar)	
Neem (Azadirachta indica)	
Plant oils	
Plant preparations	
Plant-based repellents	
Propolis	
Pyrethrum (Chrysanthemum cinerariaefolium)	The synergist Piperonylbutoxide shall not be used.
Quassia (Quassia amara)	
[Rotenone (Derris elliptica, Lonchocarpus spp. Thephrosia spp.)]	Studies show a link between rotenone and Parkinson's disease; therefore, any use should be limited and include precautionary measures.
Ryania (Ryania speciosa)	
Sabadilla	
Seaweed, seaweed meal, and seaweed extracts	

Description, Compositional Requirements of Substance	Conditions for use
Tobacco tea (pure nicotine is shall not be used)	
II. Mineral Origin	
Chloride of lime	
Clay (e.g., bentonite, perlite, vermiculite, zeolite)	
Copper salts (e.g., sulphate, hydroxide, oxychloride, octanoate)	Max 8 kg/ha per year (on a rolling average basis)

Diatomaceous earth	
Light mineral oils (paraffin)	
Lime sulphur (Calcium polysulfide)	
Potassium bicarbonate	
Potassium permanganate	
Quicklime	
Silicates (e.g., sodium silicates, quartz)	
Sodium bicarbonate	
Sulphur	
III. Microorganisms	
Fungal preparations	
Bacterial preparations (e.g., Bacillus thuringiensis)	
Release of parasites, predators, and sterilized insects	
Viral preparations (e.g., granulosis virus)	
IV. Others	
Biodynamic preparations	
Calcium hydroxide	
Carbon dioxide	
Ethyl alcohol	
Homeopathic and Ayurvedic preparations	
Iron phosphates (for use as molluscicide)	
Sea salt and salty water	
Soda	
Soft soap	
Sulphur dioxide	

V. Traps, Barriers, Repellents	
Physical methods (e.g., chromatic traps, mechanical traps)	
Mulches, nets	
Pheromones (in traps and dispensers only)	

Appendix 3. List of natural substances which shall not be used in organic plant production

<i>Description, Compositional Requirements of Substance</i>	<i>Comments</i>
Nicotine	Tobacco tea is allowed

Appendix 4. List of additives and processing aids for organic food processing

Indicative

Where the substances listed in this annex can be found in nature, natural sources are preferred. Substances of certified organic origin are preferred.

Int'l Numbering System	<i>Product</i>	Additive	Processing Aid	Limitation/Note
INS 153	Wood ash	X		Traditional cheeses
INS 170	Calcium carbonate	X	X	
INS 181	Tannin		X	Only for wine
INS 184	Tannic acid		X	Filtration aid for wine
INS 220	Sulphur dioxide	X		Only for wine
INS 224	Potassium metabisulphite	X		Only for wine
INS 270	Lactic acid	X	X	
INS 290	Carbon dioxide	X	X	
INS 296	L-malic acid	X	X	
INS 300	Ascorbic acid	X		
INS 306	Tocopherols, mixed natural concentrates	X		

INS 322	Lecithin	X	X	
INS 330	Citric acid	X	X	
INS 331	Sodium citrates	X		
INS 332	Potassium citrates	X		
INS 333	Calcium citrates	X		
INS 334	Tartaric acid and salts	X	X	Only for wine
INS 335	Sodium tartrate	X	X	
INS 336	Potassium tartrate	X	X	
INS 341	Mono calcium phosphate	X		Only for "raising flour"
INS 342	Ammonium phosphate	X		Restricted to 0.3 gm/l in wine
INS 400	Alginic acid	X		
INS 401	Sodium alginate	X		
INS 402	Potassium alginate	X		
INS 406	Agar	X		
INS 407	Carrageenan	X		
INS 410	Locust bean gum	X		
INS 412	Guar gum	X		
INS 413	Tragacanth gum	X		
INS 414	Arabic gum	X		Only for milk products, fat products, confectionery, sweets, eggs
INS 415	Xanthan gum	X		Only fat, fruit, and vegetable products and cakes and biscuits
INS 416	Karaya gum	X		
INS 440	Pectin	X		Unmodified
INS 500	Sodium carbonates	X	X	
INS 501	Potassium carbonates	X	X	
INS 503	Ammonium carbonates	X		Only for cereal products, 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	Sulphuric acid		X	pH adjustment of water during sugar processing
INS 516	Calcium sulphate	X		For soybean products, confectionery and in bakers' yeast
INS 517	Ammonium sulphate	X		Only for wine, restricted to 0.3 mg/l
INS 524	Sodium hydroxide	X	X	For sugar processing and for the surface treatment of traditional bakery products
INS 525	Potassium hydroxide		X	pH adjustment for sugar processing
INS 526	Calcium hydroxide	X	X	<ul style="list-style-type: none"> • Food additive for maize tortilla flour • Processing aid for sugar
INS 551	Silicon dioxide (amorphous)		X	For wine, fruit, and vegetable processing
INS 553	Talc		X	
INS 901	Beeswax		X	
INS 903	Carnauba wax		X	
INS 938	Argon	X		
INS 941	Nitrogen	X	X	
INS 948	Oxygen	X	X	
	Activated carbon		X	
	Bentonite		X	Only for fruit and vegetable products
	Casein		X	Only for wine
	Diatomaceous earth		X	Only for sweeteners and wine
	Egg-white albumen		X	Only for wine
	Ethanol		X	
	Gelatine		X	Only for wine, fruit, and vegetable
	Hazelnut shells		X	
	Isinglass		X	Only for wine
	Kaolin		X	
	Perlite		X	
	Preparations of bark		X	
	Vegetable oil		X	Greasing or releasing agent
	Water		X	

References

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Implementation of the 1995 FAO Code of Conduct for Responsible Fisheries.

Naturland - Association for Organic Agriculture, Registered Association (2012).
<http://www.naturland.de/certifiedorganicaquaculture.html> (retrieved 7th July 2012)

The publications referred to in par. 2.1.1 may be obtained from the Canadian General Standards Board, Sales Centre, Gatineau, Canada K1A 1G6. Telephone 819-956-0425 or 1-800-665-2472. Fax 819-956-5740. E-mail ncr.cgsb-ongc@tpsgc-pwgsc.gc.ca. Website www.tpsgc-pwgsc.gc.ca/ongc-cgsb/index-eng.html.

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