PHILIPPINE NATIONAL STANDARDS (PNS)

RELEVANT TO OGRANIC AGRICULTURE

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PHILIPPINE NATIONAL STANDARD

PNS/BAFS 07:2016

ORGANIC AGRICULTURE

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FOREWORD

The Philippine National Standard for Organic Agriculture (PNS OA) was originally prepared and adopted in 2003 for the purpose of promoting organic agriculture and enhancing market competitiveness by providing a uniform approach to the requirements on conversion, crop production, livestock, processing, special products, labeling, and consumer information.

In keeping with the developments of the global organic industry, the revision of the PNS OA was started through the creation of a Technical Working Group (TWG) composed of members coming from the government agencies, academe, certification bodies, and private sector. Likewise, public consultative meetings were held in the National Capital Region (NCR), Davao, and Iloilo with the aim of generating comments from the various stakeholders of the organic industry.

The revision of the PNS OA was undertaken in order to achieve equivalence with the ASEAN Standard for Organic Agriculture (ASOA). PNS/BAFS 07:2016 covers several scope, namely: (a) conversion; (b) crop production; (c) animal production; (d) beekeeping; (e) processing; (f) special products; (g) labeling and consumer information; (h) traceability; and (i) requirements for the inclusion of substances for organic production. The different scopes should be treated as one standard on organic agriculture with the various parts complementing each other.

ACRONYMS AND ABBREVIATIONS

BAFS	Bureau of Agriculture and Fisheries Standards
BAI	Bureau of Animal Industry
BPI	Bureau of Plant Industry
BPI-PQS	Bureau of Plant Industry-Plant Quarantine Service
DA	Department of Agriculture
DENR	Department of Environment and Natural Resources
FDA	Food and Drug Administration
GMP	Good Manufacturing Practices
HACCP	Hazard Analysis and Critical Control Points
IFOAM	International Federation of Organic Agriculture Movements
LGU	Local Government Unit
NCBP	National Committee on Biosafety Philippines
NMIS	National Meat Inspection Service
SPS	Sanitary and Phytosanitary

1 Scope

This Standard specifies the minimum requirements for organic agriculture and is divided into the following parts:

Part 1: Conversion to organic agriculture
Part 2: Crop production
Part 3: Livestock
Part 4: Beekeeping
Part 5: Processing
Part 6: Special products
Part 7: Labeling and consumer information
Part 8: Traceability and recordkeeping
Part 9: Requirements for the inclusion of substances for organic production

2 References

The titles of the publications referred to in this Standard are listed on the ~~inside back cover~~last page before the Annexes.

3 Definition of terms

3.1 Agricultural product/product of agricultural origin
any product or commodity, raw or processed, that is marketed for human consumption (excluding water, salt, and additives) or animal feed.

3.2 Animal
ruminant (e.g. cattle, buffalo, goat, sheep, and deer) and non-ruminant (e.g. poultry, pigs, ostrich, rabbit, and horse) livestock raised for food purposes.

3.3 Animal production
practices related to any domestic or domesticated, including bovine, ovine, porcine, caprine, equine, poultry, and bees, raised for food or in the production of food. The products of hunting or fishing of wild animals shall not be considered part of this definition.

3.4 Annual crop
crop produced by a plant whose entire life cycle is completed within a single growing season.

3.5 Biodegradable inputs
inputs composed of natural materials capable of being decomposed by bacteria or other biological means and includes compost, green manure, and plant and animal waste.

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

3.7 Biosecurity
strategic and integrated approach that encompasses the policy and regulatory frameworks (including instruments and activities) that analyse and manage risks in the sectors of food safety, animal life and health, and plant life and health, including associated environmental risk. Biosecurity covers the introduction of plant pests, animal pests and diseases, and zoonoses, the introduction and release of genetically modified organisms (GMOs) and their products, and the introduction and management of invasive alien species and

genotypes. It is a holistic concept of direct relevance to the sustainability of agriculture, food safety, and the protection of the environment, including biodiversity.

3.8 Breeding
selection of plants or animals to produce and/or to further develop desired varieties/strains/breeds.

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

3.10 Certification
procedure by which an operator or a group of operators receive written and reliably endorsed assurance from a certification body that a clearly identified process has been methodically applied in order to assess that the operator is producing specified products according to specific requirements or standards.

3.11 Commingling
intentional or unintentional mixing together or the physical contact between organic products and non-organic products which are unpackaged or permeably packaged, which leads to a loss of integrity of the organic product during production, processing, transportation, storage, or handling.

3.12 Compost
any product in solid or liquid form, of plant (except by-products from petroleum industries) or animal origin, that has undergone substantial decomposition that can supply available nutrients to plants with a total Nitrogen (N), Phosphorus (P_2O_5), and Potassium (K_2O) of 2.5 to less than 5 percent. This may be enriched by microbial inoculants and naturally occurring minerals but no chemical or inorganic fertilizer material has been used in the production or added to the finished product to affect the nutrient content. Compost and soil conditioner are used interchangeably in this Standard.

3.13 Contamination
contact of organic crops, animals, land, or products with substance that would compromise the organic integrity.

3.14 Conventional
any material, production, or processing practice that is not certified organic or organic "in-conversion".

3.15 Conversion period (transition period)
time between the start of organic management and certification of the crop or animal production system or site as organic.

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

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

3.18 Farm unit
total area of land under control of one farmer or collective of farmers, and including all the farming activities or enterprises.

3.19 Food additive
any substance not normally consumed as a food by itself and not normally used as typical ingredient for the food, whether or not it has nutritive value, the intentional addition of which to food or a technological (including organoleptic) purpose in the manufacture, processing, preparation, treatment, packaging, transport, or holding of such food results, or may 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.

3.20 Genetically engineered/modified organisms (GEO/GMO's)
organisms made with techniques that alter the molecular or cell biology of an organism by means that are not possible under natural conditions or processes. Genetic engineering includes recombinant DNA, cell fusion, micro- and macro- encapsulation, gene deletion and doubling, introducing a foreign gene, and changing the positions of genes. It shall not include breeding, conjugation, fermentation, hybridization, in-vitro fertilization, and tissue culture.

3.21 Green manure
crop that is grown and then incorporated into the soil for the purpose of soil improvement, prevention of erosion, prevention of nutrient loss, mobilization and accumulation of plant nutrients, and balancing soil organic matter. Green manure may include spontaneous crops, plants, or weeds.

3.22 Habitat
area over which a plant or animal species naturally exists. Also used to indicate types of habitat (e.g. ocean, seashore, riverbank, woodland, and grassland).

3.23 Herb
plant that is not woody and with no persistent parts above ground level.

3.24 High conservation value areas
areas that have been identified as having outstanding and critical importance due to their environmental, cultural, socioeconomic, biodiversity, or landscape values.

3.25 Homeopathic
treatment of disease based on administration of remedies prepared through successive dilutions of a substance that in higher concentration produces symptoms in healthy subjects similar to those of the disease itself.

3.26 In-conversion/conversion to organic
labeling term that denotes produce and products of plant that are obtained through production and/or processing in accordance with organic agriculture in conversion period intended to market as food.

3.27 Ingredient
any substance, excluding a food additive, used in the manufacture or preparation of a food and present in the final product.

3.28 Inspection
examination of food or systems for control of food, raw materials, processing, and distribution, including in-process and finished product testing, in order to verify that they conform to requirements. For organic food, inspection includes the examination of the production and processing system.

3.29 Ionizing radiation (irradiation)
technology using high-energy emissions from radio-nucleotides, such as gamma rays, x-rays, or accelerated electrons, capable of altering a product's molecular structure for the purpose of controlling microbial contaminants, pathogens, parasites, and pests in products (generally food), preserving products, or inhibiting physiological processes such as sprouting or ripening. Irradiation does not include low-level radiation sources such as the use of X-rays for foreign body detection.

3.30 Isolated nutrients
individual and separate forms of nutrients.

3.31 Labeling
any written, printed, or graphic representation that is present on the label of a product, accompanies the product, or is displayed near the product at the point of sale, for the purpose of promoting its sale or disposal.

3.32 Organic agriculture
holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles, and soil biological activity; emphasizes the use of management practices over the use of off-farm inputs; and utilizes cultural, biological, and mechanical methods as opposed to synthetic materials. Organic agriculture combines tradition, innovation, and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved.

3.33 Organic integrity
adherence to the principles, objectives, and standards for organic production.

3.34 Organic produce
any agricultural produce that is produced according to the organic agriculture or gathered from nature, and/or handled with post-harvest management.

3.35 Organic product
product that has been produced or processed, and handled in compliance with organic standards.

3.36 Organic management plan
written plan for management of an organic crop, livestock, wild harvesting, processing, handling, or grower group operation which specifies the organic management system used by the operation in order to comply with organic standards and which has been agreed upon by both the operator and the certification agent.

3.37 Parallel production
simultaneous production, processing, or handling of organic and non-organic (including transitional) crops, livestock, and/or other agricultural products of the same or similar (indistinguishable) varieties.

3.38 Perennial
any crop, other than a biennial crop, that can be harvested from the same planting for more than one crop year, or that requires at least one year after planting before harvest.

3.39 Processing aid
any substance or material, not including apparatus or utensils, and not consumed as a food ingredient by itself, intentionally used in the processing of raw materials, foods, or its ingredients, to fulfill a certain technical purpose during treatment or processing and which may result in the non-intentional, but unavoidable presence of residues or derivatives in the final product.

3.40 Sanitizing
any treatment that is effective in destroying or substantially reducing the number of vegetative cells of microorganisms of public health concern and other undesirable microorganisms.

3.41 Split production
where only part of the farm or processing unit is certified as organic. The remainder of the property can be (a) non-organic, (b) in conversion, or (c) organic but not certified.

3.42 Synthetic
substance that is formulated or manufactured by a chemical process or by a process that chemically changes a substance extracted from naturally occurring plant, animal, or mineral sources. Substances created by naturally occurring biological processes are not considered synthetic.

3.43 Wild harvest
plants or portions of plants, mushrooms, and honey that are collected or harvested from defined sites which are maintained in a natural state and are not cultivated or otherwise managed.

4 Minimum requirements for organic agriculture

4.1 Minimum requirements for conversion to organic agriculture

The provisions for conversion to organic agriculture shall meet the following requirements:

4.1.1 Crop and special product conversion requirements

4.1.1.1 The operator must follow and meet the minimum requirements of the Philippine National Standard for Organic Agriculture from the beginning of the conversion period onwards.

4.1.1.2 Inspection must be carried out as a prerequisite for a farm to be certified as organic. The time frame of the conversion period (plan) is set based on the initial recommendations/findings of the inspector.

4.1.1.3 The conversion plan shall at least include:

- field and farm history and present production practices such as crops produced, pest management practices, fertilization practices, and animal husbandry practices;
- production practices that need to be improved during the conversion period (e.g. crop rotation, manure management, soil conversion, water management, animal

management, pasture development plan, pest management, environmental conditions); and
- a schedule and time limits for the progression of conversion.

4.1.1.4 If there is a presence of parallel/split production in the unit, the responsible farmers have to ensure:

- that a proper demarcation and identification of organically managed lands must be put in place. Land managed organically must be inspected for compliance to organic certification;
- that the organically farmed parts are identifiable and may be inspected for certification;
- that all farm records and accounting are identifiable for both farming systems; and
- those converted areas are not switched back and forth from organic and non-organic management.

4.1.1.5 Length of crop conversion period

Plant products can be certified organic when the full requirements of this Standard have been met:
- for annual crops: at least twelve (12) months before the start of the production cycle;
- for perennials: at least eighteen (18) months of management according to the full standards requirements before the first harvest.

4.1.1.6 The required conversion period may be reduced for the following conditions:

- land which have not been cultivated for the past three (3) years, including lands used as pasture and timberland;
- areas practicing traditional agricultural practices, which fulfill the requirements of this Standard; these areas shall be verified through reliable means and sources. In such cases, inspection shall be carried out at least six (6) months before the first harvest; and
- farms practicing organic agriculture for at least eighteen (18) months; these areas shall be verified through reliable means and sources. In such cases, inspection shall be carried out at least six (6) months before the harvest.

4.1.1.7 No conversion period is required in the case of non-cultivated land. These areas shall not be exposed to prohibited inputs for a minimum of three (3) years.

4.1.1.8 The following are required to be submitted in order to grant reduction of the prescribed conversion period:

- written evidences: An official attestation from government agencies (national or local) on non-application of prohibited inputs for the past two (2) years or research institutions, or a notarized affidavit from two (2) neighbors; and
- proof that the land was cultivated under practices allowed for organic agriculture for the past two (2) years.

4.1.1.9 If a farm is not converted all at once or if certification is withdrawn from a piece of land, the responsible operator should ensure separation through the following:

- a clear boundary between the organic and non-organic units;
- that the same varieties are not produced in parallel production: organic and non-organic;

- that the production records be identifiable for each type of production, allowing the certification body to audit both productions;
- that production areas are not switched back and forth from organic and non-organic management; and
- that areas to be used for the organic production will be included in a conversion plan.

4.1.1.10 Prolonged conversion/transition period

Lands that have been heavily treated with synthetic chemicals shall undergo conversion for a minimum of three (3) years before the start of the production cycle. The competent authority decides whether this rule applies on a specific site and the required test to confirm. In such cases, the farmer should be able to provide results of contaminant analysis, which include, among others, pesticides, heavy metals, and nitrate accumulation.

4.1.1.11 Products may be sold with an indication referring to the conversion to organic farming (in-conversion), when the full requirements of this Standard have been met for at least six (6) months.

4.1.2 Conversion of animal and animal products

If animal products are to be sold as organic products, the animal must be reared according to the minimum requirements set in this Standard for organic production:

4.1.2.1 Bovine/Bubaline (Large Ruminants)

Product	Conversion Period
Beef and Carabeef	Large ruminants like cattle and carabao should be organically reared at least 360 days before slaughter
Veal	Calves to be used for meat product should be organically reared 180 days after weaning
Milk products	Milk from lactating bovine will only be considered as organic after 90 days of organic rearing

4.1.2.2 Sheep and Goats (Small Ruminants)

Product	Conversion Period
Mutton and Chevon	Sheep and goat should be organically reared at least 180 days before slaughter
Milk products	Milk from lactating sheep and goat will only be considered as organic after 90 days of organic rearing

4.1.2.3 Porcine (Pork)

Product	Conversion Period
Pork	Swine should be organically reared at least 120 days before slaughter

4.1.2.4 Poultry/Laying Hens (Broilers and Layers)

Product	Conversion Period
Meat products	Poultry intended for meat products should be organically reared after 21 days from hatching
Eggs	Layers should be organically reared 42 days before laying and throughout the laying period

4.1.2.5 Simultaneous conversion

If there is simultaneous conversion of the farm, including animal, pasture, and/or any land used for animal feed, the required conversion period shall be reduced to 18 months subject to the following conditions:

- the reduced conversion period applies only to the existing animals and their offspring and at the same time, also to the land used for animal feed production and pasture before starting the conversion; and
- the animals are mainly fed with products from the farm.

4.1.3 Conversion requirements for organic beekeeping

4.1.3.1 The conversion period is 12 months for hived bee colonies.

4.1.3.2 Provision of wax for beehives

The wax used for creating honeycombs should be made from organic beeswax. However, in cases where organic beeswax is not available, non-organic beeswax may be used if the beeswax is free from harmful substances.

5 Minimum requirements for crop production

The provisions for organic agriculture for crop production shall meet the following requirements:

5.1 Choice of crops and varieties

5.1.1 Seeds and planting materials shall be of high quality and certified organic, when available.

5.1.2 When certified organic seed and planting materials are not available, non-organic seed and planting materials may be used provided that they have not been treated with pesticides and other inputs not permitted by this Standard.

5.1.3 Seeds and planting materials derived from tissue culture may be used for the production of organic, disease-free planting materials.

5.1.4 Materials allowed for the treatment of seeds include the substances listed in Annex A.

5.1.5 When the use of treated seeds is required by government authorities or phytosanitary regulations necessary to prevent the spread of seed-borne diseases, or when natural disaster like floods, drought, earthquake, pest outbreaks, or other unanticipated circumstances have occurred, causing the destruction of organic seed supply, only then can treated seeds be used.

5.1.6 The use of genetically modified seeds, transgenic plants or planting materials is not allowed.

5.1.7 Plant varieties should be bred to retain natural reproduction methods.

5.2 Crop rotations and soil management practices

5.2.1 Organic production systems are soil-based and should care for the soil and surrounding ecosystems in support of an increased diversity of species, while encouraging nutrient cycling and mitigating soil and nutrient losses.

5.2.2 Tillage and cultivation implements shall be selected and used in a manner that maintains or improves soil physical and biological quality and minimizes erosion.

5.2.3 Organic management does not undertake any actions that create any negative impacts in officially recognized high conservation value and heritage areas, such as forests wildlife protection areas and watershed areas.

5.2.4 Organic management maintains and/or enhances biodiversity on the farm holding, in crop, and, where applicable, non-crop habitats.

5.3 Fertilization practices and growth regulators

5.3.1 The fertility and biological activity of the soil should be maintained or increased, where appropriate, through:

- cultivation of legumes, green manures, or deep-rooting plants in an appropriate multi-annual rotation program;
- incorporation of organic material into the soil, composted or not, from farms which produce in accordance with this Standard; and
- use of by-products from animal production, such as farmyard manure, provided that they come from farms producing in accordance with this Standard.

5.3.2 Fertilizers and soil conditioners of plant, animal, mineral, microbiological, and other origin complying with this Standard, as listed in Annex B, must be the basis of the fertilization program provided that these follow proper composting methods. Any succession/addition/revision from relevant standard setting bodies (BAFS & FDA) shall be adopted and shall be in accordance with the criteria established in Section 12 of this Standard.

5.3.3 When supplementary application of fertilizer is needed, the materials must be certified as organic or comply with the requirements of the ~~revised~~ PNS for Organic Soil Amendments (PNS/BAFS 40:2016, ~~formerly known as the~~Revised PNS for Organic Fertilizer).

5.3.4 Runoff diversions or other means must be implemented to prevent contamination of crop production areas.

5.3.5 Application of raw or undecomposed manure is not allowed. Manure should undergo proper decomposition methods.

5.3.6 Organic and mineral (naturally mined) fertilizers and particularly those with high risk for contamination should be applied in such a way that it will have minimum adverse effect on the environment (e.g. on ground and surface water). Mineral fertilizers shall be applied in their original form and shall not be rendered more soluble by chemical treatment.

5.3.7 Storage places of manure and compost sites should be covered or sheltered in order to prevent leaching of nutrients and pollution of water.

5.3.8 Fertilizer ingredients, which may have a considerable content of heavy metals and/or other toxic substances, shall not be used.

5.3.9 Growth regulators and dyes
Only products used for regulating growth, quality, and development of plants prepared from plants, animals, and microorganisms are allowed.

5.4 Commercial production of organic fertilizer

Commercial production should follow the minimum requirements of the ~~revised~~ PNS for Organic Soil Amendments (PNS/BAFS 40:2016).

5.5 Pest, disease, and weed management

5.5.1 Preventive methods such as disruption and elimination of pest habitat and access to facilities shall be the primary mean of pest management.

5.5.2 If preventive methods are inadequate, mechanical/physical and biological methods are preferred.

5.5.3 If mechanical/physical and biological methods are inadequate for pest control, substances listed in Annex A are allowed. Other substances not listed in Annex A may be allowed if these are in accordance with the criteria established in Section 12 of this Standard.

5.5.4 The use of synthetic pesticides (e.g. herbicides, fungicides, insecticides, moluscides, nematicides, rodenticides, etc.) is prohibited.

5.5.5 Products that may be used in the control of pests and diseases are indicated in Annex A.

5.5.6 The release of local and acclimatized predatory insects, such as earwig and *Trichogramma*, and use of microbial pest control agents, such as bacteria (e.g. *Bacillus thuringiensis*), viruses (e.g. baculovirus), and fungi (e.g. *B. bassiana*), are allowed. However, these are subject to appropriate existing phytosanitary regulations and measures, as well as national registration requirements (e.g. NCBP, BPI-PQS). The release of such organisms should be done in such a manner that these do not damage the natural ecosystem, and done if other pest control measures are found ineffective.

5.5.7 Physical methods for pest, disease, and weed management are allowed. Thermic sterilization of soils to combat pest, disease, and weed is restricted in circumstances where a proper rotation or renewal of soil cannot take place.

5.5.8 Farm tools and equipment should be used exclusively in organic farms. In cases that these are not dedicated for organic production, these must be properly cleaned and free of residues from synthetic pesticides.

5.6 Pollution control and contamination management

5.6.1 Buffer zones should be established to minimize contamination from non-organic farms. These may include, but are not limited to, multi-purpose tree species of sufficient density and height, runoff diversions, water filtration ponds and/or diversion systems, and open space.

5.6.2 Products from buffer zones must not be sold as organic.

5.6.3 In cases of reasonable suspicion of pollution, an analysis of the relevant products, crops, and/or soil should be done.

5.6.4 Methods for pollution control and contamination management should follow at least the minimum requirements of Republic Act 9003: The Solid Waste Management Act.

5.7 Soil and water conservation

5.7.1 Relevant measures should be taken to prevent soil erosion and ensure water conservation. Appropriate conservation measures, including management practices such as grass waterways, contour strips, diversion canals, catch/filtration ponds, buffers, wind breaks, mulch, and cover crops to prevent wind and water erosion, must be established. Reasonable water conservation measures must be taken to avoid excessive exploitation and depletion of water resources.

5.7.2 Appropriate measures shall be taken to prevent salinization and desertification.

5.7.3 Land clearing through burning is prohibited, as per Republic Act 8749 or the Clean Air Act of 1999.

5.8 Diversity in crop production

5.8.1 The diversity of crops and cropping systems on organic farms should sustain and promote diversity that is suited to local agro-ecosystem. Crop diversification systems such as crop rotation, intercropping, alley cropping, relay cropping, and multi-story cropping may be used.

5.8.2 Bio-diversified cropping systems are encouraged.

5.9 Collection on non-cultivated materials and minor forest products

5.9.1 The location of harvesting or gathering site shall be clearly identified and the gatherer/operator managing such practices must be familiar with the proper methods of collection and contamination prevention.

5.9.2 Products of non-cultivated materials and minor forest products can only be certified if derived from a clearly defined collecting area not exposed to prohibited substances at least ~~one~~ three years prior to the first harvest. These collection areas are subject to regular inspection.

5.9.3 Collected products shall only be certified organic if derived from a stable-growing environment. Harvesting or gathering the product shall not exceed the sustainable yield of the ecosystem or threaten its ecological balance. The collection of plants or parts thereof does not disturb the stability of the natural habitat or the maintenance of the species in the collection area.

5.9.4 Organic wild harvest management excludes systems that harvest officially protected or endangered species or where harvest is prohibited by law.

5.9.5 The collection or harvest area shall be at an appropriate distance from non-organic farming or other sources of pollution and contamination.

5.9.6 The operator who manages the harvesting or gathering of common resource products shall be clearly identified and must be familiar with the defined collecting area.

6 Minimum requirements for animal production

6.1 Animal husbandry management

6.1.1 Management of the environment of the animals shall take into account the behavioral needs of the animals and provide for:

- sufficient free movement, as applicable;
- sufficient fresh air and natural daylight according to the needs of the animals;
- protection against excessive sunlight, temperatures, rain, and wind according to the needs of the animals;
- enough lying and/or resting area according to the needs of the animals. For all animals requiring bedding, natural materials shall be provided;
- free access to fresh water and feeds according to the needs of the animals; and
- access to pasture.

The competent authority may allow exceptions when the animals' physiological state, inclement weather conditions, and topography so permit, or the structure of certain traditional farming systems restrict access to pasture, providing the welfare of the animals can be guaranteed.

6.1.2. Landless animal husbandry systems and/or complete confinement of animal systems (e.g. 'battery-type' cage, single pen) are prohibited.

6.1.3 Herd animals shall not be kept individually, except in cases of the following:

- animals about to give birth or have just given birth should be separated from other animals and should be given the necessary veterinary attention; and
- as part of biosecurity measures, sick, injured, or disabled animals should be separated from healthy animals and should be given the necessary veterinary attention.

6.2 Breeds and breeding

6.2.1 Breeding goals are such that animal diversity should be maintained. Indigenous/native breeds should be preserved and promoted. Breeding activities should take into consideration the following traits:

- a reasonable productivity level even with low external input;
- adaptability to local conditions;
- longevity, temperament, and good health;
- breeds that are able to provide good quality traits and products; and
- ability of animals to give birth with minimal veterinary attention.

6.2.2 The use of artificial insemination techniques are allowed. However, artificial insemination using segregated, separated, or otherwise modified sperm is not allowed.

6.2.3 Breeding techniques that employ any of the activities listed below are not allowed:

- embryo transfer;
- genetic engineering;
- treatments with reproductive hormones; and
- semen sexing.

6.2.4 The use of genetically engineered species or breeds is not allowed.

6.3 Mutilations and animal identification

6.3.1 Mutilations are prohibited. However, the following methods are exceptions in specific cases that these can improve the welfare, health, or hygiene of the animals or for safety reasons:

- castration;
- tail cutting of lambs;
- tail-docking of pigs;
- trimming of beaks;
- de-horning;
- nose and limb ringing, for restraining; and
- cutting of teeth.

These practices should not cause suffering and comply with existing regulatory requirements of the competent authority. Qualified personnel should carry these practices at the most appropriate age and any suffering to the animals is reduced to a minimum.

6.3.2 The following methods of identification of animals are allowed:

- tattooing;
- ear notching;
- ear tagging; and
- wing tagging.

These practices shall not cause suffering and comply with existing regulatory requirements of the competent authority. Qualified personnel should carry these practices at the most appropriate age and any suffering to the animals is reduced to a minimum.

6.3.3 Keeping the animals tethered is prohibited. However, the tethering of animals is allowed if this is necessary for safety or welfare reasons, and that such tethering is for a limited time only.

6.4 Animal nutrition

6.4.1 Giving due consideration to the low availability of organic feed and roughage, the following proportion of feed ration based on the dry matter requirement particular to each animal are allowed:

YEAR	RATIO(%w/w)
Year 1	50% non-organic feed, 50% organic feed
Year 2	30% non-organic feed, 70% organic feed
Year 3	10% non-organic feed, 90% organic feed
Year 4, onwards	100% organic feed

6.4.2 Changes in proportion of the feed ration are allowed in cases of unforeseen severe natural or man-made events and extreme climatic conditions.

6.4.3 For the calculation of feeding rations, feed ingredients produced on the farm unit starting from the first year of integrated organic management may be classified as organic.

This refers only to feed for animals that are being produced within the farm unit. Such feed shall not be sold or otherwise marketed as organic.

6.4.4 In the formulation of organic feed, the following ingredients/raw materials are not allowed:

- synthetic growth promoters or stimulants;
- synthetic appetizers;
- preservatives, except when used as a processing aid;
- artificial coloring agent;
- urea and other synthetic nitrogen compounds;
- slaughter waste and other deceased animal parts;
- droppings, dung, or other manure;
- feed ingredients subjected to solvent extraction (e.g. with petroleum products);
- synthetic and/or chemically isolated amino acids;
- genetically engineered microorganisms or products thereof;
- synthetic antibiotics; and
- synthetic and/or chemically isolated vitamins and minerals.

6.4.5 All animals must have daily access to forage.

6.4.6 The diet shall be offered to the animals in a form allowing them to execute their natural feeding behavior. Forced feeding is prohibited.

6.4.7 Supplementation of vitamins and minerals is allowed for as long as these are obtained from natural sources and there is an established need for supplementation, as determined by a competent authority. However, if naturally sourced vitamins and minerals are not available in sufficient quantity or quality, synthetic sources may be used.

6.4.8 Synthetic chemical preservatives for feeds are not allowed. The following products listed in Annex ~~3~~ C Part 1 may be used alternatively. Any succession/addition/revision from relevant standard setting bodies (BAFS & FDA) shall be adopted and shall be in accordance with the criteria established in Section 12 of this Standard.

6.5 Feeding of milk to mammals

6.5.1 Young stock from mammals shall be provided organic milk. These animals shall be weaned only after a minimum time that takes into account the natural behavior of the relevant animal species.

6.5.2 However, in emergencies, the use of milk from non-organic systems and dairy based milk substitutes are allowed, provided these do not contain antibiotics or synthetic additives.

6.6 Breeding animals

6.6.1 Breeding stock may be brought in from non-organic farms with a yearly maximum of 10% of the breeder animals on the farm.

6.6.2 Exceptions can be granted with specific time limits in the following cases:

- unforeseen severe natural or man-made events;
- considerable expansion of the farm; and
- establishment of a new type of animal production on the farm or a new breed is developed.

6.6.3 When animals are obtained from farms not complying with this Standard, special attention must be paid to the animal health and biosecurity and quarantine measures, as part of the Good Animal Husbandry Practices (PNS/BAFPS 60:2008).

6.7 Biosecurity

6.7.1 Mandatory biosecurity and quarantine procedures should be well implemented to prevent introduction of disease into the farm and/or to control its spread within the farm.

6.7.2 The farm should have a written protocol of biosecurity measures. Proper warning signage should be provided.

6.7.3 The implementation of biosecurity measures should be continuously monitored to assess the effectiveness of the program.

6.7.4 The farm should have the appropriate and functional lay-out and infrastructure to ensure effective implementation of the biosecurity measures.

6.7.5 Care should be observed that all "brought-in" animals shall have undergone appropriate quarantine measures/treatment.

6.8 Animal health

6.8.1 The farm owner shall take all biosecurity measures to ensure the health and well-being of the animals through preventative animal husbandry practices such as:

- selection of appropriate breeds or strains of animals;
- adoption of Good Animal Husbandry Practices appropriate to the requirements of each species, such as regular exercise and access to pasture and/or open-air runs, to encourage the natural immunological defense of an animal to stimulate natural immunity and tolerance to diseases;
- provision of good quality feed;
- appropriate stocking densities; and
- grazing rotation and pasture management.

6.8.2 Animal health care should be supervised by a duly licensed veterinarian.

6.8.3 The well-being of the animals is superior in the choice of treatment. However, treatment must not be withheld for economic reasons (for example, if the treatment jeopardizes the organic certification of the animal).

6.8.4 Natural remedies and complementary medical methods have first priority; however, the use of allopathic or chemotherapeutic drugs is allowed when no other justifiable alternatives are available and when preventive measures are not successful as determined by the attending duly licensed veterinarian.

6.8.5 If an animal becomes sick or injured despite preventive measures, the animal shall be treated promptly and adequately. If necessary, in isolation and in suitable housing/s, producers shall not withhold such medication where it will result in the unnecessary suffering of the animal.

6.8.6 The withdrawal period between the last administration of a restricted veterinary drug to an animal under organic management is to be twice the legal withdrawal period provided in the medical insert or, in a case in which this period is not specified, 144 hours (6 days), whichever is longer. Meat, eggs of laying hens, or milk from dairy cattle must not be sold as organic during the drug administration and withdrawal period.

6.8.7 The use of antibiotics for prophylactic/preventive purposes is not allowed; however, vaccinations are allowed for the following cases under the direct supervision of a duly licensed veterinarian:

- when an endemic disease is known or expected to be a problem in the region where the farm is located and where the disease cannot be controlled by other management techniques; or
- when a vaccination is legally required.

6.8.8 The use of the following substances is prohibited:

- all steroids and other synthetic growth promoters or enhancers;
- substances of synthetic origin for production stimulation or suppression of natural growth; and
- hormones for heat and parturition induction, and heat synchronization.

However, such substances may be used in individual animals with reproductive disorders/conditions as prescribed by the attending duly licensed veterinarian.

6.8.9 Treatment records of sick animals shall be kept, clearly identifying the animals concerned, including details of the treatment and its duration, as well as the generic name of the active ingredient(s), indications and contraindications, brand name, withdrawal period, batch number, and manufacturing and expiration date of drugs used.

6.8.10 The farm operator shall keep updated and complete records of animal health programs including disease monitoring, vaccination and de-worming program, and other biosafety measures. Records should be easily accessible.

6.8.11 The farm shall maintain updated records of medicine purchased and administration that should be readily available for verification.

6.8.12 Administration records shall consist of the following Veterinary Drug Order (VDO) accompanied by a Veterinarian-Client-Patient Relationship (VCPR):

- type of drugs or medication used;
- quantity of medicine used;
- date administered;
- identification and number of animals treated;
- withdrawal period; and
- name and license of the administering veterinarian.

6.8.13 On the basis of these records, proper corrections to production practice should be made in order to minimize the need for the application of allopathic medicines.

6.8.14 A maximum of three (3) treatments using allopathic medicines is allowed per animal per year.

6.9 Transport and slaughter

6.9.1 The organic integrity of animals must be maintained throughout the entire process of transport and slaughter. Each animal or group of animals shall be identifiable at each step in the transport and slaughter process.

6.9.2 Animals shall be transported using a licensed transport carrier (DA-AO 8 Series of 2004) and accompanied by a duly licensed animal handler (DA-AO 8 Series of 2004) responsible for the well-being of the animals in accordance with the provisions of the Animal Welfare Act (RA 8485) with appropriate shipping permit.

6.9.3 Animals shall always be handled or restrained in such a way to protect them from fear, stress, pain, and injury. The handling shall be calm and gentle. The use of electric prods and such instruments shall be restricted.

6.9.4 Tools shall be used in a manner that minimizes stress and does not harm the animals. Sticks, canes, or electric prods should not be used to restrain farm animals; however, these may be used for the worker's safety when handling aggressive animals.

6.9.5 Tools, facilities, and equipment shall be functional for efficient and effective animal management. The operators shall acquire the skills and techniques to use the tools properly and appropriately.

6.9.6 The transport of organic animal shall be separated from conventional and shall be well organized and appropriate to the needs of the animals, taking into consideration the following factors:

- stress caused to the animal;
- fitness of the animal;
- process of loading and unloading;
- mixing different groups of animals or animals of different sex;
- the grip of the feet on floors and ramps;
- equipment used;
- extreme temperatures and relative humidity; and
- hunger and thirst.

6.9.7 Appropriate measures such as separate schedule of stocking during pre-slaughter and separate schedule or facility shall be implemented during slaughter to prevent commingling and contamination of organic with conventional animals. Separate slaughterhouse for organic is recommended.

6.10 Manure management

6.10.1 Manure management practices used to maintain any area in which animals are housed, penned, or pastured should be implemented in a manner that:

- minimizes soil and water degradation;
- does not significantly contribute to contamination of water by nitrates;
- optimizes recycling of nutrients; and
- does not include burning or any practice inconsistent with organic practices.

6.10.2 All manure storage and handling facilities, including composting facilities, should be designed, constructed, and operated to prevent contamination of ground and/or surface water.

6.10.3 Manure production rates should be at levels that do not contribute to ground and/or surface water contamination. The competent authority may establish maximum application rates for manure or stocking densities. The timing of application and application methods should not increase the potential for run-off into ponds, rivers, and streams.

6.11 Free range areas and housing

6.11.1 Housing for animals will not be mandatory in areas with appropriate climatic conditions to enable animals to live outdoors.

6.11.2 Animals may be temporarily confined during periods of unfavorable weather, when the health, safety, and well-being of the animal could be jeopardized, or to protect plant, soil, and water quality.

6.11.3 The stocking density in buildings should:

- provide for the comfort and well-being of the animals having regard for the species, breed, and age of the animals;
- take into account the behavioral needs of the animals with respect to the size of the group and the sex of the animals; and
- provide the animals with sufficient space to stand naturally, lie down easily, turn round, groom themselves, and assume all natural postures and movements such as stretching and wing flapping.

6.11.4 Housing, pens, equipment, and utensils should be properly cleaned and disinfected to prevent infection and contamination using the allowed cleaning materials, as listed in Annex C Part 2. Any succession/addition/revision from relevant standard setting bodies (BAFS & FDA) shall be adopted and shall be in accordance with the criteria established in Section 12 of this Standard.

6.11.5 The outdoor stocking density of animals kept on pasture, grassland, or other natural or semi-natural habitats must be kept at an optimum level as to prevent degradation of the soil and over-grazing of vegetation.

7 Minimum requirements for organic beekeeping

7.1 Choice of species

The honey bee species preferred for use in organic beekeeping include Asian Honeybees, *Apis dorsata dorsata, Apis dorsata breviligula,* and *Apis cerana*, and Stingless honeybees, *Tetragonula* spp. and *Lepidotrigona* spp. The exotic honeybee species, *Apis mellifera*, may also be considered.

7.2 Hive material/design

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

7.3 Location of colonies/apiaries

7.3.1 Wild and hived colonies should be located in organically managed fields and/or wild natural areas within a three (3) kilometer radius away from fields or other areas where chemical pesticides are used and GMO crops. For stingless bees, 500 meter radius is recommended.

7.3.2 If hives have to be migrated to other sites due to insufficient forage, predation, or habitat disturbance, the location should be recorded showing also the dates of transfer, location, and number of colonies.

7.3.3 Nests of wild or feral colonies of honeybees, *Apis dorsata dorsata* and *Apis dorsata breviligula*, and stingless bees, *Tetragonula* spp. and *Leptotrigona* spp., should be identified prior to harvest.

7.3.4 Only "warm" (yellow colored) light bulbs should be used in the apiary sites and foraging areas.

7.4 Mutilations in beekeeping

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

7.5 Supplemental feeding

Supplemental feeding with honey, pollen, or organic sugar should be done during dearth period or when pollen and nectar are not sufficient. The feed should come from organic sources such as reserves of honey and pollen left during harvesting.

7.6 Bee stock sources

7.6.1 Importation is not allowed for *Apis cerana*, stingless bees, and solitary bee species.

7.6.2 The starter colonies should be sourced from apiaries that are free from pests (mites, hive beetles) and diseases (American Foul Brood, European Foul Brood, Virus diseases, fungal diseases). Importation of *Apis mellifera* queens may be allowed from countries with no known Africanized Honey Bee (AHB) populations and colony collapse disorder (CCD).

7.7 Pest and disease control/disinfection

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

7.7.2 For pest and disease control, the following are allowed:

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

7.7.3 Colonies infected with American Foul Brood should be destroyed through burning. The use of antibiotics is prohibited. For disease and pest control, the following products may be used:

- formic acid;
- lactic acid;
- sucrocide; and
- botanicals.

7.7.4 Cleaning and disinfection should be done using heat such as blowtorch / flame torch or hot water, or other mechanical means.

7.8 Harvesting

7.8.1 The use of chemical synthetic repellents is prohibited during extraction of beekeeping products.

7.8.2 The Moisture Content (MC) of ripe honey should be from 21 to 23%.

7.9 Apiary conservation and stability

Twenty percent (20%) of the honey comb or stores should be reserved and not cut. These serve as food reserve of the bees during the dearth period.

7.10 Processing/packaging specific to bee products

7.10.1 Processing equipment is thoroughly cleaned with hot water prior to processing.

7.10.2 Surfaces in direct contact with the honey are constructed from sterilized materials.

7.10.3 Honey should be packed in sterilized food grade containers.

8 Minimum requirements for special products

The provisions for organic agriculture shall be applicable for special products and shall meet the following requirements:

8.1 Mushrooms

8.1.1 Substrate materials for the production of mushrooms must be free of pollutants, contaminants (e.g. heavy metals and pesticides), and pathogens.

8.1.2 Chemical pesticides, fungicides, herbicides, or fertilizers must not be used.

8.1.3 Clean and uncontaminated water must be used in the production of mushrooms.

8.2 Herbs

8.2.1 Over-harvesting wild herbs must be avoided to ensure the sustainability of the species concerned.

8.2.2 Only herbs in their prime shall be harvested.

8.2.3 Herbs shall not be dried in direct sunlight to preserve their benefits; neither shall they be dried in locations prone to contamination.

8.2.4 The package shall be labeled with an expiration date or “best by date” depending on the product and process.

9 Minimum requirements for processed organic products

The integrity of the organic product must be maintained throughout the processing phase. This is achieved by the use of techniques appropriate to the specifics of the ingredients with careful processing methods limiting and refining the use of additives and processing aids.

Compliance to the relevant regulatory requirements (i.e. Good Manufacturing Practices) and compliance to relevant regulatory agencies (BAI, BPI, FDA, NMIS, DENR, and LGUs) should be met in conjunction with the requirements of this Standard.

The provisions for organic agriculture for processing shall meet the following requirements:

9.1 Postharvest operations

9.1.1 Organic produce shall neither be mixed nor switched with non-organic produce. Handlers and processors shall not commingle organic products with non-organic products.

9.1.2 Processing and handling of organic and non-organic products must be done separately in time and/or place.

9.1.3 When equipment is not exclusively used for organic products, the equipment should be properly cleaned before processing organic products.

9.1.4 All products shall be adequately identified through the whole process until final labeling.

9.2 Storage, processing, and transportation

9.2.1 Organic and non-organic products shall not be stored and transported together except when physically separated and labeled.

9.2.2 Product integrity should be maintained during any storage and transportation and handling by use of the following precautions:

a) organic products must be protected at all times from commingling with non-organic products; and
b) organic products must be protected at all times from contact with materials and substances not permitted for use in organic farming and handling.

9.2.3 Where only part of the unit is certified, other product not covered by these guidelines should be stored and handled separately and both types of products should be clearly identified.

9.2.4 Bulk stores for organic product should be separate from non-organic product stores and clearly labeled to that effect.

9.2.5 Storage areas and transport containers for organic product should be cleaned using methods and materials permitted in organic production. Measures should be taken to prevent possible contamination from any pesticide or other treatment.

9.3 Pest control in storage and processing

For pest management and control, the following measures, in order of preference, should be used:

a) preventative methods, such as disruption and elimination of habitat and access to facilities by pest organisms, should be the primary methodology of pest management;
b) if preventative methods are inadequate, the first choice for pest control should be mechanical/physical and biological methods; and
c) if mechanical/physical and biological methods are inadequate for pest control, substances appearing in Annex A (or other substances allowed for use by a competent authority) may be used provided that they are accepted for use in handling, storage, transportation, or processing facilities by the competent authority and so that contact with organic products is prevented. Any succession/addition/revision from relevant standard setting bodies (BAFS & FDA)

shall be adopted and shall be in accordance with the criteria established in Section 12 of this Standard.

9.4 Ingredients of agricultural origin

9.4.1 In cases where an ingredient of organic agricultural origin is not available in sufficient quantity or quality from origin, non-organic raw materials can be used to the limits set in labeling stated in this Standard. These raw materials shall not be genetically engineered.

9.4.2 The same ingredient in one product shall not be derived from both an organic and non-organic origin.

9.4.3 The use of vitamins and minerals shall be in accordance with Republic Act 8976 "An Act Establishing the Philippine Food Fortification Program and for Other Purposes". Organic processing only uses minerals (including trace elements), vitamins, essential fatty acids, essential amino acids, and other isolated nutrients when their use is legally required or strongly recommended by the competent authority in the food products in which they are incorporated.

9.5 Processing aids and other ingredients

9.5.1 Substances used as processing aids are listed in Annex E. Any succession/addition/revision from relevant standard setting bodies (BAFS & FDA) shall be adopted and shall be in accordance with the criteria established in Section 12 of this Standard.

9.5.2 Only natural ripening agents are allowed, for as long as their application will not deceive consumers of the nature, substance, and quality of the product.

9.5.3 Additives and processing aids shall be used under the following conditions:

- if the purpose is to maintain the nutritional value of a product;
- if the purpose is to enhance the keeping quality or stability of the product;
- if the purpose is to provide the product with an acceptable composition, consistency, and appearance;
- there is no possibility of producing a similar product without the use of the additive or processing aid;
- it is not included in amounts greater than the minimum required to achieve its function;
- it does not in any major way detrimentally affect the environment; and
- it shall not deceive the consumer concerning the nature, substance, and quality of the food.

9.5.4 The use of salt and water must comply with the FDA regulations such as Republic Act No. 8172, PNS for drinking Water, DOH-AO 2007-001, and the FDA Bureau Circular No. 2007-009.

9.5.5 Preparations of microorganisms and enzymes normally used in food processing may be used, except for genetically engineered microorganisms and their products.

9.6 Methods of processing

9.6.1 Techniques used to process organic products shall be biological, physical, and mechanical in nature. Any additive, processing aid, or other material that reacts chemically with organic products or modifies it must appear in Annex E and shall be used in accordance with noted restrictions. Any succession/addition/revision from relevant standard setting bodies

(BAFS & FDA) shall be adopted and shall be in accordance with the criteria established in Section 12 of this Standard.

9.6.2 Filtration equipment shall not contain asbestos or utilize techniques or substances that may contaminate the product. Filtration agents are considered processing aids.

9.6.3 Extraction shall only take place with water, ethanol, oil, CO_2, N_2, or naturally occurring acids or bases provided that they are used in appropriate quantity and process.

9.6.4 The use of ionizing radiation is not allowed for any ingredient or the final product.

9.6.5 Substances and techniques shall not be used such that:

- these reconstitute properties lost by the processing and storage of organic products;
- these conceal negligent processing;
- these may otherwise be misleading as to the true nature of these products; and
- water may be used for re-hydration or reconstitution.

9.7 Methods of cleaning

9.7.1 Operators shall take all necessary precautions to protect organic food against contamination by substances prohibited in organic agriculture and handling pest, disease-causing organisms, and foreign substances.

9.7.2 Substances used for cleaning or disinfection of storage, transport, and processing facilities are listed in Annex ~~6~~F. Any succession/addition/revision from relevant standard setting bodies (BAFS & FDA) shall be adopted and shall be in accordance with the criteria established in Section 12 of this Standard.

9.7.3 Operations that use cleaners, sanitizers, and disinfectants on food contact surfaces shall use them in a way that maintains the organic integrity of the food. Unless otherwise noted in the Annex F, the operator is required to perform an intervening event between the use of any cleaners, sanitizers, or disinfectant and the contact of the organic food in that surface. Acceptable intervening events include a hot-water rinse, a sufficient flush of organic product that is not sold as organic product, or adequate time for the substances to volatilize.

9.7.4 Operators shall prevent the residues of boiler water additives from direct contact with organic food by the use of entrained water, filters, traps, or other means that prevent steam in contact with organic foods from carrying such compounds.

9.7.5 Handlers and processors shall make a plan and maintain a report of cleaners, disinfectants, and sanitizers used by certified organic handling and processing operations. This report should include a list of the cleaning, disinfecting, and sanitizing agents currently used in certified organic facilities.

9.8 Packaging

9.8.1 Organic products must be not packed in reused bags or containers that have been in direct contact with any substance that would likely compromise the integrity of the product or ingredient placed in those containers, unless reusable bags or containers have been thoroughly cleaned and pose no risk of contamination.

9.8.2 Plastic materials made of plastic and paper should be from virgin materials while packaging materials made of glass shall be sterilized before use. Use of packaging materials from biodegradable, recycled, or recyclable sources is encouraged.

10 Minimum requirements for labeling and consumer information

10.1 Labeling

10.1.1 Labeling fully discloses ingredients in the order of their weight percentages and whether or not they are organic. Furthermore, food ingredient declaration and naming of additives shall be in accordance with the latest FDA Guidelines for food labeling of pre-packaged foods.

As an exemption:
If herbs and/or spices constitute less than 2% of the total weight of the product, they may be listed as "spices" or "herbs".

10.1.2 Labeling identifies the entity legally responsible for the product and the body that assures conformity to the applicable organic standard.

10.1.3 Claims that processed products are "organic" can be made only if the product contains 95%, higher organic ingredients. Claims that processed products are "made with organic ingredients" or similar terms are made only if the product contains 95%-70% organic ingredients. Where less than 70% of the ingredients are of certified organic origin, the indication that an ingredient is organic may appear in the ingredient list. Such product may not be labeled "organic." These percentages are measured by weight for solids or by volume for liquids- excluding water and salt. The remaining non-organic ingredients from agricultural and non-agricultural sources shall not be genetically modified, irradiated, or treated with processing aids not listed in Annex E.

10.1.4 Labeling clearly distinguishes in-conversion products or similar terms from organic products. Labeling ensures that products labeled as "organic" or "in-conversion", or an equivalent term (e.g. biologic or ecological), comply with the applicable organic standards.

10.1.5 Products which only consist of certified wild ingredients shall be labeled "wild" or "natural". A multi-ingredient product containing both certified organic agricultural and certified wild/natural origin may be labeled as organic.

11 Traceability and recordkeeping

11.1 Each separate production site is identified by a name or code. The name or code is placed on the site and recorded on a property map. The site name or code is recorded on all documents and records that refer to the site.

11.2 Operators shall maintain purchase, handling, and processing records, also stock inventory of all materials used for organic production, processing, and handling as well as finished products.

11.3 Documentation and records shall clearly identify the source, movement, use, and inventory of organic from non-organic materials at all stages of production/processing and handling.

11.4 Records, documentation, and accounts shall provide traceability and be made available to the competent authority and certifying bodies for audit trail and trace back verification at any time.

11.5 Abovementioned records (including those related to use of sub-contractors) shall follow a retention period of at least five (5) years.

12 Minimum requirements for inclusion of substances in Annexes A, B, C, E, and F in Organic Agriculture Production Systems

12.1 At least the following criteria should be used for the purposes of amending the permitted substance lists referred to in the Annexes A, B, C, E, and F. Any proposals for the inclusion in Annex C of new substances must meet the following general criteria:

- they are consistent with principles of organic production as outlined in this Standard;
- use of the substance is necessary/essential for its intended use;
- manufacture, use, and disposal of the substance does not result in, or contribute to, harmful effects on the environment;
- they have the lowest negative impact on human or animal health and quality of life; and
- approved alternatives are not available in sufficient quantity and/or quality.

12.2 The above criteria are intended to be evaluated as a whole in order to protect the integrity of organic production. In addition, the following criteria should be applied in the evaluation process:

a) if they are used for fertilization, soil conditioning purposes:
   - they are essential for obtaining or maintaining the fertility of the soil or to fulfill specific nutrition requirements of crops, or specific soil conditioning and rotation purposes which cannot be satisfied by the practices included in Annex A, or other products included in Annex B;
   - the ingredients will be of plant, animal, microbial, or mineral origin and may undergo the following processes: physical (e.g. mechanical, thermal), enzymatic, microbial (e.g. composting, fermentation); only when the above processes have been exhausted, chemical processes may be considered and only for the extraction of carriers and binders;
   - their 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; and
   - their use may be restricted to specific conditions, specific regions, or specific commodities.

b) if they are used for the purpose of plant disease or pest and weed control:
   - they should be essential for the control of a harmful organism or a particular disease for which other biological, physical, or plant breeding alternatives and/or effective management practices are not available;
   - their use should take into account the potential harmful impact on the environment, the ecology (in particular non-target organisms), and the health of consumers, livestock, and bees;
   - substances should be of plant, animal, microbial, or mineral origin and may undergo the following processes: physical (e.g. mechanical, thermal), enzymatic, microbial (e.g. composting, digestion);

- however, if they are products used in exceptional circumstances, in traps and dispensers such as pheromones which are chemically synthesized, they will be considered for addition to lists if the products are not available in sufficient quantities in their natural form, provided that the conditions for their use do not directly or indirectly result in the presence of residues of the product in the edible parts; and
- their use may be restricted to specific conditions, specific regions, or specific commodities.

c) if they are used as additives or processing aids in the preparation or preservation of the food:
   - these substances are used only if it has been shown that, without having to recourse to them, it is impossible to:
     a. produce or preserve the food, in the case of additives, or
     b. produce the food, in the case of processing aids, in the absence of other available technology that satisfies these guidelines; these substances are found in nature and may have undergone mechanical/physical process (e.g. extraction, precipitation), biological/enzymatic processes, and microbial processes (e.g. fermentation)
   - or, if these substances mentioned above are not available from such methods and technologies in sufficient quantities, then those substances that have been chemically synthesized may be considered for inclusion in exceptional circumstances;
   - their use maintains the authenticity of the product;
   - the consumer will not be deceived concerning the nature, substance, and quality of the food; and
   - the additives and processing aids do not detract from the overall quality of the product.

References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ASEAN Standard for Organic Agriculture.

CAC. 1999. Codex Alimentarius Commission. Standards for Organic Agriculture 3rd edition.

CAC. Codex Alimentarius Commission. The General Principles for the Addition of Essential Nutrients to Foods.

European Union. 2007. Council Regulation (EC) No 834/2007 on organic production and labelling of organic products and repealing Regulation (EEC) No 2092/91.

European Union. 2008. Commission regulation (EC) No 889/2008 on laying down detailed rules for the implementation of Council Regulation (EC) No 834/2007 on organic production and labelling of organic products with regard to organic production, labelling and control.

IFOAM. 2012. International Federation of Organic Agriculture Movements (IFOAM) Norms for Organic Production and Processing 2012.

PAES. 2001. Philippine Agricultural Engineering Society (PAES) 401:2001.

PCAARRD. 2001. The Philippine Recommends for Forage and Pasture Crops. Series # 12D.

USDA. USDA National Organic Program Standards for Organic Agriculture.

ANNEXES

Annex A: List of Permitted Crop Protectants, Growth Regulators, and Seed Treatments for the Production of Organic Food

Substances Description, Compositional Requirements	Conditions for Use
I. CROP PROTECTANTS	
Chitin nematicides	
Coffee grounds	
Corn gluten meal	
Natural acids (e.g. vinegar)	
Preparations/products from Neem (*Azadirachta spp.*)	
Fermented product from Aspergillus	
Plant and animal oils	
Natural farming preparations (plant extracts) such as Fishtail palm extracts	
Plant based repellents such as fermented plant juice, marigold.	
Preparations of *Chrysanthemum cinerariaefolium*.	The addition of synthetic Piperonyl butoxide to Chrysanthemum preparation is prohibited
Preparations from *Quassia amara*	
Preparations of Rotenone from *Derris elliptica, Lonchocarpus, Thephrosia* spp.)	The substance should be used in such a way as to prevent its flowing into waterways.
Preparations from *Ryania speciosa*	Need recognized by the certification body or authority.
Spinosad	Use only where measures are taken to minimize the risk to parasitoids and to minimize the risk of development of resistance. Need prescription and application rates recognized by competent authority
Sabadilla	
Tobacco tea (pure nicotine is prohibited)	Need to be recognized by the competent authority
Chloride of lime	
Copper salts (e.g. sulfate, hydroxide, oxychloride, octanoate, cuprous oxide, Bordeaux mixture and Burgundy mixture)	Need, prescription and application rates recognized by certification body or authority. As a fungicide on condition that the substance is used in such a way as to minimize copper accumulation in the soil. Restricted to a maximum application of 6 kg/ha per year
Diatomaceous earth	Need to be recognized by the competent authority
Light mineral oils (paraffin)	Need to be recognized by the competent authority
Lime sulfur (Calcium polysulfide)	
Sodium bicarbonate	
Calcium hydroxide (hydrated lime)	For foliar application only
Potassium bicarbonate	
Potassium permanganate	Need to be recognized by the competent

	authority
Iron phosphates	Need to be recognized by the competent authority
Calcium Oxide (Quicklime)	
Sulfur (in elemental form)	Other forms need to be recognized by the competent authority
Fungal preparations (e.g. *Metarhizium anisopliae, Trichoderma harzianum, Beauveria bassiana*)	
Bacterial preparations (e.g. *Bacillus thuringiensis,* spinosad)	
Release of parasites (e.g. *Trichogramma sp.*), predators (e.g. ladybird beetle, earwig and lacewing) and sterilized insects	
Viral preparations (e.g. *granulosis* virus, Nuclear Polyhedrosis Virus (NPV), etc.)	
Potassium soap (soft soap)	
Rodenticides	Should come from natural origin.
Sulfur dioxide	
Thermal controls	
Traditional preparations (of non-synthesized chemical nature) based on natural products	
Physical methods (e.g. chromatic traps, mechanical traps)	
Mineral oils	Need to be recognized by the competent authority.
Mulches (including plastic mulch), nets	
Pheromones and attractants	Use in traps and dispensers only
Preparations on the basis of metaldehyde containing a repellent to higher animal species	As far as applied in traps.
II. GROWTH REGULATORS	
Algal preparations	As far as obtained by: (i) physical processes (ii) extraction with water or potassium hydroxide solutions, (iii) fermentation.
Animal preparations and oils e.g. fish extracts	
Beeswax	
Dairy products (e.g. milk, casein)	
Seaweed, seaweed meal, seaweed extracts	Subject to BFAR regulations
Gelatine	
Lecithin	
Extract from mushroom (Shiitake fungus)	
Propolis	
Ethylene	For degreening of citrus for fruit fly prevention and as a flowering agent for pineapples. As sprouting inhibitor for potatoes and onions: Need recognized by the competent authority for sprout inhibition of stored potatoes and onions where varieties that have long dormancy

	characteristics are not available, or these varieties are not suited to local growing conditions. Must be used in a manner that minimizes exposure to operators and workers for ripening of kiwifruit, bananas, and other tropical fruit.
Potassium hydrogen carbonate	
III. SEED TREATMENTS	
Wood ash	
Clay (e.g. bentonite, perlite, vermiculite, zeolite)	
Silicates (e.g. sodium silicates, quartz)	
Carbon dioxide and nitrogen gas	
Ethyl alcohol	
IV. GROWTH REGULATOR AND SEED TREATMENT	
Mineral powders (stone meal)	
V. CROP PROTECTANT AND SEED TREATMENT	
Sterilized insect males to be used transferred under crop protectant category	
Sea-salt and salty water	
VI. CROP PROTECTANT, GROWTH REGULATOR AND SEED TREATMENT	
Herbal and biodynamic preparations	
Soda	
Sterilized insect males	
Homeopathic and Ayurvedic preparations	

Annex B: List of Allowed Fertilizers and Soil Conditioners

Substances Description, Compositional Requirements	Conditions for Use
i. Plant and Animal Origin	
Animal manure (including dried), slurry, urine, compost	The use of factory farm manure is only permitted if it undergoes full decomposition (e.g. composting/fermentation) and needs recognition from the competent authority. However, the use of pig and poultry (raised in battery cages) manure shall be subjected to the competent authority's regulation.
Guano	Rate of extraction is subject to DENR regulations
Blood meal, bone, and other meal brought in from other sources and without preservatives	Origin of materials should be disease-free
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, sugar press mud/mud press or textile processing	By-products should not come from GM sources (Not treated with synthetic additives) Without synthetic additives and residues
By-products from oil, palm, coconut and cocoa (including empty fruit bunch, coir, husks, - palm oil mill effluent (pome), cocoa peat and empty cocoa pods	
Crop residues (straw, peanut hulls, etc.)	
Mulches from sugar cane trash, straw, etc.	
Green manure and green leaf manure	
Azolla	
Wood, bark, sawdust, wood shavings, wood ash, wood charcoal, wood/bamboo vinegar	Should not be treated by synthetic chemical
Calcium lignosulfate	Recognized by the competent authority
Seaweed and seaweed products and by-products, algae	Subject to BFAR regulations
Peat	Excluding synthetic additives; permitted for seed, potting module composts. Not permitted as a soil conditioner.
Plant preparations and extracts	
Compost made from ingredients listed in this appendix, spent mushroom waste, humus from worms and insects and vermiculture substrate	
Kitchen waste	
Segregated biodegradable market waste	Has undergone proper segregation, and does not contain hazardous materials
Naturally occurring biological organisms e.g. worms	
ii. Mineral Origin	
Basic slag	Recognized by the competent authority
Calcareous and magnesium amendments	Recognized by the competent authority

Limestone, marl, maerl, chalk, sugar beet lime	Recognized by the competent authority
Calcium chloride solution	Only from natural sources/origin
Chloride of lime	Only from natural sources/origin
Gypsum (calcium sulphate)	Only from natural sources/origin
Magnesium rock, kieserite and Epsom salt (magnesium sulfate)	Only from natural sources/origin
Rock potash, mined potassium salts (e.g. kainite, sylvinite)	Less than 60% chlorine
Sulphate of potash (e.g. patenkali)	Obtained by physical procedures but not enriched by chemical processes to increase its solution
Sulfur	Allowed if from natural source
Sedimentary rocks (limestone, dolomite, rock phosphate)	Cadmium should not exceed 90mg/kg P_2O_5 May contain elevated levels of trace elements. Detailed chemical analysis is necessary. Their widespread extraction can also deplete the natural deposits and may cause negative environmental impact. Rate of extraction is subject to DENR regulations.
Pulverized rock, stone meal	May contain elevated levels of trace elements. Detailed chemical analysis is necessary. Their widespread extraction can also deplete the natural deposits and may cause negative environmental impact. Rate of extraction is subject to DENR regulations.
Clay (e.g. bentonite, perlite, vermiculite, zeolite)	
Sodium chloride	Only mined salt
Trace elements (e.g. boron, copper, iron, manganese, molybdenum, zinc)	Need recognized by the competent authority
Stillage and stillage extract	Ammonium stillage excluded
Aluminum calcium phosphate	Cadmium should not exceed 90mg/kg P_2O_5
iii. Microbiological	
Biodegradable processing by-products of microbial origin, e.g. by-products of brewery or distillery processing	
Microbial preparations (i.e. *Trichoderma, Rhizobia, Mychorrizae*, others) of non-GMO origin	
iv. others	
Biodynamic and Agnihotra preparations	

Annex C: Substances and Materials for Animal Production

Part 1: Allowed Livestock Feed ingredients

1) Feedstuffs of plant origin from non-organic sources, such as but not limited to, can only be used, if they are produced or prepared without the use of chemical solvents or chemical treatment:

1.1. Cereals, grains, their products and by-products. The following substances are included in this category:

Oats as grains, flakes, middling, hulls and bran; barley as grains, protein and middling; rice as grains, rice broken, bran, and germ expeller; millet as grains; rye as grains, middling, feed and bran; sorghum as grains; wheat as grains, middling, bran, gluten feed, gluten and germ; spelt as grains; triticale as grains; maize as grains, bran, middling, bran, germ expeller and gluten; malt culms; brewers' grains.

1.2. Oil seeds, oil fruits, their products and by-products. The following substances are included in this category:
Rape seed, expeller, and hulls; soya bean as bean, toasted, expeller and hulls; sunflower seed as seed and expeller; cotton as seed and seed expeller; linseed as seed and expeller; sesame seed as seed and expeller; palm kernels as expeller; turnip rape seed as expeller and hulls; pumpkin seed as expeller; olive pulp (from physical extraction of olives).

1.3. Legume seeds, their product and by-products. The following substances, but not limited to, are included in this category:

Chick peas as seeds; ervil as seeds; chickling vetch as seeds submitted to an appropriate heat treatment; peas as seeds, middling, and bran; broad beans as seeds, middling and bran; horse beans as seeds, vetches as seeds and lupin as seeds. (Mungbean, peanut, and other native legumes)

1.4. Tuber roots, their products and by-products. The following substances, but not limited to, are included in this category:

Sugar beet pulp, dried beet, potato, sweet potato as tuber, manioc as roots, potato pulp (by-product of the extraction of potato starch), potato starch, potato protein and tapioca.

1.5. Other seeds and fruits, their products and by-products. The following substances, but not limited to, are included in this category:

Carob pods, citrus pulp, apple pomace, tomato pulp, and grape pulp.

1.6. Forages and roughages. The following substances, but not limited to, are included in this category:

Lucerne, lucerne meal, clover, clover meal, grass (obtained from forage plants), grass meal, hay, silage, straw of cereals, and root vegetables for foraging.

1.7. Other plants, their products and by-products. The following substances, but not limited to, are included in this category:

Molasses as a binding agent in compound feeding stuffs, seaweed meal (obtained by drying and crushing seaweed and washed to reduce iodine content), powders and extracts of plants, plant protein extracts (solely provided to young animals), spices and herbs.

2) Feedstuffs of mineral origin trace elements, vitamins, or provitamins, such as but not limited to, can only be used if they are of natural origin. In case of shortage of these substances, or in exceptional circumstances, chemically well-defined analogic substances may be used:

2.1. Feedstuffs of mineral origin, and trace elements:
2.1.1. Sodium:
- unrefined sea salt
- coarse rock salt
- sodium sulphate
- sodium carbonate
- sodium bicarbonate
- sodium chloride

2.1.2. Calcium:
- lithotamnion and maerl
- shells of aquatic animals (including cuttlefish bones)
- calcium carbonate
- calcium lactate
- calcium gluconate

2.1.3. Phosphorus:
- bone dicalcium phosphate precipitate
- defluorinated dicalcium phosphate
- defluorinated monocalcium phosphate

2.1.4. Magnesium:
- anhydrous magnesia
- magnesium sulphate
- magnesium chloride
- magnesium carbonate

2.1.5. Sulphur:
- sodium sulphate

2.1.6. Iron:
- ferrous (II) carbonate
- ferrous (II) sulphate monohydrate
- ferric (III) oxide

2.1.7. Iodine:
- calcium iodate, anhydrous
- calcium iodate, hexahydrate
- potassium iodide

2.1.8. Cobalt:
- cobaltous (II) sulphate monohydrate and/or heptahydrate
- basic cobaltous (II) carbonate, monohydrate

2.1.9. Copper:
- copper (II) oxide
- basic copper (II) carbonate, monohydrate
- copper (II) sulphate, pentahydrate

2.1.10. Manganese:
- manganese (II) carbonate
- manganese oxide and manganic oxide
- manganese (II) sulfate, mono- and/or tetrahydrate

2.1.11. Zinc:
- zinc carbonate
- zinc oxide
- zinc sulphate mono- and/or hepta-hydrate

2.1.12. Molybdenum:
- ammonium molybdate
- sodium molybdate

2.1.13. Selenium:
- sodium selenate
- sodium selenite

2.2. Vitamins, provitamins, and chemically well-defined substances having a similar effect. The following substances are included in this category:

2.2.1. Vitamins:
- Preferably derived from raw materials occurring naturally in feeding stuffs
- Synthetic vitamins identical to natural vitamins only for non-ruminant animals

3) Feedstuffs of animal origin, with the exception of milk and milk products, fish, other marine animals, and products derived therefore should generally not be used or, as provided by national legislation. In any case, the feeding of mammalian material to ruminants is not permitted with the exception of milk and milk products:

3.1. Feed materials from animal origin
3.1.1. Milk and milk products. The following substances are included in the category:
- raw milks
- milk powder
- skimmed milk
- skimmed-milk powder
- buttermilk
- buttermilk powder
- whey
- whey powder
- whey powder low in sugar
- whey protein powder (extracted by physical treatment)
- casein powder
- lactose powder

3.1.2. Fish, other marine animals, their products and by-products. The following substances are included in the category:
- fish

- fish oil
- cod-liver oil not refined
- fish molluscan or crustacean autolysates, hydrolysate and proteolysates obtained by an enzyme action, whether or not in soluble form, solely provided to young animals
- fish meal

4) Synthetic nitrogen or non-protein nitrogen compounds shall not be used.

5) Binders, anti-caking agents, emulsifiers, stabilizers, thickeners, surfactants, coagulants: only natural sources, such as but not limited to, are allowed:

- E 551b Colloidal silica
- E 551c Kieselgur
- E 553 Sepiolite
- E 558 Bentonite
- E 559 Kaolinitic clays
- E 561 Vermiculite
- E 599 Perlite

6) Antioxidants: only natural sources are allowed.

7) Preservatives: only natural acids are allowed.

8) Colouring agents (including pigments), flavours, and appetite stimulants: only natural sources are allowed.

9) Probiotics, enzymes and micro-organisms are allowed.

10) Antibiotics, coccidiostatics, medicinal substances, growth promoters or any other substance intended to stimulate growth or production shall not be used in animal feeding.
Silage additives and processing aids may not be derived from genetically engineered/modified organisms or products thereof, and may be comprised of only:

1. sea salt;
2. coarse rock salt;
3. yeasts;
4. enzymes;
5. whey;
6. sugar; or sugar products such as molasses;
7. honey;
8. lactic, acetic, formic and propionic bacteria, or their natural acid product when the weather conditions do not allow for adequate fermentation, and with approval of the competent authority

Part 2: Allowed cleaning / disinfection agents for animal housing buildings

Acetic acid
Alkali carbonates
Citric acid
Cleaning and disinfection agents for teats and milking facilities
Ethanol
Honey
Hydrogen peroxide
Isopropanol
Lactic acid
Lime
Milk of lime
Natural essences of plants
Nitric acid (dairy equipment)
Oxalic acid
Peracetic acid
Plant oils
Potassium hydroxide
Potassium soap
Propolis
Quicklime
Sodium carbonate
Sodium hydroxide
Sodium hypochlorite (household bleach)
Sodium soap
Water and steam

Part 3: Veterinary Medicines

Restricted Medications

Restricted veterinary medicines are defined as those whose use involves a withholding period which is double of the medical insert or 24 hours, whichever is longer and of which record keeping is required.

Unrestricted Medicines

- Herbs are generally permitted.
- Homeopathic and anthroposophic medication from natural sources is also permitted, as is acupuncture.
- Salves, tinctures, and colored antiseptics from natural sources are permitted.
- Mineral Preparations
  - Calcium borogluconate
  - Calcium gluconate
  - Calcium chloride
  - Calcium phosphate
  - Ca/ Mg mixes
  - Natural iron preparation, such as nettle
- Purgatives
  - Herbs such as mustard leaves
  - Castor oil
- Forage additives
  - Linseed
- Vitamins
  - All non-synthetic
- Anti-diarrhea medications
  - Medical charcoal
  - Oak bark and / or chalk
- Electrolytes
  - All, such as Ringer's solution, physiological NaCl (0.9% saline solution), etc.

Annex D: Maximum allowed stocking densities for animal production

Table D.1 Maximum allowed stocking densities for livestock

Animal Type	Indoor space, m^2 per head	Outdoor space, animal unit (au) per hectare (ha)
*Cattle (Brahman) 200-350 kg		
Native pasture		0.5-1
Legumes + native grass		1.5-2
Improved grass and legumes		2-3
*Sheep and Goats 25-30 kg		
**Ewe / Doe	1.50	
**Ram / Buck	2.00	
**Fattener	1.00	
*Native pasture		5-10
*Legumes + native grass		15-20
*Improved grass and legumes		20-30
***Swine		
Farrowing sow and piglets	7.5 per sow	2.5 per sow
Piglets over 40 days up tp 30 kg	0.6	0.4
Brood pigs		
*Female	2.5	1.9
*Male	10	8
Fattening pigs (kg)		
*up to 50 kg	0.8	0.6
*up t0 85 kg	1.2	0.8
*up to 110 kg	1.3	1

Table D.2 Maximum stocking densities for poultry

	Indoor Floor Space	Outdoor runs	Perch Space
Broilers	0.09 m^2/bird[a]	0.09 m^2/bird	
Pullets	0.09 m^2/bird[a]	0.09 m^2/bird	
Layers	0.17 m^2/bird[a]	0.17 m^2/bird	0.15 m per bird[b]
Turkey/Large birds	36.62 kg/ m^2	0.37 m^2/ bird	0.41 m per bird[b]

NOTE: [a] Canadian Standards
[b] Humane Farm Animal Care

***Maximum indoor density**		
Layer	6 birds/m^2	4 layers/m^2
Meat poultry	10 birds/m^2	4 meat/m^2

* European Union, UK Standard, Canadian Standard

Annex E: List of Permitted Additives, Processing Aids for the Production of Organic Food

Additive / Processing Aid	Application / Conditions
Calcium carbonate	
Tannin	Wine
Tannic acid	Wine, Filtration aids
Sulphur dioxide	Wine
Potassium metabisulphite	Wine
Lactic acid	Fruit/Vegetable Concentrated fruit/vegetable juice & fermented vegetable products
Carbon dioxide	
Malic Acid (DL-)	
Ascorbic acid	Fruit/ Vegetable
Tocopherols	Mixed natural concentrates
Lecithin	Obtained without use of bleaches and organic solvents
Citric acid	Not more than 1 gram/liter. Produced by microbial fermentation of carbohydrate substances
Calcium citrates	
Tartaric acid	Wine
Sodium tartrate	Cake/biscuit/confectionery
Potassium tartrate	Cereal/cake/biscuit/confectionery
Potassium sodium tartrate	
Calcium phosphate [monobasic; dibasic; tribasic]	Cereal, For raising flour only
Ammonium phosphate	Wine, Restricted to 0.3 gm/l
Alginic acid	
Sodium alginate	
Potassium alginate	
Agar	
Carrageenan	
Locust bean gum	
Guar gum	
Tragacanth gum	IFOAM accredited programme
Arabic gum	Confectionery
Xanthan gum	Fruit/ Vegetable/ Cake/ Biscuit
Karaya Gum	
Gellan gum	
Glycerol	Obtained from plant origin; used as a carrier for plant extracts
Gelatin	
Pectins	For jam production (non-amidated) / unmodified
Sodium carbonates	Cake/Biscuit/Confectionery [Sugar]
Potassium carbonate	Cereal/ Cake/ Biscuit/ Confectionery. [Fruit/ Vegetable/ Wine]
Ammonium carbonates	Cereal/ Cake/ Biscuit/ Confectionery. Used as leavening agent.
Magnesium carbonates	Cereal/ Cake/ Biscuit/ Confectionery
Potassium chloride	Only for frozen and canned fruit and vegetable,

	ketchup and mustard
Calcium chloride	Soybean/ Fruit/ Vegetable
Magnesium chloride	Derived from sea water, for soybean products
Sulphuric acid	Sugar, pH adjustment of water
Calcium sulphate	From mined source, coagulating agent For soybean products, confectionery and in bakers' yeast
Ammonium sulphate	Wine, restricted to 0.3 mg/l
Sodium hydroxide	For sugar processing and for the surface treatment
Calcium hydroxide	
Silicon dioxide (silica)	Fruit/ Vegetable/ Wine
Talc	
Bentonite	Fruit/ Vegetable
Glucono delta-lactone	Production by oxidation of D-glucose with bromine water is prohibited. *for verification
Beeswax	
Carnauba wax	
Argon	
Nitrogen	
Oxygen	
Activated carbon / Charcoal	Only from vegetative sources. For use only as filtering aid.
Asbestos free filter materials	
Attapulgite	Processing aid for plant and animal oils
Casein	Wine
Cellulose	Use in regenerative casings, as anti-caking agent (non-chlorine bleached) and filtering aid
Diatomaceous earth	Sweetener/Wine. Food filtering aid only
Egg white lysozyme/ albumin	
Preparations of Enzyme [Rennet; Catalase; Lipase; Pancreatin; Pepsin; Trypsin]	Must be from natural sources (*edible, nontoxic plants, nonpathogenic fungi or nanpathogenic bacteria*) and not produced from GMOs. [animal derived]
Ethanol	Use as Solvent
Ethylene	Fruit Used as ripening agent. Only non-synthetic source is allowed.
Ferrous sulfate	For iron enrichment or fortification of foods when required by regulation.
Food coloring (Natural sources)	*E.g. green from pandan leaf, red from hibiscus, yellow from turmeric*
Glycerides (mono and di)	For use only in drum frying of food
Isinglass	Wine
Kaolin	
Nut shells	
Magnesium stearate	
Magnesium sulfate	
Micro-organisms	Must not be from GMOs, Food grade
Natural flavor	
Minerals (including trace elements), vitamins, essential fatty and amino acids, and other	Only approved in so far as their use is legally required in the food products in which they

nitrogen compounds.	are incorporated. According to regulatory requirements.
Nutrients vitamins and minerals	According to regulatory requirements
Perlite	Only as filter aid in food processing
pH adjusters [e.g. citric acid, sodium bicarbonate, or vinegar]	Must be from natural sources
Potassium hydroxide	pH adjustment
Potassium iodide	For iodine supplementation according to regulatory requirements
Preparations of bark	Only for sugar
Salt	
Sodium acid pyrophosphate	From clean sources without contamination
Vegetable oils	Only as leavening agent
Vegetable oils	
Wood resin	
Yeast	Must be organic for human consumption. Non-organic may be used if organic is unavailable. Growth on petrochemical substrate and sulfate waste liquor is prohibited. For smoked yeast, nonsynthetic smoke flavoring process must be documented.
Ammonium carbonates	Only for cereal products, confectionery, cakes & biscuits
L-malic acid	
Magnesium carbonates	
Monocalcium phosphate	Only for “raising flour”
Potassium tartrate	
Sodium tartrate	
Potassium citrates	
Sodium citrates	
Sodium carbonates	

Annex F: List of Permitted Equipment Cleansers and Disinfectants that may Come into Direct Contact with Food for the Production of Organic Food

Substances that can come in contact with food	Application / Conditions
Acetic acid	Cleaning agent
Alcohol, ethyl (ethanol)	Disinfection
Alcohol, isopropyl (isopropanol)	Disinfection
Calcium hydroxide (slaked lime)	
Calcium oxide (quicklime)	Cleaning agent
Chloride of lime (calcium oxychloride, calcium chloride, and calcium hydroxide)	
Citric acid	
Cyclohexylamine (BWA)	Use only as boiler water additive for packing sterilization
Diethylaminoethanol (BWA)	Use only as boiler water additive for packing sterilization
Formic acid	Disinfection
Hydrogen peroxide	Disinfection
Lactic acid	
Natural essences of plants	
Octadecylamine (BWA)	Use only as boiler water additive for packing sterilization
Oxalic acid	
Ozone	
Peracetic acid	Use as sanitizer on food contact surfaces. Use according to FDA limitations.
Phosphoric acid	For dairy production equipment only Cleaning agent
Plant extracts	
Sodium carbonate	
Calcium hypochlorite	According to regulatory requirements
Chlorine dioxide	According to regulatory requirements
Potassium soap	According to regulatory requirements
Sodium hydroxide (caustic soda)	According to regulatory requirements
Sodium hypochlorite (liquid bleach)	According to regulatory requirements
Sodium soap	According to regulatory requirements

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Department of Agriculture
Bureau of Agriculture and Fisheries Standards

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PHILIPPINE NATIONAL STANDARD

PNS/BAFS 42:2019
ICS 65.020

Organic milled rice – Code of Practice – Postproduction

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Foreword

The Philippine National Standard (PNS) for Organic milled rice – Specification – Part 1: Post harvest operations (PNS/BAFPS 42-1:2008) and Organic milled rice – Specification – Part 2: Packaging, labeling and quality standards (PNS/BAFPS 42-2:2008) were developed in 2008 for the postharvest operations and packaging of organic milled rice, respectively.

In 2018, the Bureau of Agriculture and Fisheries Standards (BAFS) spearheaded the review of these standards together with other PNS related with rice. A Technical Working Group (TWG) was created as per Department of Agriculture Special Order No. 522 Series of 2017 to check if the provisions of these standards are still relevant and effective to the current regulatory and market needs.

Upon the review and revision of these standards, the TWG recommended that the Part 2 of PNS/BAFPS 42:2008 to be withdrawn and its provisions incorporated to a standard that generally encompasses the grading and classification of milled rice. Thus, the revised PNS/BAFS 42:2019 will not be divided into parts and will provide recommendations for the organic agriculture postproduction of rice.This Standard has been approved by the Secretary of the Department of Agriculture in 2019.

This edition includes the following significant changes compared to the previous edition:

- replacement of term ‘postharvest operations’ with ‘postproduction’ which is a broader term;
- use of term ‘paddy rice’ instead of ‘palay’;
- inclusion of provisions on purging or flushing if the equipment used are not exclusively used for organic rice;
- inclusion of reference to the PNS for Grains – Grading and classification – Paddy and milled rice for requirements in labeling of sacks for organic milled rice;
- use of term ‘hauling’ instead of ‘transport’; and
- inclusion of reference to the PNS for Organic Agriculture for the list of allowed cleaning materials.

This PNS/BAFS 42:2019 cancels and replaces PNS/BAFPS 42-1:2008 (technically revised) and PNS/BAFPS 42-2:2008 (withdrawn).

This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2.

1 Scope

This standard establishes a system within organic agriculture mainly for postproduction operations of organic milled rice, *Oryza sativa* L.

2 Normative references

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

PNS/BAFS XXX:201X, *Grains – Grading and classification – Paddy and milled rice*

3 Terms and definitions

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

3.1
brown rice
pinawa
rice grain with its hulls removed but not polished, regardless if pigmented or not

3.2
milled rice
bigas
kernels obtained after removal of hull, aleurone layers (bran, pericarp, testa), and germ

3.3
organic milled rice
milled rice obtained from organically grown and processed rice

3.4
paddy rice
rough rice
palay
unhulled rice grain with the glumes enclosing the kernel

3.5
postproduction
series of activities that grain crops undergo which include harvesting, threshing, hauling, drying, milling, handling, packaging, and storage

3.5.1
harvesting
process of collecting the mature rice crop from the field. Paddy harvesting activities include reaping, stacking, handling, threshing, cleaning, and hauling. These can be done individually or a combine harvester can be used to perform the operations simultaneously

3.5.1.1
threshing
process of removing the paddy grains from the panicles

3.5.2
postharvest
series of activities starting from grain drying, milling, storage

3.5.2.1
drying
process of removing excess available water from the grain through evaporation by the application of heat

3.5.2.2
rice milling
process of removing of hull only, or of hull aleurone layers (bran, pericarp and testa), and germ to obtain kernels

3.5.2.2.1
dehulling
removing the hull from the paddy rice, in order to get brown rice

3.5.2.2.2
polishing
whitening
removing the aleurone layers (bran, pericarp, testa) and germ from the brown rice to obtain milled rice

3.5.2.3
storage
warehousing
keeping organic milled rice in a designated area to preserve its quality until the time of disposition

4 Minimum requirements

Hygiene and sanitation shall be strictly observed and maintained at all times.

4.1 Harvesting

There should be no sources of contamination that shall affect the quality of organic milled rice.

4.1.1 Harvesting of organically grown paddy rice shall not coincide with the harvesting of conventionally grown paddy rice adjacent to the farm. Paddy rice harvested in the designated buffer zones should be considered non-organic.

4.1.2 Harvesting shall be done when 80 % to 85 % of the paddy rice grains are mature for shattering varieties. For non-shattering varieties, ripening can be extended up to 90 %.

4.1.3 Threshers and other accessories should be thoroughly cleaned before threshing. If the equipment is not exclusively used for organic paddy rice, purging or flushing should be practiced. The amount of the purged or flushed paddy rice to be segregated depends on the capacity of the thresher. Segregated paddy rice from the thresher shall be considered as conventional.

4.1.4 Brand new sacks or recycled clean sacks previously used for organic paddy rice shall be used.

4.1.5 Sacks should be properly labeled to avoid mixing of organic and conventional paddy rice.

4.2 Hauling (farm to dryer)

4.2.1 Organic and conventionally grown paddy rice shall be hauled separately.

4.2.2 The farmer shall haul newly harvested organic paddy rice immediately after harvest.

4.2.3 Hauling facilities to be used for collecting and transporting the harvested organic paddy rice from the farm shall be clean and dry.

4.3 Drying

4.3.1 Organic and conventionally grown paddy rice shall be dried separately.

4.3.2 Mechanical drying is recommended in drying organic paddy rice. Clean mechanical dryers shall be used. If possible, a mechanical dryer should be dedicated solely for drying organic paddy rice. If not possible, organic paddy rice shall be dried first before conventionally grown paddy rice.

4.3.3 Sun drying is allowed; however, drying in highways and roads is strictly prohibited. Drying facilities like concrete pavement (preferably with underlay) shall be properly cleaned and free from oil spill, manure, residues, and other contaminants before drying.

4.3.4 During drying, birds and other stray animals shall be kept away from the drying area to avoid contamination of organic paddy rice. Personnel in charge of drying paddy rice shall observe proper hygiene within the premises.

4.3.5 Brand new sacks or recycled clean sacks previously used for organic paddy rice shall be used.

4.3.6 Proper tagging of sacks should be observed to avoid mixing of organic from conventionally grown paddy rice.

4.3.7 Dried organic paddy rice should have a maximum moisture content of 14 % when tested by properly verified and adjusted moisture meters.

4.4 Hauling (dryer to storage)

4.4.1 Organic and conventionally grown paddy rice shall be hauled separately.

4.4.2 Transport facilities shall be properly cleaned every time organic paddy rice are to be hauled.

4.5 Milling

4.5.1 As much as possible, a rice mill should be dedicated solely for milling organic paddy rice.

4.5.2 To avoid contamination, all milling equipment shall be properly cleaned before usage.

4.5.3 Organic and conventional paddy rice shall be milled separately.

4.5.4 If the rice mill is not exclusively used for organic paddy rice, organic paddy rice shall be milled first than conventionally grown paddy rice. However, if the mill was previously used for conventional rice, purging or flushing should be practiced. The amount of the purged or flushed milled rice to be segregated depends on the capacity of the mill. Segregated rice from purging or flushing is considered as conventional.

4.5.5 Brand new sacks shall be used. Labeling of sacks for organic milled rice shall be in accordance with the requirements of PNS/BAFS XXX:201X Grains – Grading and classification – Paddy and milled rice.

4.6 Hauling and storage

The storage areas and hauling facilities shall be thoroughly cleaned and free from pests. Cleaning materials should be in accordance with the PNS/BAFS 07 Organic Agriculture and its latest issuance.

Use of botanical sprays is allowed but should not be sprayed directly to the organic milled rice. Operators should always make a record on the amount and kind of botanical sprays used.

4.6.1 Hauling of organic milled rice (from mill to storage)

4.6.1.1 Vehicles and other equipment used during hauling shall be properly cleaned prior to loading of organic milled rice. Use of clean pallets during transport shall be observed. However, chemically treated pallets shall not be used.

4.6.1.2 Organic milled rice shall not be hauled together with potential sources of contaminants such as oil and chemicals.

4.6.1.3 During hauling, clean tarpaulins and other uncontaminated covering materials shall be used.

4.6.2 Storage

4.6.2.1 The use of “hooks” is prohibited.

4.6.2.2 Organic milled rice shall be stored at a maximum of 14 % moisture content (MC).

4.6.2.3 Organic milled rice shall be piled separately from conventional milled rice.

4.6.2.4 Proper piling of labeled organic milled rice shall be observed.

4.6.2.5 In case there is suspicion of traces of pesticides in the storage facilities, these should be removed by using the appropriate cleaning agent and water prior to storage.

4.6.2.6 Proper waste disposal of biodegradable and non-biodegradable materials shall be observed.

4.6.2.7 First-in, first-out principle shall be observed.

4.6.2.8 Chemically treated pallets shall not be used in the warehouse.

4.7 Pest management in storage

4.7.1 Physical control or preventive measures are encouraged for pest management.

4.7.2 Pest control measures using chemical pesticides of stored organic rice shall not be allowed.

4.7.3 There shall never be direct or indirect contact between organic rice and prohibited substances (e.g. pesticides). When any doubt arises, it shall be ensured that no residue in the organic rice is detected.

4.7.4 Irradiation of the organic rice for pest control is prohibited.

Bibliography

Philippine Development Assistance Program. (2005). *Quality Standards for Organic Rice*. Quezon City, Philippines

Philippine Development Assistance Program. (2006). *Organic Rice Industry Analysis and Plan*. Quezon City, Philippines.

PNS/BAFS 07:2016, *Organic Agriculture*

PNS/BAFS 141:2019, *Code of Good Agricultural Practices (GAP) for rice*

Department of Agriculture
Bureau of Agriculture and Fisheries Standards

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PHILIPPINE NATIONAL STANDARD

PNS/BAFS 182:2016
ICS

Organic biocontrol agents – Microbials and botanicals - Minimum data requirements

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Contents

Foreword

The Bureau of Agriculture and Fisheries Standards (BAFS) in line with its mandate under Republic Act 10068 or the Organic Agriculture Act of 2010 initiated the Philippine National Standard (PNS) for Organic Biocontrol Agents. A Technical Working Group (TWG) established under Special Order No. 759 Series of 2015 and Special Order No. 894 Series of 2015 was created to develop the standard. This standard has been technically prepared in accordance with the Bureau of Philippine Standards (BPS) Directive Part 1, and was presented and discussed through a series of meetings, writeshops (Region IV-A - Laguna), and public consultation (Region XI - Davao).

References used for the development of this standard include the Fertilizer and Pesticide Authority (FAO) Green Book, ASEAN Guidelines on the Regulation, Use and Trade of Biological Control Agents (BCA), and the Food and Agriculture Organization (FAO) Guidance for Harmonizing Pesticide Regulatory Management in Southeast Asia.

The development of the Philippine National Standard (PNS) for Organic Biocontrol Agents (BCAs) was undertaken to specify the minimum data requirements for the safety assessment of organic biocontrol agents, specifically microbials and botanicals, that are regulated by the Bureau of Agriculture and Fisheries Standards (BAFS).

ACRONYMS AND ABBREVIATIONS

AI	Active Ingredient
As	arsenic
BCA	biological control (biocontrol) agent
Cd	cadmium
CFU	Colony Forming Unit
GRAS	Generally Recognized as Safe
Hg	mercury
LD_{50}	Lethal Dose, Median
MCA	microbial control agent
MSDS	Material Safety Data Sheet
NOAEL	No Observed Adverse Effect Level
OCB	Organic Certifying Body
OECD	Organisation for Economic Co-operation and Development
Pb	lead
RH	relative humidity

1 Scope

This Standard specifies the minimum data requirements for the safety assessment of organic biocontrol agents, specifically for microbials and botanicals.

2 References

The titles of the publications referred to in this Standard are listed on the inside back cover.

3 Terms and definitions

3.1
active ingredient / microbial pest control agent
part of the product that provides the pesticidal mode of action.

3.2
biological control (biocontrol) agents (BCAs)
organisms and their associated metabolites as well as naturally occurring substances that control pests and diseases. These are classified as botanicals, macrobials, microbials, and semiochemicals.

3.2.1
botanicals[1] / botanical pesticide
BCA that refers to compounds and materials naturally derived or extracted from plants that demonstrate toxicity to pests and diseases involved in agriculture.

3.2.2
microbials / microbial control agent (MCA)
BCAs composed of microorganisms that include bacterium, alga, fungus, protozoan, virus, nematode, mycoplasma, rickettsia, and any associated metabolites, to which the effects of pest and disease control are attributed.

3.3
formulated product (commercial product)
any formulation containing one or more active ingredient and inert material.

3.4
formulation (recipe)
combination of various ingredients designed to render the (formulated) product useful and effective for the purpose claimed and for the envisaged mode of application such as SC, WP, EC, etc.

[1] The use of the term 'botanicals' is used in this Standard in accordance with the categorization of biocontrol agents in the ASEAN Guidelines on the Regulation, Use, and Trade of Biological Control Agents (BCA) and in order to avoid confusion with the term 'biopesticides'.

3.5
metabolites
products resulting from degradative and biosynthetic reactions taking place within the microorganism or other organisms.

3.6
pathogenicity
ability of the microorganism to inflict injury and damage in the target organism after infection, and depends on resistance or susceptibility.

3.7
pesticide
any substance or product, or mixture thereof, including active ingredients, adjuvants, and pesticide formulations, intended to control, prevent, destroy, repel, or mitigate directly or indirectly, any pest. The term shall be understood to include insecticide, fungicide, bactericide, nematocide, herbicide, molluscide, avicide, rodenticide, plant regulator, defoliant, desiccant, and the like.

3.8
toxicity
injury or damage to a target organism caused by a poison or toxin; infection, replication, or viability of the microorganism is not necessarily required.

4 Data requirements for safety assessment of organic biocontrol agents

4.1 Minimum data requirements for microbials

Table 1 – Summary of data requirements for the safety assessment of microbials

Data required	Tech. grade active ingredient (AI)	Formulated	Remarks
1.0 General information			
1.1 Name/ Address of Applicant	R	R	
1.2 Name of AI/ Product Name	R	R	
1.3 Source of AI of microbials			
1.3.1 Name and address of supplier/s	R	R[1]	
1.3.2 Supplier's code number	R	R[1]	
1.4 Description of manufacturing process and quality control methods	R	R	
1.5 Confidential statement of formula (includes the nature and quantity of AI, diluents and other ingredients)	NA	R	

Data required	Tech. grade active ingredient (AI)	Formulated	Remarks
1.6 Use category (herbicide, fungicide, insecticide, multi-use etc.)	NA	R	Note all uses; provide bio-efficacy data for each use category
1.7 Type of formulation (water dispersible powder, emulsifiable concentrate, etc.)	R	R	
2.0 Active ingredient/ product specifications			
2.1 Identity of microbials			
2.1.1 Common and Scientific Name	R	R[1]	
2.1.2 Strain/serotype/biotype	R	R[1]	Depends on the organism.
2.2 Taxonomic characteristics of microbials			
2.2.1 Morphological (cultural, and cellular) characteristics	R	R[1]	
2.2.2 Biochemical properties	R	R[1]	
2.2.3 Molecular identification (rRna gene sequence, if available)	R	R[1]	
2.2.4 Identification of plasmids or other extra chromosomal genetic material (where appropriate)	R	R[1]	
2.3. Declaration that organism is not genetically modified	R	R[1]	
2.4. Natural occurrence of organism (host/ substrates, and habitat) and relation to other related species (mode of nutrition)	R	R[1]	
2.5 Biological properties of microbials			
2.5.1 Biological properties of active agent (target pest, microbial agent host range, life cycle, and mode of action of microbial agent)	R	NA	

Data required	Tech. grade active ingredient (AI)	Formulated	Remarks
2.5.2 Description of any unusual morphological, biochemical, resistance characteristics of the organism that is different from classic description of organism	R	NA	
2.5.3 Toxin content & potency	R	R	For microbials with insecticidal properties
2.6 Composition of Product			Confidentiality Agreement Should be tested by ISO certified laboratory.
2.6.1 Ingredients (Percent Composition); microbial count; (by weight or CFU, spores per unit of weight or volume, etc.)	NA	R	
2.6.2 Other ingredients included in the formulation (e.g. stickers, spreaders, etc.)	NA	R	
2.6.3 Certification of composition limits for each ingredient	NA	R	
2.6.4 Analysis of contaminants, if any	NA	R	
2.6.5 Specification together with method of analysis	NA	R	Description of product, supporting physico-chemical data (appearance, color, viscosity, etc.)
2.6.6 Analytical test report	NA	R	
2.7 Sample for verification	NA	R	
3.0 Toxicity data			
3.1 Acute Toxicity Tests (LD_{50} Determination)			

3.1.1 Oral	R	R	OECD Protocols
3.1.2 Dermal	R	R	OECD Protocols

Data required	Tech. grade active ingredient (AI)	Formulated	Remarks
3.1.3 Inhalation	R	R	OECD Protocols For formulations that are powders, aerosols and volatiles
3.2 Irritation Tests			OECD Protocols
3.2.1 Ocular	R	R	OECD Protocols
3.2.2 Dermal	R	R	OECD Protocols
4.0 Bioefficacy data			
4.1 Pest information			
4.1.1 Pest (Common/Scientific name)	NA	R	
4.1.2 Dosage/ rate of application	NA	R	
4.1.3 Number of applications	NA	R	
4.1.4 Application method (e.g. dusting/spraying (high volume/ low volume/ultra-low volume)/ equipment)	NA	R	
4.2 Crop/ Commodity information			
4.2.1 Common/ Scientific name of crop/ commodity	NA	R	
4.2.2 Stage of crop (e.g. seedling, vegetative growth stage, flowering stage, fruiting stage, storage and postharvest, etc.)	NA	R	
4.3 Test trials planning/ design (location/ climatic data/ statistical design/ plot size/ controls/ replications)	NA	R	Same experimental design for bioefficacy control
4.4 Evaluation parameters of microbials (e.g. tiller counts, yield, percent incidence, etc.)	NA	R	
4.5 Method of sampling	NA	R	
4.6 Recording of field data	NA	R	

Data required	Tech. grade active ingredient (AI)	Formulated	Remarks
4.7 Statistical analysis of data and results on laboratory and field trials based on specified/quantified parameters.	NA	R	* for organisms with previous reports or pathogenicity data all listed above are required. For GRAS microorganisms, data for the formulated product is <u>not</u> required
5.0 Human health exposure/ environmental fate and effects data			
5.1. Material Safety Data Sheet (MSDS)	R	R	
5.2 Human Health Exposure Effects			
5.2.1 Operators Exposure data (dermal exposure/ inhalation exposure, biological monitoring)	R[2]	R[2]	Extrapolated data If any results from Tier I suggest further risk assessment.
5.2.2 Bystanders exposure (dermal exposure/ inhalation exposure, biological monitoring)	R[2]	R[3]	Extrapolated data If any results from Tier I, suggest further risk assessment.
5.3 Evaluation of environmental fate & effects			
5.3.1 Primary data on potential hazards (infectivity) to mammals (including humans)	R	R[2]	Extrapolated data

Data required	Tech. grade active ingredient (AI)	Formulated	Remarks
5.3.2 Primary data on toxicity to birds and non-targeted beneficial organisms (e.g. pollinators, etc.)	R	R[2]	Extrapolated data
5.3.3 Experimental data on infectivity to crop plant species (e.g. microbial agents used for control of weed species)	R	R[2]	Extrapolated data
6.0 Labelling			
6.1 Common name of microbials	R	R	
6.2 Product Name	NA	R	
6.3 Formulation/contents of microbial product including identity of microbe, specific strain and count	NA	R	Scientific name, strain, and count
6.4 Quantity of the product per package	NA	R	
6.5 Registration Number	NA	R	
6.6 Distributor Registration Number/ contact details	NA	R	
6.6.1 Batch Number	NA	R	
6.6.2 Manufacturing Date	NA	R	
6.6.3 Date of expiry and/or shelf life (months/ year)	NA	R	
6.7 Precautions & Directions for Use	NA	R	
6.8 Warning Phrases/ Pictograms	NA	R	
6.9 Storage conditions	NA	R	
6.10 Recommended crop/commodity	NA	R	
6.11. Logo of Organic Certifying Body (OCB)	NA	R	
7.0 Packaging			
7.1 Specification of primary package	R	R	
7.2 Specification of secondary package	R	R	
7.3 Sterile packing condition	R	R	
8.0 Recommended storage data			
8.1 (Temperature/ RH/ Refrigeration)	NA	R	

Legend:
R - Required
R[1] - Required only if tech. grade microbial control agentis not registered in the country and only formulated product is being imported
R[2] - Required only if the microbial control agent proved to have allergic/toxic effects to human beings
R[3] - Required only if the tech. grade AI of microbial control agent is not registered in the country and only formulated product is required to be imported
NA - Not applicable

4.2 Minimum data requirements for botanicals

Table 2 – Summary of data requirements for the safety assessment of botanicals

Data required	Tech. grade active ingredient (AI)	Formulated	Remarks
1.0 General information			
1.1 Name/ Address of Applicant	R	R	
1.2 Name of AI/ Product Name	R	R	
1.3 Name and address of the manufacturer of AI	R	R	
1.4 Description of Manufacturing Process (includes starting and intermediate materials, steps taken both chemical and biological, in unformulated microbial agent, procedures used in establishing identity and purity of product, quality control methods, and presence of toxic sensitizing substances)	R	R	
1.5 Confidential Statement of Formula (includes the nature and quantity of AI, diluents, and other ingredients)	NA	R	
1.6 Use category (herbicide, insecticide, multi-use, etc.)	R	R	
1.7 Type of formulation (water dispersible powder, emulsifiable concentrate, etc.)	NA	R	

Data required	Tech. grade active ingredient (AI)	Formulated	Remarks
2.0 Active ingredient/ product specifications			
2.1 Chemical identity of botanicals			
2.1.1 Common and Chemical Name	R	R	
2.1.2 Chemical Abstract Services Number (if any)	R	NA	
2.1.3 Formula (Empirical and Structural, including molecular weight	R	R	For common AIs, data can be taken from literature (e.g. pharmacopoeia, ISO standard, etc.); if novel, data need to be generated/ analyzed
2.1.4 Method of analysis	R	R	
2.2 Physico-chemical properties			
2.2.1 Plant species (common/ scientific name) from which the active ingredient extracted including tissue type	R	R	
2.2.2 Appearance (physical state, color and odor)	R	R	
2.2.3 Minimum and maximum AI content	R	R	
2.2.4 Outline of extraction process of AI of botanicals	R	R	
2.2.5 Specifications together with the methods of analysis (and physicochemical properties)	R	R	
2.2.6 Shelf-life/Storage stability (in respect to composition and physical properties related to use)	R	R	
2.2.6.1.1 Wettability	NA	R	for dispersible powders

Data required	Tech. grade active ingredient (AI)	Formulated	Remarks
2.2.6.1.2 Persistent foam	NA	R	for formulations applied in water
2.2.6.1.3 Suspensibility	NA	R	for dispersible powders, suspension concentrates
2.2.6.1.4 Wet sieve test	NA	R	for dispersible powders, suspension concentrates
2.2.6.1.5 Dry sieve test	NA	R	for granules, dusts
2.3 Composition of Finished Products			
2.3.1 AI Content (% composition)	NA	R	For multi-AI formulations, note the % composition
2.3.2 Other components included in the formulation (e.g. adjuvants and inert components) (% composition)	NA	R	
2.4 Sample for verification of content	NA	R	
2.4.1 Active Ingredient	NA	R	
2.4.2 Contaminants Heavy Metal determination (Pb, Cd, Hg, As)	R	R	
3.0 Toxicity data			
3.1 Minimum risk check: plant extract/product (internationally) recognized as: • Minimal risk pesticide • Part of pharmacopoeia • Food grade • History of safe use	R[1]	R	
3.2 Acute Toxicity Tests (LD_{50} Determination) / NOAEL data			
3.2.1 Oral	NA	R	OECD Protocols
3.2.2 Dermal	NA	R	OECD Protocols

Data required	Tech. grade active ingredient (AI)	Formulated	Remarks
3.2.3 Inhalation	NA	R	OECD Protocols For formulations that are powders, aerosols and volatiles
3.3 Irritation Tests			
3.3.1 Ocular	NA	R	OECD Protocols
3.3.2 Dermal	NA	R	OECD Protocols
3.4 Allergy/ Sensitization Test	NA	R	OECD Protocols
4.0 Bioefficacy data			
4.1 Pest Information			
4.1.1 Pest (Common/Scientific name)	NA	R	
4.1.2 Dosage/rate of application	NA	R	
4.1.3 No. of applications	NA	R	
4.1.4 Application Method (e.g. dusting/spraying (high volume/ low volume/ultra low volume, etc.)/ equipment	NA	R	
4.2 Crop/ Commodity information			
4.2.1 Common/ Scientific name of crop/ commodity	NA	R	
4.2.2 Stage of crop (e.g. seeds, seedling, vegetative growth stage, flowering stage, fruiting stage, storage and postharvest, etc.)	NA	R	

Data required	Tech. grade active ingredient (AI)	Formulated	Remarks
4.3 Test trials planning/design (location/climatic data/statistical design/ plot size/ controls/ replications) Acceptable efficacy: ➢ Proposed efficacy (based on the untreated control) o > 80% Best o 65 - 79% Good o 50 - 64% Fair o < 50% Unacceptable/poor	NA	R	**For Annuals:** Insecticide/Fungicide/Rodenticide: 2 Locations 1 cropping Season Conducted in season of prevalence Herbicide: 2 cropping seasons 2 locations Acceptance criteria: Level of control (based on recommended dose) **For perennials crops/plantation crops:** Insecticide/Fungicide/Rodenticide: 1 Location 1 crop cycle (protocol-based) Conducted in cropping season of prevalence/ incidence
4.4 Evaluation parameters (e.g. tiller counts, yield, percent incidence, etc.)	NA	R	
4.5 Method of Sampling	NA	R	

4.6 Recording field data	NA	R	
4.7 Statistical analysis of data and results on laboratory and field trials based on specified/quantified parameters	NA	R	
5.0 Human health exposure/ environmental fate and effects data			
5.1 Material Safety Data Sheet (MSDS)	R	R	
5.2 Operators Exposure data (dermal exposure/inhalation exposure, biological monitoring)	NA	R[1]	Tier II
5.3 Bystanders exposure (dermal exposure/inhalation exposure, biological monitoring)	NA	R[1]	Tier II
5.4 Evaluation of environmental fate & effects			
5.4.1 Primary data on potential hazards (infectivity) to mammals (including humans)	R	R[1]	Extrapolated data
5.4.2 Primary data on toxicity to birds and non-targeted beneficial organisms (e.g. pollinators, etc.)	R	R[1]	Extrapolated data
5.4.3 Experimental data on Infectivity to crop plant species (e.g. microbial agents used for control of weed species)	R	R[1]	Extrapolated data
6.0 Labelling			
6.1 Chemical name/Common name	R	R	
6.2 Product Name	NA	R	
6.3 Formulation/contents of the product	NA	R	
6.4 Quantity (Wt./Vol.)	NA	R	
6.5 Registration Number	NA	R	
6.6 Name of Manufacturer and Distributor	NA	R	
6.6.1 Batch Number	NA	R	
6.6.2 Manufacturing date	NA	R	
6.6.3 Date of expiry of product	NA	R	
6.7 Safety Precautions	NA	R	

Data required	Tech. grade active ingredient (AI)	Formulated	Remarks
6.8 Warning Phrases & Symbols	NA	R	
6.9 Storage conditions and disposal	NA	R	
6.10 Recommended crop/commodity, Dose Rate, Directions for Use	NA	R	
6.11 Pre-Harvest Intervals	NA	R	
6.12 Restrictions, if any	NA	R	
6.13 Signs/symptoms of poisoning & treatment, contact details for poison control centers	NA	R	
6.14 Logo of Organic Certifying Body (OCB)	NA	R	
7.0 Packaging	NA		
7.1 Specification of primary package	NA	R	
7.2 Specification of secondary package, if applicable	NA	R	
7.3 Specification of bulk package for transport	R	R	

Legend: R - Required
R[1] - Required only if the botanicals proved to have allergic/toxic effects to human beings
NA - Not applicable

References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ASEAN Sectoral Working Group on Crops (ASWGC) and German Federal Ministry for Economic Cooperation and Development (BMZ). 2014. ASEAN Guidelines on the Regulation, Use, and Trade of Biological Control Agents (BCA).

CropLife International. 2008. Catalogue of Pesticide Formulation Types and International Coding Systems, GCPF (GIFAP) Technical Monograph No. 2, 6th edition.

Fertilizer and Pesticide Authority. Regulatory Policies and Implementing Guidelines.

Food and Agriculture Organization (FAO). 2012. Guidance for Harmonizing Pesticide Regulatory Management in Southeast Asia.

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PHILIPPINE NATIONAL STANDARD

PNS/BAFS 183:2020
ICS 65.080

Organic soil amendments

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Foreword

The Philippine National Standard (PNS) on Organic Soil Amendments (OSA) was established and adopted last 2016 by the Bureau of Agriculture and Fisheries Standards with the guidance of the Technical Working Group.

In 2017, a call for the revision of the PNS/BAFS 183:2016 was made during the development of the PNS on the Code of Practice for the Production of Organic Soil Amendment (PNS/BAFS 291:2019). The revision is recommended to ensure that the standard is consistent with the provisions specified in PNS/BAFS 291:2019.

This edition includes the following significant changes compared to the previous edition:

- Inclusion of the PNS/BAFS 291:2019 in the Scope;
- Removal of the specifications for consistency and color of organic fertilizer and organic soil conditioner;
- Modification on the specification for moisture content of organic fertilizer and organic soil conditioner;
- Inclusion of a recommended level for total N- P_2O_5 - K_2O of solid and liquid organic plant supplement;
- Inclusion of a provision for the verification process of OSA with total N- P_2O_5 - K_2O content exceeding the required limit;
- Modification on the specifications for microbial inoculants;
- Modification on the required number of samples for solid products and weight of composite solid sample needed to be submitted to the laboratory;
- Inclusion of the Methods of Analysis for OSA;
- Amendment on the Labelling requirements; and
- Removal of the Annex for the List of Permitted Raw Materials for the Production of Organic Soil Amendment.

This Standard has been approved by the Secretary of the Department of Agriculture in 2020.

This Standard cancels and replaces PNS/BAFS 183:2016**.**

This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2.

Table of Contents **Page**

1 Scope

This Standard applies to organic fertilizers, organic soil conditioners, microbial inoculants, and organic plant supplements. The emphasis on how to minimize contamination from microbiological, physical, and chemical hazards is in accordance with the relevant provisions under the Philippine National Standard (PNS) on the Code of Practice for the Production of Organic Soil Amendments (PNS/BAFS 291:2019).

2 Normative references

There are no normative references used in this document.

3 Terms and definitions

For the purpose of this Standard, the following definitions apply:

3.1 batch
organic soil amendment that is produced from the same type of organic materials, at the same time and location, by the same manufacturer/producer, or made during the same cycle or period of manufacture

3.2 contaminant
any substance that can come in contact with organic soil amendment and compromise its organic integrity

3.3 labeling
display of any written, printed, or graphic representation on the label of a product for the purpose of promoting its sale or disposal. Information on the label provides the sellers and the buyers with the safe and effective use of the product for which it is registered

3.4 organic soil amendments
include all the products within the scope of the Standard, i.e. organic fertilizer, organic soil conditioner, microbial inoculant, and organic plant supplement

3.5 pathogens
organisms that can cause negative effects on human health

3.6 raw materials
naturally-occurring materials used in the production of organic soil amendments

4 Product description

4.1 Organic Fertilizer - any product in solid or liquid form, derived from plants or animals that has undergone substantial decomposition that can supply available nutrients to plants with a total Nitrogen (N) - Phosphorus (P_2O_5) - Potassium (K_2O) content of five to ten percent (5-10%).

4.2 Organic Soil Conditioner - any product in solid or liquid form, derived from plants or animals that has undergone substantial decomposition that can supply

available nutrients to plants with a total N- P_2O_5 - K_2O content of 2.5 to less than five percent (2.5 - < 5%).

4.3 Microbial Inoculant – biologically-active product containing optimum population of one or a combination of active strains of bacteria, algae, and fungi that are useful in different biological activities, such as, but not limited to: N_2-fixation, decomposition of organic residues, and enhancement of nutrient availability.

4.4 Organic Plant Supplement - any compound of organic origin in liquid or solid form that has a total N-P_2O_5-K_2O content of not less than 0.5% to not more than 10% for solid and to less than 5% for liquid. These include but are not limited to: FPJ (Fermented Plant Juice), FFJ (Fermented Fruit Juice), FAA (Fish Amino Acid), FE (Fish Emulsion), Seaweed Extracts, Vermi Tea, Compost Tea, and the like.

5 Minimum requirements

5.1 Raw materials

Raw materials to be used for the production of organic soil amendments should be in accordance with the list of permitted raw materials for the production of organic soil amendments as listed in the National List of Permitted Substances for Organic Agriculture.

5.2 Specifications

5.2.1 Solid and liquid organic fertilizer, organic soil conditioner, and organic plant supplement should be in accordance to the specifications shown in Table 1.

Table 1- Specifications for organic fertilizer, organic soil conditioner, and organic plant supplement

Specifications	Organic Fertilizer (Solid)	Organic Fertilizer (Liquid)	Organic Soil Conditioner (Solid and Liquid)	Organic Plant Supplement (Solid and Liquid)
Total N-P_2O_5-K_2O, %	5 - 10%	5 - 10%	2.5 - <5%	0.5 - 10% for Solid 0.5 - < 5% for Liquid
C:N ratio	10:1 - 20:1	---	10:1- 20:1	---
Organic Matter (OM), %	$\geq$ 20	---	$\geq$20	---
Actual Moisture Content (MC), %	$\leq$ 35	---	Solid: $\leq$ 35 Liquid: none	---
Odor	No foul odor: (ammonia, rotting or fermentation)	---	No foul odor: (ammonia, rotting or fermentation)	---

5.2.1.1 Verification should be done on the raw materials and process if the total N-P_2O_5-K_2O content of the product exceeds the specified limit in Table 1. Confirmatory

test should be conducted on the product based on the methods of test for the total N-P_2O_5-K_2O specified in Annex A.

5.2.1.2 For solid organic fertilizer, all specifications in Table 1, except actual MC, should be in dry weight basis

5.2.1.3 For solid and liquid organic fertilizer, organic soil conditioner, and organic plant supplement containing microbial inoculants, the Genus should be verifiable and stated in the label.

5.2.3 Microbial inoculants depending on its category or genus should be in accordance with the specifications shown in Table 2 to Table 10.

5.2.3 For multi-strain inoculants or inoculants containing a consortium of microorganisms, claims should be verifiable.

Table 2 - Minimum requirements for rhizobia

Base	Solid
Viable Cell Count, minimum	10^8 cfu/g
Contaminants	At least no contaminants at 10^{-5} dilution
Particle size	At least 50% of materials should pass through 200 mesh sieves
pH	6.0-7.5
Moisture content by weight (solid inoculants)	30-40%
Distinguishing characteristic(s)	Should show effective nodulation on all legume species listed in the packet using plant infection technique under axenic/ gnotobiotic condition

Table 3- Minimum requirements for *Azospirillum*

Base	Solid
Viable Cell Count, minimum	10^8 cfu/g
Contaminants	At least no contaminants at 10^{-5} dilution
Particle size	At least 50% of materials should pass through 200 mesh sieves
pH	6.0-7.5
Moisture content by weight	25-40%
Distinguishing characteristic(s)	Formation of white pellicle in semi-solid nitrogen-free media

Table 4 - Minimum requirements for Phosphate Solubilizer (Bacteria)

Base	Solid
Viable Cell Count, minimum	10^8 cfu/g
Contaminants	No contaminants at 10^{-5} dilution
pH	6.0-7.5
Moisture content by weight	25-40%

Distinguishing characteristic(s), minimum	5 mm solubilization zone in prescribed media

Table 5 - Minimum requirements for Phosphate Solubilizer (Fungi) – Spore forming

Base	Solid
Spore Count, minimum	10^5
Contaminants	No contaminants at 10^{-5} dilution
pH	4.5-6.0
Moisture content by weight	30-40%
Distinguishing characteristic(s), minimum	At least 5 mm solubilization zone in prescribed media

Table 6 - Minimum requirements for Endophytic Bacteria

Base	Solid
Viable Cell Count, minimum	10^6 cfu/g
Contaminants	No contaminants at 10^{-5} dilution
pH	6.0-7.0
Moisture content by weight	30-40%

Table 7 - Minimum requirements for *Trichoderma*

Base	Solid
Viable Spore Count, minimum	10^8 cfu of *Trichoderma*/g
Contaminants	No contaminants at 10^{-5} dilution
pH	5.0-6.5
Moisture content by weight	5-10%

Table 8- Minimum requirements for Vesicular Arbuscular Mycorrizhal (VAM) Fungi

Base	Solid
Most probable number (MPN) Solid inoculant Root inoculant	 10 spores/g 2,300 Infective Propagules (IP)/g
Contamination level	Nematode-free
pH	4.5 - 8.0
Moisture content by weight, minimum	Solid - <10% Root Inoculant - 15-20%

Table 9- Minimum requirements for Ectomycorrhizae

Base	Solid (Tablet/Powder)
Spore Count, minimum	10^8 spores/g

Table 10 - Minimum requirements for *Azotobacter*

Base	Solid
Viable Cell Count, minimum	10^8 cfu/g
Contaminants	No contaminants at 10^{-5} dilution
pH	6.0-7.0
Moisture content by weight	25-30%
Distinguishing characteristic(s)	Watery colonies on Burks medium

5.3 Contaminants

5.3.1 The pathogens in solid and liquid organic fertilizers, organic soil conditioners, and organic plant supplements should be in accordance with the allowable levels shown in Table 11.

Table 11 - Allowable level of pathogens for solid and liquid organic fertilizer, organic soil conditioner, and organic plant supplement

Pathogens	Allowable Level
Fecal *Streptococci*	<5 x 10^2 cfu/g <2 MPN/g
Total coliforms	<5 x 10^2 cfu/g <2 MPN/g
Salmonella	Absent in 25 g

5.3.2 The heavy metals in solid and liquid organic fertilizers, organic soil conditioners, and organic plant supplements should be in accordance with the levels shown in Table 12.

Table 12 - Maximum allowable level of heavy metals for solid and liquid organic fertilizer, organic soil conditioner, and organic plant supplement

Heavy Metals	Maximum Allowable Level (mg/kg dry wt.)
Arsenic (As)	20
Lead (Pb)	50
Chromium (Cr)	150
Mercury (Hg)	2
Cadmium (Cd)	5

5.4 Absence of foreign materials

Plastics, aluminum, wrappers, stones, and other materials shall be totally removed from the product.

6 Sampling methods for laboratory analysis

All finished products should be subjected to a lot sampling for laboratory analysis using the following procedures:

6.1 For composite sampling of solid products

6.1.1 The production documents containing the number of bags per batch number and bag number should be presented to the inspector.

6.1.2 The inspector should randomly select the bag number.

6.1.3 The selected bags should be emptied into a clean area. All contents of the selected bags should be thoroughly mixed.

6.1.4 Three kilograms (3 kg) of the composite sample should be submitted to the laboratory.

6.1.5 Information relative to the sample taken shall be accurate and complete to allow traceability of the sample back to the lot from which it was sampled.

Table 13 - Required number of samples for solid products

Number of bags per batch	Bags to be sampled
≤50	2
51 to 100	3
101 to 300	8
301 to 500	15
501 to 1000	20
More than 1000	20 per 1000

6.2 For composite sampling of liquid products:

6.2.1. The production documents containing the number of containers per batch number and container number should be presented to the inspector.

6.2.2. The inspector should randomly select the container number and subject the selected containers for analysis.

6.2.3. Information relative to the sample taken shall be accurate and complete to allow traceability of the sample back to the lot from which it was sampled.

Table 14- Required number of samples for liquid products

Number of containers [a] per batch	Containers to be sampled
≤50	1
51 to 100	2
101 to 300	3
301 to 500	4
More than 500	5
[a] 1 container should be at least 1 L	

7 Methods of Analysis

7.1 The methods of analysis to test the organic fertilizer, organic soil conditioner and organic plant supplement should be in accordance with the methods listed in

Annex A.

7.2 The methods of analysis for the presence of contaminants in microbials should be in accordance with the methods listed in Annex B.

8 Labeling

8.1 Label should be of such design and material that does not deteriorate easily, become illegible, or get separated from the container under the rigors of transport, storage, and use. It should withstand extreme weather conditions.

8.2 The minimum information on the label of organic soil amendments are the following:

8.2.1 Name of product
8.2.2 Name of distributor/ manufacturer
8.2.3 Address and Contact number of distributor/ manufacturers
8.2.4 Date manufactured
8.2.5 Net content
8.2.6 Product information
  a. Raw materials (optional)
  b. Nutrient content (Total N-P_2O_5-K_2O content)
  c. Product description and type
8.2.7 Lot/ Batch No.
8.2.8 Expiry date (for liquid fertilizers)
8.2.9 Compatibility with Bio- pesticides (optional)
8.2.10 Directions for use
8.2.11 Storage and disposal
8.2.12 Warning/ precautions
8.2.13 List of microbial inoculants used for enrichment (as applicable)

Bibliography

PNS/BAFS 07:2016 – Organic Agriculture

PNS/BAFS 183: 2016- Organic Soil Amendments

PNS/BAFS 291:2019 – Code of Practice on the Production of Organic Soil Amendments

USDA. USDA National Organic Program Standards for Organic Agriculture

Annex A
(normative)
Methods of analysis for organic fertilizer, organic soil conditioner and organic plant supplement

Table A.1- Methods of analysis for the specifications of solid and liquid organic fertilizers, organic soil conditioner, and organic plant supplements

Specifications	Methods of Analysis
Total Nitrogen	Kjeldahl Method
Phosphorus	Molybdovanado Phosphoric Acid
Potassium	Spectrophotometry Ammonium Acetate Method
Total Organic Carbon	Modified Walkley-Black Method
Organic Matter	Modified Walkley-Black Method
Moisture content	Gravimetric Method

Table A.2 – Methods of analysis for the level of pathogens for solid and liquid organic fertilizers, organic soil conditioner, and organic plant supplements

Pathogens	Methods of Analysis
Fecal *Streptococci*	MPN Method/ Pour Plate/ Viable plate count
Total coliforms	MPN Method/ Pour Plate/ Viable plate count
Salmonella	Conventional/ Selective enrichment method

Table A.3 – Methods of analysis for the level of heavy metals for solid and liquid organic fertilizers, organic soil conditioner, and organic plant supplements

Heavy Metals	Methods of Analysis
Arsenic (As)	Acid Digestion and Quantitation by HG-AAS or Inductively Coupled Plasma-Optical Emission Spectrometer (ICP-OES)
Lead (Pb)	Acid Digestion and Quantitation by GF-AAS or Inductively Coupled Plasma-Optical Emission Spectrometer (ICP-OES)
Chromium (Cr)	Acid Digestion and Quantitation by GF-AAS or Inductively Coupled Plasma-Optical Emission Spectrometer (ICP-OES)
Mercury (Hg)	Acid Digestion and Quantitation by CV-AAS or Inductively Coupled Plasma-Optical Emission Spectrometer (ICP-OES)
Cadmium (Cd)	Acid Digestion and Quantitation by GF-AAS or Inductively Coupled Plasma-Optical Emission Spectrometer (ICP-OES)

Note: HG- Hydride Generator; GF- Graphite Furnace; CV- Cold Vapor

Annex B
(informative)

Methods of analysis for the microbial inoculants

Table B.1– Methods of analysis for the microbial inoculants

Microbial inoculant	Methods of Analysis
Rhizobia	Viable plate count and determination of phenotypic characteristics/ Glucose-peptone test
Azospirillum	Viable plate count and determination of phenotypic characteristics /Plating on nitrogen-free medium and Gram stain
Phosphate solubilizer (Bacteria)	Viable plate count and determination of phenotypic characteristics / Plating on Pikovskaya medium and Gram Stain
Phosphate solubilizer (Fungi)-Spore forming	Viable plate count and determination of phenotypic characteristics
Endophytic bacteria	Plating on the medium specific for the isolate and Gram Stain
Decomposer and Microbial Inoculant (*Trichoderma*)	Viable plate count and determination of phenotypic characteristics
Vesicular Arbuscular Mycorrizhal (VAM) Fungi	Wet sieving, decanting method and microscopic determination
Azotobacter	Viable plate count and determination of phenotypic characteristics/ Plating on Burks medium and Gram Stain

Department of Agriculture
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PNS/BAFS 291:2019
ICS

Code of practice for the production of organic soil amendments

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Foreword

The Philippine National Standard (PNS) Code of practice for the production of organic soil amendments was developed by the Bureau of Agriculture and Fisheries Standards (BAFS). The standard should be used in conjunction with the Philippine National Standard for Organic Soil Amendments (PNS/BAFS 183).

A Technical Working Group (TWG) for the development of the Standard was created as per Department of Agriculture Special Order No. 313 Series of 2016. This Standard has been approved by the Secretary of the Department of Agriculture in 2019.

This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2.

1 Scope

This Code covers the general practices for the production of organic soil amendments in order to achieve the minimum requirements specified under the Philippine National Standard for Organic Soil Amendments (PNS/BAFS 183). Emphasis is made on how to minimize contamination from microbiological, physical, and chemical hazards in accordance with the relevant provisions under the Philippine National Standard for Organic Agriculture (PNS/BAFS 07). This also safeguards worker's health, safety and welfare and minimize environmental hazards associated with the production of organic soil amendments.

This Code does not pose limit to the advancement on the technology for the production of organic soil amendments as long as it is consistent with the minimum requirements recommended by PNS/BAFS 183 and PNS/BAFS 07.

2 Normative references

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

PNS/BAFS 07, *Organic Agriculture*

PNS/BAFS 183, *Organic Soil Amendments*

3 Terms and definitions

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

3.1
organic soil amendment
includes all the products within the scope of the PNS Organic Soil Amendments (PNS/BAFS 183), e.g. organic fertilizers, compost/soil conditioner, microbial inoculants, and organic plant supplements

3.2
raw materials
naturally occurring materials used in the production of organic soil amendment

3.3
site
preparation, production, packing, handling, and storage areas

4 Site and design of production facility

The site and design of the production facility should not compromise the product quality and safety of the workers. In particular, the structure should always be kept clean and properly ventilated.

For the preparation of microbial inoculants, the structure should allow thorough cleaning and disinfection to ensure that pathogens do not grow in the facility or on the equipment.

4.1 Production site

The production site shall comply with related and applicable regulations of the competent authority/ies.

4.2 Site management

Measures should be taken to ensure that the production site and its immediate environment are clean and free from possible sources of contamination (e.g. stray animals, non-biodegradable wastes, hazardous wastes, etc.). Management practices should be observed to prevent pollution of soil, water, and air.

5 Production of organic soil amendments

5.1 Choice of raw materials

Raw materials used in organic production should be consistent with the principles of the PNS/BAFS 07. Raw materials with substrates contaminated with heavy metals and, hazardous chemicals shall be avoided.

5.2 Processing

5.2.1 Solid organic fertilizer and compost/soil conditioner

Single or a combination of raw materials should undergo proper decomposition process to reach a minimum of 60°C to destroy pathogenic microorganisms.

5.2.2 Liquid organic fertilizer and organic plant supplement

Heavy metal contaminated raw materials should be avoided in the production of liquid organic fertilizer and organic plant supplement.

Liquid organic fertilizer and organic plant supplement should undergo complete fermentation process followed by proper handling and aeration.

5.2.3 Microbial inoculant

The carrier should be able to sustain a high population of the inoculum strain during the storage period. This can be done through sterilization of the carrier material. Carriers for seed or soil inoculation may be prepared from various types of materials.

Properties of good carrier materials are found in Annex A.

6 Packaging, labeling, and storage

Organic soil amendments shall be packed, labeled, and stored in accordance with the relevant provisions recommended by PNS/BAFS 183.

6.1 Packaging

Contact of packaging materials for organic soil amendments with any substance that would likely compromise the integrity of these products and pose risk of contamination should be avoided.

The use of biodegradable and recyclable packaging materials is encouraged.

Reuse of packaging materials from agrochemicals is prohibited.

6.2 Labeling

Labels of bottles, cartons, bags, and sachets shall be in accordance with the provisions under PNS/BAFS 183.

6.3 Storage

Organic soil amendments should be stored separately from other materials.

Organic soil amendments should be stored separately from other products. The storage area should be well-ventilated and appropriately protected from weather conditions which can affect the quality of the finished product. In addition, the storage areas should be free from wastes which may become breeding places for pests and where spillage and leakage are easily cleared.

Microbial inoculants should be stored under appropriate conditions.

7 Waste management

An operational waste management plan should be implemented and properly documented. Proper segregation of wastes should be strictly observed.
Proper disposal of empty containers and packaging materials should be followed in accordance with the rules and regulations set by the concerned regulatory agency.

Liquid wastes should not be disposed directly to bodies of water.

8 Worker's health, safety and welfare

8.1 Labor conditions

Employers shall ensure that the working conditions are suitable for the workers. Workers shall be treated in accordance with the country's labor rules and regulations, including the minimum working age, set by the competent authority. New workers are informed about the risks associated with health and safety when starting at the worksite.

8.2 Worker's safety/Personal Protective Equipment (PPE)

All workers including contractors or visitors should maintain an appropriate degree of personal hygiene. Wearing of protective clothing, gadgets, and safe manual handling practices should be followed. In cases of emergency, there should be available first aid measures and appropriate disaster prevention and control measures.

8.4 Trainings

Employers and workers should have appropriate knowledge or be trained in their area of responsibility, such as operating equipment and tools, accident and emergency procedures, safe use of substances, and personal hygiene. Evidence on the conduct of training should be kept.

9 Traceability

A complete set of records of organic soil amendment production shall be kept in conformance with Traceability and Record keeping of PNS/BAFS 07.

Annex A
(informative)

Properties of carrier materials for microbial inoculants

Good carrier materials should have the following properties: (1) non-toxic to the inoculum strain; (2) good moisture holding capacity; (3) easy to process and free of lump-forming materials; (4) easy to sterilize by autoclaving or gamma-irradiation; (5) available in adequate amounts; (6) inexpensive; (7) good adhesion to seeds; (8) good pH buffering capacity; and (9) non-toxic to plants.

Bibliography

Agricultural Training Institute (ATI) - Regional Training Center VIII. (2006). *Farmer's guide on bio-organic inputs from plants, fish & animal liquid extracts*. Leyte: Visayas State University.

Bashan, Y. (1998). Inoculants of plant growth-promoting bacteria for use in agriculture. *Biotechnology Advances, 16*(4), 729-770.

Calub, B.M., Matienzo, E.L.A., & Tenorio, M.A. (2011). *Mga pamamaraan sa organikong gulayan*. Laguna: University of the Philippines Los Baños.

Department of Agriculture – Cordillera Administrative Region. (n.d.). *Material inputs for organic farming*.

Hollyer, J., Brooks, F., Fernandez-Salvador, L., Castro, L., Meyer, D., Radovich, T., & Russo, S. (2013). *The allowed use of commercial fertilizers, pesticides, and synthetic substances on U.S. farms under the USDA National Organic Program.* Hawaii: University of Hawaii at Manoa.

ISO 9000:2015, *Quality management systems – Fundamentals and vocabulary*

PNS/BAFS 07:2016, *Philippine National Standard (PNS) for Organic Agriculture*

PNS/BAFS 49:2017, *Code of good agricultural practices (GAP) for fruits and vegetable farming*

PNS/BAFS 183:2016, *Philippine National Standard (PNS) for Organic Soil Amendments*

Somasegaran, P. & Hoben, H.J. (1985). *Methods in legume-Rhizobium technology*. University of Hawaii NifTal Project and MIRCEN, Department of Agronomy and Soil Science, Hawaii Institute of Tropical Agriculture and Human Resources, College of Agriculture and Human Resources.

United States Department of Agriculture (USDA). (2016). *National Organic Program Standards for Organic Agriculture*.

United States Department of Agriculture (USDA). (2011). *Guidance on Processed Animal Manures in Organic Crop Production*. Washington, DC: USDA Agricultural Marketing Service National Organic Program.

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PHILIPPINE NATIONAL STANDARD

PNS/BAFS 112:2016
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Organic Aquaculture

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Foreword

The Philippine National Standard (PNS) for Organic Aquaculture (PNS/BAFS 112:2016) was originally prepared and adopted in 2012. Organic aquaculture encourages polyculture production system, promotes the use of indigenous/endemic species under the extensive and semi-intensive culture systems, reduces/minimizes inputs of artificial ingredients, prohibits the use of genetically modified organisms (GMOs), and considers ecological conditions necessary for sustainable aquaculture production.

The PNS for Organic Aquaculture was revised by the Technical Working Group (TWG) organized by the Bureau of Agriculture and Fisheries Standards (BAFS) through a Department of Agriculture (DA) Special Order No.476, Series of 2015. The TWG is composed of members representing the Bureau of Fisheries and Aquatic Resources (BFAR), Organic Certification Center of the Philippines (OCCP), Southeast Asian Fisheries Development Center Aquaculture Department (SEAFDEC-AQD), Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD) and Central Luzon State University (CLSU). This PNS was presented and reviewed during the consultative meetings with the concerned stakeholders in Region I (Pangasinan) and Region XI (Davao City). Comments gathered during the consultations were carefully evaluated by the TWG and included accordingly in the final version of this standard. Drawn from the general principles of the Philippine National Standard on Organic Agriculture, this PNS on Organic Aquaculture attempts to cover the aquaculture production and postharvest operations in order to ensure the integrity of organic products. The requirements for the inclusion of Substances and Criteria for the development of the list of substances shall follow the Philippine National Standards for Organic Aquaculture and the Guidelines for the Production, Processing, Labelling and Marketing of Organically Produced Foods (GL 32-1999).

The revision of this PNS was undertaken in order to achieve equivalence with the existing international standards and its future amendment, and takes into consideration the new developments and inclusion of the identified potential species for organic aquaculture. Thus, this PNS identifies minimum requirements on documentation, conversion to organic aquaculture, parallel production, selection of site, interaction with surrounding ecosystem, organic fertilization, aquatic plants, aquatic animal sources/origin, breeding and hatchery management, aquatic animal nutrition and feeding, aquatic animal health and welfare, harvesting, post-harvest handling, transport and processing, storage, and social aspects.

1 Scope

The Philippine National Standard for Organic Aquaculture establishes the guidelines for the operation of organic aquaculture in different aquatic environments (fresh, brackish and marine) and the production of quality fishery products that are safeguarded from contamination of harmful and toxic chemical substances and use of artificial ingredients, from pre-production to marketing to enhance food safety for human consumption and to provide options to consumers/markets.

This Standard focuses on minimum requirements for the management of aquatic animals and plants in order for the product to be labeled as Certified Organic.

2 References

The titles of the publications referred to in this Standard are listed in the inside back cover.

3 Definitions

For purposes of this Standard, the following definitions shall apply:

3.1
aquaculture[1]
fishery operation involving the breeding and farming of fish and fishery species in fresh, brackish and marine water areas

3.1.1
freshwater aquaculture
fishery operation involving the raising and culturing of fish in a water body originating from lakes, reservoirs, streams and rivers having a salinity from 0 to 0.5 parts per thousand

3.1.2
brackishwater aquaculture
farming of aquatic plants and animals in confined waters along the shoreline where the salinity maybe highly variable within each year from near freshwater during rainy season up to seawater or even higher during dry season

3.1.3
mariculture
farming of aquatic plants and animals in unconfined open waters of the sea including bays, coves and estuaries regardless of actual salinity level or depth

3.1.4
extensive aquaculture system
known as traditional aquaculture, low stocking density (Annex 1),depend basically on available natural food in the culture facility

3.1.5

[1] The terms breeding, farming, raising and culturing in the definitions of aquaculture are synonymous

semi-intensive aquaculture system
higher stocking density (Annex 1), depend on natural food which is increased over baseline levels by fertilization and use of supplementary feed

3.2
aquatic plants
plants that must grow in water whether rooted in the mud or floating without anchorage, plants that must complete part or all of their life cycle in or near the water

3.2.1
macroalgae/seaweed
any of a large number of marine benthic algae. They are macroscopic, multicellular, and macrothallic, in contrast to most other algae

3.2.2
microalgae
small microscopic aquatic photosynthetic plants. Microalgae are also called phytoplankton

3.3
artificial ingredient
synthetically produced or are found in nature but manufactured artificially and produced more economically, with greater purity and more consistent quality, than their natural counterparts

3.4
biodiversity
variety of life forms and ecosystem types on Earth. Includes genetic diversity (i.e. diversity within species), species diversity (i.e. the number and variety of species) and ecosystem diversity (total number of ecosystem types)

3.5
carrying capacity
maximum size of population of a given species that can be supported in a given area or volume of a body of water which will not lead to the deterioration thereof

3.6
certification
procedure by which Organic Certifying Bodies (OCB) provides written attestation that food or inputs or food control system conform to applicable organic agriculture standards and requirements.

3.7
competent authority
official government agency having jurisdiction

3.7
conventional aquaculture
farming systems using artificial feeds, inorganic fertilizers and/or pesticides or failing to conform to this standard in any other way

3.8
conversion
act of changing an aquaculture system from traditional/conventional to organic. This covers what is sometimes known as transition

3.9
conversion period
time between the start of the organic management and the certification of aquaculture products as organic

3.10
ecological footprint
a calculation that estimates the area of the Earth's productive land and water required to supply the resources than an individual or group demands, as well as to absorb the wastes that the individual or group produces

3.11
endemic species
species restricted or native to a particular region

3.12
exotic species
species that are introduced or non-native; foreign

3.13
genetically modified organisms (GMOs)
organisms that possess a novel combination of genetic materials obtained through the use of modern bio-technology

3.14
homeopathic treatment
treatment of disease based on administration of remedies prepared through successive dilutions of a substance that in larger amounts produces symptoms in healthy subjects similar to those of the disease itself

3.15
indigenous species
species that are native and occur naturally to a number of places at once

3.16
inoculums
cells used in an inoculation, such as cells added to start a culture

3.17
licensing
process of approval of an application to operate or establish an establishment prior to engaging in the manufacture, importation, exportation, sale, offer for sale, distribution, transfer, and where applicable the use, testing, promotion, advertisement, and/or sponsorship of products

3.19
organic
particular farming and processing systems, described in the standards and not in the classical chemical sense. The term "organic" is synonymous in other languages to "biological" or "ecological"

3.20
parallel production
any production where the same unit is growing, breeding, handling or processing the same products in both a certified organic system and a non-certified or non-organic system. A situation with "organic" and "in conversion" production of the same product is also parallel production. Parallel production is a special instance of split production

3.21
polyploid organism
organism having more than the diploid number of chromosomes

3.22
registration
process of approval of an application to register products prior to engaging in the manufacture, importation, exportation, sale, offer for sale, distribution, transfer, and where applicable, the use, testing, promotion, advertisement, and/or sponsorship of products

3.23
standards
norms, sets of guidelines, requirements and principles that are used as in organic aquaculture and processing. The term "standards" as used here refers to Philippine National Standards for Organic Aquaculture relevant to local aquatic ecosystems production

3.24
sustainable aquaculture
management of aquaculture and the orientation of technological and institutional change to ensure the attainment and continued satisfaction of human needs for present and future generations

3.25
veterinary drugs
any substance applied or administered to any food-producing animal, such as meat or milk-producing animals, poultry, fish or bees, whether used for therapeutic, prophylactic or diagnostic purposes or for modification of physiological functions or behaviour

4 General principles

4.1 Organic aquaculture is a strategic approach to develop and manage farms in a manner that conforms to the ecosystem approach by integrating aquaculture within the wider ecosystem to promote sustainability.

4.2 It is carried out in such a manner that produces the least effect on local biological and ecological processes and promotes environmental integrity.

4.3 It complies with all fishery and related environmental laws, such as FAO Code of Conduct for Responsible Fisheries, FAO Aquaculture Certification Guidelines, EU Commission Regulation (EC) No. 710/2009 and other related international guidelines, Code of Aquaculture Practices (BFAR FAO 214) and social/ ethical standards including but not limited to applicable HACCP principles in aquaculture.

4.4 It ensures the integrity of organisms from source until its final destination, minimizing inputs using artificial ingredients and prohibiting genetically modified organisms (GMOs).

4.5 It strives to preserve the endemic species while exercising utmost precaution in the introduction of exotic ones.

4.6 It promotes the health and welfare of the organisms by minimizing stress, reducing/eradicating the incidence of disease, and trying to meet their physiological and behavioural needs.

4.7 It promotes a safe, healthy and sustainable working environment for workers.

4.8 It integrates sound and adequate systems of documentation and tracking for purposes of traceability.

5 Minimum requirements

Practices for organic aquaculture shall meet the following requirements:

5.1 Documentation

Organic aquaculture management plan that describes in detail:

5.1.1 Suitability of the site, site description, health condition of immediate marine habitats and available information on ecological footprint and carrying capacity of the resource system;

5.1.2 Farm size, design and layout and source of water;

5.1.3 Water management;

5.1.4 Location of adjacent conventional fish farms and potential sources of contaminants;

5.1.5 Biodiversity conservation;

5.1.6 Pre-production and production system (broodstock and fry selection, production calendar, pond preparation, fertilization, control of predators, etc.);

5.1.7 Production targets;

5.1.8 Inputs used, quantity and sources applied per unit area or volume;

5.1.9 Management of aquaculture stock per production cycle as determined by the competent authority for every production unit:

a. Stocking and harvest [stocking density based on species and culture system (Annex 1), average body weight, survival rate and volume of production per unit area or volume];

b. Feed type and feeding management [frequency, rate and target feed conversion ratio (FCR)];

c. Record and probable cause of mortality during the culture period; and

d. Cleaning agents and disinfectants used (chemical type, product name, quantity and duration/frequency of use).

5.1.10 Fish health management (disease occurring in the locality and disease management practice employed);

5.1.11 Biosecurity measures to insulate the organic system from contamination risks;

5.1.12 Harvest and post-harvest practices;

5.1.13 Transport, storage facilities and storage practices;

5.1.14 Past use of the site with respect to waste, sediments and water quality; and

5.1.15 Applicable laws and existing regulations especially those pertaining to mangrove protection and reforestation and fisheries conservation.

5.2 Conversion to organic aquaculture

5.2.1 Conversion period from extensive, semi-intensive and intensive culture systems shall be at least one (1) production cycle subject to the condition of the pond.

5.2.2 In cases where the water has been drained and the facility cleaned and disinfected with permitted cleaning materials a conversion period is not required, subject to the result of the laboratory analysis. During the conversion period the stock should not be subject to treatments or exposed to products which are not permitted for the production of organic foods.

5.2.3 Operators should make sure that conversion to organic aquaculture addresses environmental factors, and past use of the site with respect to waste, sediments and water quality.

5.2.4 Before products from a farm can be certified as organic, inspection shall have been carried out during the conversion period.

5.2.4 An inspection is required before an individual farmer or enterprise shall be granted a certificate. An initial assessment may be required to determine if the farm is compliant to organic aquaculture standards. If the farm meets the minimum requirements, the inspection and certification processes can proceed. The length of the conversion period shall be based on the results of the pre-assessment. During the conversion period, products cannot be sold as certified organic but as products as in conversion.

5.2.5 Once the conversion production cycle has been completed in a single unit, subsequent production cycles in the same, or different units may be developed as certified organic, provided an application is made, all standards are adhered to, and records are kept for inspection.

5.3 Parallel production

5.3.1 In open water systems, conventional and organic production units must be well separated by a minimum of 50 meters, provided no direct current flow or tidal influence should be considered in the positioning of both installations to avoid water effluent or direct contamination.

5.3.2 For land-based installations, there must be physical barriers such that water cannot circulate between organically certified and conventional units.

5.3.3 Feed and other input supplies for the different production methods must be clearly labeled and separated with physical barriers such as partition or wall.

5.3.4 Preparation of farm-made feeds for the different production methods should be kept separated in terms of space and/or time.

5.3.5 If a unit is switched from organic to conventional management at any point in the growing cycle, the affected organisms cannot be sold as organic.

5.3.6 Adequate documentation must be available for inspection for both production systems.

5.3.7 There should be a dedicated farm manager/personnel for certified organic farms.

5.4 Selection of site, interaction with surrounding ecosystem

5.4.1 Compliant to applicable environmental and fishery laws and existing regulations such as, but not limited to the Bureau of Fisheries and Aquatic Resources' (BFAR) Fisheries Administrative Order (FAO) 214: Code of Practice for Aquaculture, Sec. 2. Site selection/evaluation.

5.4.2 In case of installation of new or improvement of already existing projects/farms, this shall not cause irreversible damage to natural vegetation in the area. On the contrary, conservation and reforestation of mangroves is encouraged where applicable.

5.4.3 For open water environments the prevailing natural ecological balance shall remain significantly undisturbed and the natural populations are not endangered.

5.4.4 Water sources shall have minimal or no contaminants such as antibiotics, bio-contaminants, heavy metals, hormone disrupting chemicals, pesticides, and radioactive substances[2] (Annex 2), as determined through testing at least once a year or every renewal of the organic certification.

5.4.5 Aquatic ecosystems shall be managed to comply with relevant requirements of organic ecosystems[3].

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

5.4.7 Water discharged from farming operation shall be treated or managed to prevent excessive nutrient build up either on or off site to the operation in compliance to the Department of Environment and Natural Resources (DENR) Administrative Order No. 35 s. 1990 – Revised Effluent Regulations of 1990, Revising and Amending the Effluent Regulations of 1982.

5.4.8 A treatment or settling pond is recommended for land-based organic farms for water that will be directly discharged to open waters.

5.4.11 All equipment shall be regularly maintained to ensure its structural integrity and this information should be properly recorded.

5.4.12 The use of life support system will be allowed within the limit of semi-intensive system. in consistent with the Stocking Density

[2] Based from the European Atomic Energy Act as cited by European Nuclear Society radioactive substances are:

a. nuclear fuels, i.e.
    i) plutonium 239 and plutonium 241,
    ii) uranium enriched with the isotopes 235 or 233,
    iii) any substance containing one or several of the substances mentioned in a) and b),
    iv) substances which can be used in a suitable plant to maintain a chain reaction which initiates its own repetition and which are determined in an ordinance having the force of law.
b. other radioactive substances which - without being nuclear fuel -,
    i) spontaneously emit ionizing rays,
    ii) contain one or several of the substances mentioned in a) or are contaminated with such substance
c. at least five percent of the perimeter ("land-water interface") area shall have natural vegetation.

[3] Based from IFOAM standard for organic ecosystem, a farm should place appropriate areas under its management in wildlife refuge habitat. These include:

a. waterways, pools, springs, ditches, floodplains, wetlands, swamps and other water rich areas which are not used for intensive agriculture or aquaculture production;
b. areas with ruderal flora; and
c. wildlife corridors that provide linkages and connectivity to native habitat.

5.4.13 An organic aquaculture farm/project shall preferably be constructed in areas upstream of the water source.

5.4.14 Rearing units on land shall meet the following conditions: [4]

a. for flow-through systems it shall be possible to monitor and control the flow rate and water quality of both in-flowing and out-flowing water;

5.5 Organic fertilization

The application of organic material as fertilizer must comply with the Philippine National Standard for Organic Fertilizer (PNS/BAFS 40:2013) or must seek prior approval from the accredited certifying body.

5.6 Aquatic plants

5.6.1 Aquatic plant production shall comply with the relevant requirements of organic ecosystems and crop production.

5.6.2 Distance of contamination sources, whether chemical, biological or radioactive, shall be assessed at the time of inspection.

A. Seaweed *(Kappaphycus spp., Eucheuma spp., Gracilaria spp., etc.)*

5.6.3 Seaweed shall be grown in areas that satisfy the minimum requirements for growth. In addition to this:

a. sustainable practices shall be used in all stages of production, from collection of seaweed propagules to harvesting; and
b. to maintain good quality planting materials, the collection in the wild should be done in a sustainable manner.

B. Microalgae *(Spirulinaspp.,Chlorellaspp., Dunaliellaspp., etc.)*

5.6.4 Seawater used for microalgae culture should be free of other organisms that may compete with the microalgae, such as other species of phytoplankton, phytophagous zooplankton, or bacteria.

5.6.5 Only physical sterilization such as filtration, autoclaving, pasteurization, UV treatment for seawater is allowed.

5.6.6 Algae can be cultured in controlled water systems and photo bioreactors (such as tanks, polyethylene sleeves or bags, glass or plastic tubes).

5.6.7 Algal inoculum or seed for new culture shall be sourced from algal production.

5.7 Aquatic animal sources/origin

[4] Based from the EC No. 710/2009, Article 25g 2

5.7.1 Indigenous species in the country/locality shall be preferred.

5.7.2 Aquatic animals shall be raised organically from hatching.

5.7.3 If organic animals are not available, animals from registered hatcheries can be used, provided that they spend the last two thirds of their life span in the organic system.

5.7.4 Operators shall not utilize polyploid organisms or monosex stock or stock having undergone sex reversal resulting from hormonal treatment and/or genetic engineering/ manipulation.

5.7.5 Wild larvae of fish and crustacean shall be allowed for stocking when there is a passive in flow when the ponds or other aquaculture constructions are refilled. Mollusk larvae are also allowed for stocking if they have settled on substrate which has been specially introduced for this purpose.

5.7.6 Post larvae/juveniles of fish, mollusk and crustacean collected in the wild shall also be allowed for stocking and raising using organic methods.

5.8 Breeding and hatchery management

5.8.1 The Competent Authority should decide whether or not to approve closed recirculation systems. The use of life-support systems after a thorough examination and evaluation of the total environmental viability and compatibility with organic production.

5.8.2 Breeding should reflect the natural environment as closely as possible, in terms of ambient conditions appropriate for the type of species. Manual sorting/sexing or selection, stripping of gametes and incubation of eggs are allowed.

5.8.3 For natural reproduction or spawning, the use of fresh pituitary gland, even from the same species is not allowed except for species such as catfish, including *pangasius spp.,* and carp that do not spawn naturally in captivity.

5.8.4 Broodstock shall come from a registered organic hatchery.

5.8.5 Wild sourced broodstock shall also be allowed in accordance with BFAR regulations.

5.8.6 Hatcheries shall be registered by BFAR.

5.9 Aquatic animal nutrition and feeding

5.9.1 Animals shall be fed organic feed.

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

    i) Inadequate quantity or quality of organic feed only during first one third culture period of the species);

ii) Areas where organic aquaculture is in early stages of development.

In no case may the percentage of non-organic feed of agricultural origin exceed 20**%** dry matter calculated on per production cycle basis.

b. Operators may use non-organic aquatic animal protein and oil sources provided they:

i) shall be harvested from independently verified sustainable sources;

ii) shall be verified to have contamination levels below limits established by the standard-setting body, and

iii) shall not constitute 100% of the diet.

c. The standard-setting or certifying body shall set the following:

i) appropriate percentage requirement of organic ingredient as diet;

ii) implementation date for requiring at least 50**%** of diet be of organic ingredients.

5.9.2 The following substances are prohibited in the diet:

a. farm animal by-products (e.g. abattoir waste) of ruminants;

b. slaughter products of the same species;

c. all types of excrements including droppings, dung or other manure;

d. feed subjected to solvent extraction (e.g. hexane) or the addition of other chemical agents;

e. amino-acid isolates;

f. urea and other synthetic nitrogen compounds;

g. synthetic growth promoters or stimulants;

h. synthetic appetite stimulants;

i. artificial preservatives; and

j. artificial coloring agents.

k. use of wild fish juveniles as 'trash fish'

5.9.3 Synthetic vitamins, minerals and supplements may be used when natural sources are not available.

5.9.4 Feed containing genetically modified organisms (GMO) or their products are not allowed.

5.9.5 Feeding of natural pigments (e.g. in the form of shrimps shells or *Phaffia* yeast) is permitted. This must be limited to the degree of pigmentation found under natural circumstances.

5.9.6 The diet for aquatic animals shall meet the nutritional requirements of the species.

5.9.7 Feed applied shall promote the natural feeding behaviour of the species and shall be calculated as per body weight requirement to minimize excess feeds that may pollute the environment.

5.9.8 The use of wild fish juveniles as 'trash fish' for aquaculture feeds shall not be allowed.

5.10 Aquatic animal health and welfare

5.10.1 In any production system where use of antibiotics or other prohibited treatments may be necessary, treated stock must be withdrawn from the organic production stream and may only be marketed as conventional product.

5.10.2 In case of disease outbreak, the use of veterinary drugs should be limited to two courses of treatment per production cycle, with the exception of vaccines and compulsory eradication schemes. If the specified limits are exceeded the aquaculture animals concerned should not be sold as organic.

5.10.3 Use of synthetic hormones, growth promoters or growth-enhancing substances as well as other synthetic feed additives (e.g. synthetic amino-acids, chemo-synthetic pigments) to artificially stimulate growth or reproduction shall be prohibited.

5.10.4 Disease and pest control shall take the form of proactive best/good management practices. Only permitted substances for disease and pest control (Annex 3.2) must be used. Any succession/addition/revision from relevant standard setting bodies shall be adopted and shall be in accordance to the criteria established in the Guidelines for the Production, Processing, Labelling and Marketing of Organically Produced Foods (GL 32-1999), Section 5, Requirements for Inclusion of Substances and Criteria for the Development of List of Substances.

5.10.5 In the event of critical (non-routine) prohibited input use, stocks in the treated sections shall no longer be certified as organic. Treatment with prohibited substances shall not affect certification of the entire operation but only in instances where no transmission occurs to other stocks.

5.10.6 Emergency harvest must be considered as an alternative action or method to avoid use of drug treatment. Harvest shall be marketed as a conventional product if fit for human consumption.

5.10.7 When treatment is necessary, the use of natural methods and medicines must be first choice. Disease treatment must be carried out at once/immediately so that it minimizes harmful effects on the environment and the animals' health.

5.10.8 Permitted treatments may be used as prophylactics or routine but within the framework of statutory regulations such as:

(i) use of natural physical methods (in particular drying out, freezing out);

(ii) use of non-residue building, inorganic compounds e.g hydrogen peroxide (H_2O_2), common salt (NaCl), lime ($CaCO_3$), quicklime (CaO), calcium hydroxide [$Ca(OH)_2$], sodium hypochlorite (NaOCl);

iii) use of naturally occurring, non-residue building organic compounds (e.g. per-acetic acid, citric acid, formic acid, alcohol);

iv) use of naturally occurring plant substances (in particular *Labiate* and *Allium* species; rotenone from *Derris spp*., *Lonchocarpus spp.* or *Tephrosia spp*.; saponin from Camella; extracts from *Azadirachta indica* (neem tree), oil emulsions (free of synthetic chemical insecticides) on the basis of paraffin oils, mineral oils and vegetable oils, pyrethrum extracts from *Chrysanthemum cinerariaefolium* (synthetic pyrethroids and synergists are prohibited) and quassia from *Quassiaamare*;

v) preparations of viruses, fungi and beneficial bacteria (e.g. *Bacillus thuringensis*) and other forms of probiotics; and

vi) use of homeopathic products.

5.10.9 The stock shall be regularly inspected with respect to its status of health. Dead organisms shall be removed from the holding system immediately.

5.10.10 Operators shall manage the operation and routinely monitor water quality, stocking densities, health and behavior of stock.

5.10.11 Certified organic fish shall not come in contact with uncertified stock during their life cycle.

5.10.12 Construction material of tanks, dams or cages shall not pose contamination risks to stock and shall enable the species in question to satisfy its natural behavioral patterns in the culture environment.

5.11 Harvesting, post-harvest handling, transport and processing

5.11.1 Existing applicable provisions of OIE, EC and CODEX shall be followed.

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

5.11.3 Harvesting shall have minimal negative impact on other natural species.

5.11.4 Harvesting, handling and transporting of live organisms must be done with minimal stress and injury to the organisms and must meet species-specific physiological needs.

5.11.5 Good water quality must be maintained during transport. Live organisms must be secured and overcrowding avoided.

5.11.6 Post-harvest handling and processing must follow the standards for post- harvest hygiene and handling practices to maintain the quality of the product. The use of synthetic preservatives must not be allowed.

5.11.7 Water and ice used must be of good quality and meet the public health standard.

5.11.8 Operators must ensure that equipment/method used to stun/shock animals is sufficient to produce numbness and/or kill the organism.

5.11.9 Transportation equipment and/or materials must comply with the existing national and international regulation with respect to environmental considerations and must not contaminate the product.

5.12 Storage

5.12.1 Organic and conventional aquaculture products must be stored separately to avoid co-mingling.

5.12.2 Inputs and equipment storage facilities must be well-ventilated and always kept thoroughly pest-free and clean from decaying wastes, slime and foul smell.

5.12.3 Only permitted disinfectants (Annex 3.1) and clean water must be used in cleaning storage facilities and equipment. Any succession/addition/revision from relevant standard setting bodies shall be adopted and shall be in accordance to the criteria established in GL 32-1999, Section 5.

5.12.4 Cleaners and disinfectants on food contact surfaces shall be used in a way that maintains the organic integrity of the product. Unless otherwise noted in the Annex 3.1 and 3.2, the operator is required to perform an intervening event between the use of any cleaners or disinfectant and the contact of the organic product in that surface. Acceptable intervening events include a hot-water rinse, a sufficient flush of organic product that is not sold as organic product, or adequate time for the substances to volatilize.

5.13 Social aspect

5.13.1 The employment of women and minors must be in accordance with current labor standards.

5.13.2 Wages/salaries and benefits must comply with the rates prescribed by the Regional Tripartite Wages and Productivity Boards (RTWPB) of the Department of Labor and Employment (DOLE).

5.13.3 Employment of minors in hazardous activities must be prohibited.

5.13.4 Wage discrimination because of age and gender must be prohibited.

5.13.5 Organic farms shall demonstrate equal rights for land and water use, not deny local communities access to public mangrove areas, fishing grounds and public resources.

References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

Algaculture. (n.d.). Retrieved March 4, 2016, from http://en.wikipedia.org/wiki/Algaculture

Australian Certified Organic, 2003. Organic Standard – Version 6, August 2003. 7.8 Aquaculture.

CAC/RCP 52-2003 Rev.6-2011. Code of Practice for Fish and Fishery Products. Codex Alimentarius Commission. Rome, Italy.

COABC Draft Discussion Paper: Organic Aquaculture Production Standard. Certified Organic Associations of British Columbia.

Coutteau, P., 1996. FAO Fisheries Technical Paper 361.Manual on the Production and Use of Live Food for Aquaculture. Food and Agriculture Organization of the United Nation. Rome, Italy.

COCAFM 2011. Implementing Rules and Regulations (IRR) for Republic Act 10068 (Organic Agriculture Act of 2010). Congressional Oversight Committee on Agricultural and Fisheries Modernization. Philippines.

DA Department Circular No. 06 s. 2015. Revised Guidelines for the Official Accreditation of Organic Certifying Bodies (OCB). Department of Agriculture. Quezon City, Philippines

Defining Micro and Macro Algae. (n.d.). Retrieved March 4, 2016, from http://saltaquarium.about.com/od/algaemarineplantcare/a/macromicroalgae.htm

FAO 1995.Code of Conduct for Responsible Fisheries. Food and Agriculture Organization of the United Nation. Rome, Italy.

FAO Fisheries & Aquaculture - FI fact sheet search. (n.d.). Retrieved March 4, 2016, from http://www.fao.org/fishery/culturedspecies/search/en

Fisheries Administrative Order 214 s. 2001. Code of Practice for Aquaculture. Bureau of Fisheries and Aquatic Resources. Department of Agriculture. Quezon City, Philippines.

German Technical Cooperation (gtz) and Federal Ministry for Economic Cooperation and Development. Organic Bangus Farming. Attachment B: Final Revision Draft IFOAM Organic Aquaculture Production Standards.

GL 32-1999. Guidelines for the Production, Processing, Labelling and Marketing of Organically Produced Foods. Codex Alimentarius Commission. Rome, Italy.

IFOAM 2009.The IFOAM Norms for Organic Production and Processing Version 2005.Corrected version 2009.International Federation of Organic Agriculture Movements. Germany.

Naturland Standards for Organic Aquaculture, May 2010. Part B; I. Principles of Management. Naturland – Association for Organic Agriculture, Registered Association. Kleinhademer Weg 1, 82166 Gräfelfing, Germany.

Official Journal of European Union, August 2009. Commission Regulation (EC) No. 710/2009 of 5 August 2009 amending Regulation (EC) No. 889/2008 laying down detailed rules for the implementation of Council Regulation (EC) No. 834/2007, as regards laying down detailed rules on organic aquaculture animal and seaweed production.

Official Journal of European Union, July 2007. Council Regulation (EC) No. 834/2007 of 28 June 2007 on Organic Production and Labeling of Organic products and Repealing Regulation (EEC) No. 2092/91.

PNS/BAFPS 07:2003. Organic Agriculture-Specification. Bureau of Agriculture and Fisheries Standards. Department of Agriculture. Quezon City, Philippines.

PNS/BAFPS 135:2014. Code of Good Aquaculture Practices. Bureau of Agriculture and Fisheries Standards. Department of Agriculture. Quezon City, Philippines.

Polyploid. (n.d.). Retrieved March 4, 2016, from http://www.memidex.com/polyploid organism

Presidential Decree No. 442, As Amended.1974. A Decree Instituting A Labor Code Thereby Revising and Consolidating Labor and Social Laws to Afford Protection to Labor, Promote Employment and Human Resources Development and Insure Industrial Peace Based On Social Justice. Philippines.

Republic Act No. 8550, An Act for the Development, Management and Conservation of the Fisheries and Aquatic Resources, Integrating All Laws Pertinent Thereto, and for Other Purposes. Philippines. 25 February 1998.

Republic Act No. 9711, An Act strengthening and rationalizing the Food and Drugs (BFAD) by Establishing Adequate Testing Laboratories and Field Offices, Upgrading its Equipment, Augmenting its Human Resource Complement, Giving Authority to Retain its Income, Renaming it the Food and Drug Administration (FDA), Amending Certain Sections of Republic Act No. 3720, As Amended, And Appropriating Funds Thereof. 18 August 2009

Republic Act No. 16008, An Act Providing for the Development and Promotion of Organic Agriculture in the Philippines and for other Purposes. Philippines. 06 April 2010.

Seaweed - Definition, Glossary, Details - Oilgae. (n.d.). Retrieved March 4, 2016, from http://www.oilgae.com/ref/glos/seaweed.html

USFDA and IFIC November 2004, revised April 2010. Food Ingredients and Colors. United States Food and Drug Administration and International Food Information Council Foundation. Washington, DC 20036.

WWF 2007.Binary Item 5976.Glossary of Terms. World Wildlife Fund. Washington, DC 20037-1193.

Annex 1

Recommended Stocking Density Based on Species and Culture Systems[5]

Species	Stocking Density (Grow-out)	Culture System	Remarks
1. Milkfish, *Chanos chanos*	Pond: 3,000 to 5,000 pcs/ha	Extensive/Semi-intensive	-with large shallow pond units, tidal water exchange, natural food, minimal use of fertilizer alternating with organic feed and other inputs
	Pen: 5,000 to 10,000 pcs/ha	Extensive	-with supplemental organic feed
	Cage: 10 to 30 pcs/m^3	Semi-intensive	- with organic feed
2. Nile Tilapia, *Oreo chromis niloticus*	Pond: 1 to 4 pcs/m^2	Extensive/Semi-intensive	with supplemental organic feed
	Cage: 10to 35 pcs/m^3	Semi -intensive	with supplemental organic feed
3. Striped Catfish, *Pangasius hypophthalmus*	Pond: 1 to 4 pcs/m^2	Extensive/semi-intensive	with supplemental organic feed
4. Bighead Carp, *Hypophthalmichthys nobilis*	10,000 pcs/ha	Polyculture in alternate cropping w/ milkfish in ponds	-as major species
	5,000 pcs/ha	Polyculture in alternate cropping w/ milkfish in pens	-as secondary species, depending on the size and fertility of the water body
5. Giant Gourami	1-2pcs/m^2	In ponds	with supplemental organic feed
6. Common Carp	1-2 pcs/m^2	In ponds	

[5] Based from Food and Agriculture Organization of the United Nations (FAO) Fisheries and Aquaculture Department 2011 – Cultured Aquatic Information Programme (http://www.fao.org/fishery/culturedspecies/search/en); and Bureau of Fisheries and Aquatic Resources, Department of Agriculture (BFAR-DA).

Annex 1 (Cont…)

7. Orange Spotted Grouper, *Epinephelus coioides* Snapper and Seabass	Pond: 500 to 1,000 pcs/ha (~6 cm TL)	Polyculture with *Tilapia (Oreochromismos sambicus)*	with supplemental organic feed
	Cage: 5 to 10 pcs/m^3	Semi-intensive	with supplemental organic feed
8. Giant Tiger Prawn, *Penaeus monodon*	2 pcs/m^2	Extensive	with supplemental organic feed
9. Giant River Prawn, *Macrobrachium rosenbergii rosenbergii and M. rosenbergii dacquetti*	1to 3 pcs/m^2	Extensive / Polyculture w/Tilapia	with supplemental organic feed
	4 to 7 pcs/m^2	Semi-intensive	with supplemental organic feed
10. White leg Shrimp, *Litopenaeus vannamei*	4 to 10 pcs/m^2	Extensive	with supplemental organic feed
	10 to 30 pcs/m^2	Semi-intensive	with supplemental organic feed
11. Mangrove Crab *Scylla serrata* *S. olivacea* *S. tranquebarica*	500-2000pcs/ha	Polyculture with milkfish and Grouper juvenile in pond	with supplemental organic feed
12. *Siganid spp* *Siganus guttatus* *S. vermiculatus*	Pond: 1000-2000 pcs/ha	Polyculture with milkfish and shrimps in pond	with supplemental organic feed
	Cage: 0.5-1pc/m^3	Polyculture with milkfish	with supplemental organic feed
	Cage 5pcs/m^3	monoculture	with supplemental organic feed

Annex 2

Water Quality Criteria for Pollutants, Toxic and Other Deleterious Substances for Fresh, Coastal and Marine Waters (For the Protection of Public Health)[6]

PARAMETER (Maximum Limits)	UNIT	FRESHWATERS		COASTAL & MARINE WATERS			
		Class C	Class D	Class SA	Class SB	Class SC	Class SD
Arsenic[(a)]	mg/L	0.05	0.1	0.05	0.05	0.05	--
Cadmium[(a)]	mg/L	0.01	0.05	0.01	0.01	0.01	--
Chromium[(a)](hexavalent)	mg/L	0.05	0.1	0.05	0.1	0.1	--
Cyanide	mg/L	0.05	--	0.05	0.05	0.05	--
Lead[(a)]	mg/L	0.05	0.5	0.05	0.05	0.05	--
Total Mercury[(a)]	mg/L	0.002	0.002	0.002	0.002	0.002	--
Organo-phosphate	mg/L	Nil	Nil	Nil	Nil	Nil	--
Aldrin	mg/L	--	--	0.001	--	--	--
DDT	mg/L	--	--	0.05	--	--	--
Dieldrin	mg/L	--	--	0.001	--	--	--
Heptachlor	mg/L	--	--	Nil	--	--	--
Lindane	mg/L	--	--	0.004	--	--	--
Toxaphane	mg/L	--	--	0.005	--	--	--
Methoxychlor	mg/L	--	--	0.10	--	--	--
Chlordane	mg/L	--	--	0.003	--	--	--
Endrin	mg/L	--	--	Nil	--	--	--
PCB	mg/L	--	--	0.001	--	--	--
Surfactants (MBAS)	mg/L	0.05	--	0.2	0.3	0.5	--
Oil/Grease (Petroleum Ether Extract)	mg/L	2	5	1	2	3	5
Phenolic Substances as Phenols	mg/L	0.02[(b)]	--	nil	0.01	(b)	--
Total Coiliforms	MPN/100ml	5000[(c)]	--	70[(c)]	1000[(c)]	1000[(c)]	--
Fecal Coliforms	MPN/100ml	--	--	nil	200[(c)]	--	--
Copper	mg/L	0.05[(e)]	--	--	0.02[(d)(e)]	0.0[(e)]	--

[6] Based from Department of Environment and Natural Resources (DENR) Administrative Order No. 34 s. 1990 (March 20, 1990). Revised Water Usage and Classification/Water Quality Criteria Amending Section Nos. 68 and 69, Chapter III of the 1978 NPCC Rules and Regulations.

Annex 2 (Cont…)

Legend:

Class C – fishery water for the propagation and growth of fish and other aquatic resources.

Class D – other inland waters, by their quality, belong to this classification.

Class SA – waters suitable for the propagation, survival and harvesting of shellfish for commercial purposes.

Class SB – fishery water Class I (spawning areas for *Chanos chanos or Bangus*and similar species).

Class SC – fishery water class II (commercial and sustenance fishing).

Class SD – other coastal and marine waters, by their quality, belong to this classification.

(a) – do not apply if natural background is higher in concentration. The latter will prevail and will be used as baseline.

(b) – not present in concentrations to affect fish flavor/taste.

(c) – these values refer to the geometric mean of the most probable number of coliform organism during a 3-month period and that the limit indicated shall not be exceeded in 20 percent of the samples taken during the same period.

(d) – for spawning areas of *Chanoschanos* and other similar species.

(e) – limit is in terms of dissolved copper.

nil – extremely low concentration and not detectable by existing equipment.

-- - means the standard of these substances are not considered necessary for the present time, considering the stage of the country's development and DENR capabilities, equipment and resources.

Annex 3.1

Permitted Cleaning and Disinfection Treatments for Organic Aquaculture[7]

Substance
I. Substances for cleaning and disinfection of equipment and facilities, in the absence of aquaculture animals
Ozone
Sodium Chloride
Sodium Hypochloride
Lime (CaO, calcium oxide)
Caustic soda
Alcohol
Hydrogen peroxide
Organic acids (acetic acid, lactic acid, citric acid)
Humic acid
Peroxyacetic acids
Iodophores
Copper sulphate
Potassium permanganate
Paracetic and peroctanoic acids
Tea seed cake made of natural camellia see (use restricted to shrimp production)
II. Limited list of substances for use in the presence of aquaculture animals
Limestone (Calcium carbonate) for PH control
Dolomite for PH correction (use restricted to shrimp production.

Annex 3.2

Permitted Substances for Pest and Disease Control for Aquaculture in the absence of Animals or in the Presence of Animals

1. Tea meal (AA)	
2. Rotenone (AA)	
3. Potassium permanganate (PA)	Only allowed in the hatching stage with an advice from fishery biologist or veterinarian
4. Hydrogen peroxide (PA)	Only allowed in the hatching stage with an advice from fishery biologist or veterinarian
5. Povidine iodine (PA)	Only allowed in the hatching stage with an advice from fishery biologist or veterinarian

[7] Source: GL 32-1999. Guidelines for the Production, Processing, Labelling and Marketing of Organically Produced Foods.

Department of Agriculture
Bureau of Agriculture and Fisheries Standards

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PHILIPPINE NATIONAL STANDARD

PNS/BAFS 187:2016
ICS _____

Organic Aquaculture Feeds

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Foreword

The Bureau of Agriculture and Fisheries Standards (BAFS) in line with its mandate under Republic Act 10068 or the Organic Agriculture Act of 2010, initiated the development of Philippine National Standard (PNS) for Organic Aquaculture Feeds to address the needs of the organic aquaculture industry. It aims to provide minimum requirements for the production of organic feeds for organic aquaculture animals.

The PNS for Organic Aquaculture Feeds was developed by the Technical Working Group (TWG) organized by the Bureau of Agriculture and Fisheries Standards (BAFS) through a Department of Agriculture (DA) Special Order No.183, Series of 2015. The TWG is composed of members representing the Bureau of Animal Industry (BAI), Bureau of Fisheries and Aquatic Resources (BFAR), Organic Certification Center of the Philippines (OCCP), Southeast Asian Fisheries Development Center Aquaculture Department (SEAFDEC-AQD), Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD) and Central Luzon State University (CLSU). This PNS was presented and reviewed during the consultative meetings with the concerned stakeholders in Region I (Pangasinan), XI (Davao City) and NCR (Quezon City). Comments gathered during the consultations were carefully evaluated by the TWG and included accordingly in the final version of this standard. Drawn from the general principles of the PNS on Organic Aquaculture, this PNS on Organic Aquaculture Feeds attempts to cover the aquaculture feed formulation and preparation in order to ensure the integrity of organic products. The requirements for the inclusion of feed additives, processing aids and other ingredients and criteria for the development of the list of ingredients shall follow the PNS for Organic Aquaculture and Organic Agriculture.

This PNS identifies the minimum requirements on the organic aquaculture feed products and forms, essential composition and quality factors (including raw materials, feed additives, processing aids and other ingredients), hygiene and handling, packaging and labeling, methods of sampling, examination and analysis and definition of defectives.

1 Scope

This Standard applies to the formulation and preparation of nutritionally adequate complete organic aquaculture feeds or *aquafeeds*, either farm-made or commercial, for culture of aquatic animals such as fish and crustacean. This also covers organic *aquafeeds* that are custom-mixed, organic feed ingredients and additives, and other feed products claimed organic.

2 References

The titles of the standards and publications referred to in this Standard are listed on the inside back cover.

3 Definition of terms

For the purpose of the standard, the following terms shall mean:

3.1
adulterant
refers to any biological or chemical agent, foreign matter and other substances intentionally added to feed during the production, manufacture, processing, preparation, treatment, packing, packaging, transport or holding of such feed which may compromise feed safety, or suitability. It may be added to more expensive substances to increase visible quantities and reduce manufacturing costs, or for some other deceptive or malicious purpose.

3.2
aflatoxins
refers to a group of highly toxic mycotoxins produced by fungi of the genus *Aspergillus*.

3.3
ash
refers to the mineral matter of a feed or feed ingredient remaining after burning off the dry matter.

3.4
batch number
refers to a designation in numbers or letters or combination thereof assigned by the manufacturer to a particular batch of feed or feed ingredient produced during a given cycle of manufacture/production that identifies the batch and permits the tracing or tracking of the batch.

3.5
complete feed
refers to a mixture or combination of feed ingredients supplements and additives by specific formula to be fed directly as sole ration to animals which is capable of furnishing the nutritional needs or requirements of the animal in order to maintain life, promote growth, production and reproduction without any additional substance except water.

3.6
commercial organic *aquafeeds*
refer to those manufactured by companies, whose primary business is aquatic animal feedstuff production.

3.7
contaminant
refers to any substance not intentionally added to food or feed for food-producing animals (including fish and crustaceans), which is present in such food or feed as a result of the production, manufacture, processing, preparation, treatment, packing, packaging, transport or holding of such food or feed, or as a result of environmental contamination. The term does not include insect fragments, rodent hairs and other extraneous matter.

3.8
crude fat or ether extract
refers to the fats, oils, waxes and similar components found in feeds and feed ingredient, which are extracted with warm ether in chemical analysis.

3.9
crude fiber
refers to the coarse, fibrous and indigestible portion of feeds and feed ingredients, relatively low in digestibility and nutritive value such as cellulose, hemi-cellulose and lignin.

3.10
crude protein
refers to the proteins and all other nitrogenous compounds in feeds and feed ingredients.

3.11
custom-mixed feed
refers to a feed which is compounded or mixed according to the specifications of the final buyer or user for his own use/consumption or for use of a limited clientele and not intended for sale to the general public.

3.12
farm-made organic *aquafeed*
refers to small-scale *aquafeed* manufactured encompassing everything from simple hand-formed doughballs to small feed production units (New, 1992); those made for the exclusive use of a particular farming activity, not for a commercial scale or profit; feeds made by individuals or groups of individuals who are primarily farmers.

3.13
feed additive
refers to an ingredient or combination of ingredients which is added to the basic mixed feed to fulfill a specific need which include, but not limited to, duly registered acidifiers, antioxidants, aromatics, deodorizing agents, flavor enhancers, mold inhibitors, pellet binders, preservatives, sweeteners, toxin binders, artificial color attractants, astaxanthin, etc. It is usually used in micro quantities and requires careful handling and mixing. A feed additive may have no nutritive value but is added to the feed to improve its quality and efficacy.

3.14
feed digestibility
refers to the percentage of the dry matter or particular nutrient in the diet that the animal absorbs into the body through the digestive tract.

3.15
feed fines
refer to fine feed particles produced after pelleting at plant.

3.16
feed ingredient
refers to a component part or constituent of any combination or mixture making up a feed, [whether or not] it has a nutritional value in the animal's diet, including feed additives. Ingredients are of plant, animal or aquatic origin, or other organic substances.

3.17
feed stability
refers to an ability of feed to maintain its integrity in the water thus becoming available to aquatic animals.

3.18
label
refers to any written, printed or graphic matter attached, affixed to or found in any package, bag, bale, sack, barrel, bin, can, canister or any other container of mixed feeds, feed ingredients, feed supplements, feed additives, base mixes, concentrates, specialty feeds, special feed nutrient preparations and/or other feed products.

3.19
lot number
refers to a designation in numbers or letters or combination thereof assigned to a particular feed product produced under the same raw material source with the same formulation assigned by the manufacturer.

3.20
mesh size
refers to the number of openings per square inch of mesh (e.g. number 4-4 openings per square inch; 16-16 openings per square inch).

3.21
moisture content
refers to the water content of the feed.

3.22
organic
refers to the particular farming and processing systems, described in the standards and not in the classical chemical sense. The term "organic" is synonymous in other languages to "biological" or "ecological".

3.23
organic *aquafeed*
refers to any duly certified complete feed prepared on farm or manufactured by duly certified organic and registered feed mill/processing plant, distributed and traded for organic farming of aquatic animals which are raised for human consumption.

3.24
organic feed miller
refers to a feed miller/processor/manufacturer producing organic *aquafeeds* duly certified by organic certifying body (OCB) and registered by the competent authority.

3.25
package
refers to a sack, bag, barrel, box, bin, can, canister or any other container for feeds and/or feed ingredients.

3.26
proximate analysis
refers to the process of determining the major constituents of feed partitioning nutrients into 6 components: moisture, crude protein, crude fiber, ether extract, nitrogen-free extract (NFE) and ash.

3.27
supplemental feed
refers to feed supplied to meet the nutrient requirement of fish for growth and maintenance when natural food is inadequate.

4 Description

Organic *aquafeeds*, in any form, are prepared from safe and organic feed and feeding ingredients, milled and processed in a way that maintains the organic integrity of the feeds. When machines, tools and equipment is not exclusively used for organic products, the equipment should be properly cleaned before processing organic feeds.

5 Essential composition and quality factors

5.1 Organic *Aquafeeds*

5.1.1 This feed should be prepared from sustainable and quality organic raw materials and shall provide adequate nutritional requirements to produce acceptable performance to crustaceans, fish and mollusks reared in aquaculture farms/ponds and other culture facilities.

5.2 Raw materials

5.2.1 Raw materials for organic aquaculture feeds shall be sourced from duly certified organic and registered local feed ingredient suppliers. When imported raw materials are used, these must be certified and registered organic.

5.2.2 Raw materials shall be good sources of needed nutrients like protein, essential amino acids, lipids, essential fatty acids, carbohydrates, vitamins and minerals.

5.2.3 Raw materials containing molds, which are sources of aflatoxin shall not be used.

5.2.4 Limited percentage of non-organic feed may be used in areas where organic aquaculture is in early stages of development. The percentage of non-organic feed of agricultural origin should not exceed 20**%** dry matter calculated on per production cycle basis.

5.2.5 For carnivorous aquaculture animals, feed products derived from the whole fish caught in sustainable fisheries as determined by competent authority shall be allowed at an inclusion limit of up to 60%.

5.2.6 The following substances are prohibited in the products:

a) farm animal by-products (e.g. abattoir waste) of ruminants;
b) slaughter products of the same species;
c) all types of manure;
d) feed subjected to solvent extraction (e.g. hexane) or the addition of other chemical agents;
e) crystalline synthetic amino acid isolates;
f) urea and other synthetic nitrogen compounds;
g) synthetic growth promoters or stimulants;
h) synthetic appetite stimulants;
i) artificial preservatives;
j) artificial coloring agents;
k) genetically modified organisms (GMO) or their products;
l) wild fish juveniles; and
m) veterinary drugs (e.g. antibiotics).

5.2.7 Synthetic vitamins, minerals and supplements may be used when natural sources are not available.

5.2.8 Inclusion of natural pigments (e.g. in the form of crustacean shells or *Phaffia* yeast) is permitted. This must be limited to the degree of pigmentation found under natural circumstances.

5.2.9 The feed for aquatic animals shall meet the nutritional requirements of the species.

5.3 Feed Additives, processing aid and other ingredients

5.3.1 Substances used as feed additives, processing aids and other ingredients are listed in Annex A. Any succession/addition/revision from relevant standard setting bodies shall be adopted and shall be in accordance to the criteria established in the Philippine National Standard for Organic Agriculture (PNS/BAFS 07:2016), Section 12, *Minimum requirements for inclusion of substances in Organic Agriculture Production Systems*.

5.3.2 Additives and processing aids shall be used under the following conditions:

- if the purpose is to maintain the nutritional value of a product;
- if the purpose is to enhance the keeping quality or stability of the product;
- if the purpose is to provide the product with an acceptable composition, consistency, and appearance;
- there is no possibility of producing a similar product without the use of the additive or processing aid;
- it is not included in amounts greater than the minimum required to achieve its function;
- it does not in any major way detrimentally affect the environment; and
- it shall not deceive the consumer concerning the nature, substance, and quality of the food.

5.3.3 The use of salt and water must comply with the FDA regulations such as Republic Act No. 8172, PNS for drinking Water, DOH-AO 2007-001, and the FDA Bureau Circular No. 2007-009.

5.4 Final product

5.4.1 The final product must be nutritionally balanced, palatable, digestible, water stable, storage stable and has the proper size and texture for target/cultured species.

5.4.2 The final product shall meet all the requirements enumerated below:

Table 1 – Nutrient standards for complete organic aquafeeds

Feed type	Crude protein % NLT	Crude fat % NLT	Crude fiber % NMT	Ash % NMT
I. Crustaceans				
A. P. monodon				
a. Larval diet	(50)[1]	4	4	16
b. Fry mash	38	4	4	16
c. Starter crumble/Pellet	37	4	4	16
d. Grower pellet	35	4	4	16
e. Finisher pellet	32	4	5	16
f. Broodstock pellet[2]	-	-	-	-
B. P. vannamei/ Macrobrachium spp.				
a. Larval diet	(50)[1]	4	4	16
b. Fry mash	38	4	4	16
c. Starter crumble/Pellet	35	4	4	16
d. Grower pellet	30	4	4	16
e. Finisher pellet	26	4	5	16
f. Broodstock pellet[2]	-	-	-	-
III. Finfishes				

A. Herbivore/Omnivore fishes (e.g. Milkfish[3], tilapia, siganid etc.)				
a. Larval diet	(38)[1]	4	5	16
b. Fry mash	35	4	5	16
c. Pre-Starter crumble/Pellet	35	4	5	16
d. Starter crumble	29	4	8	16
e. Grower pellet	27	4	8	16
f. Finisher pellet	25	4	9	16
g. Broodstock pellet	(40)[1]	4	9	16

Table 1 – Nutrient standards for complete organic *aquafeeds (cont...)*

Feed type	Crude protein % NLT	Crude fat % NLT	Crude fiber % NMT	Ash % NMT
III. Finfishes				
B. Pangasius spp.				
a. Larval diet	-	-	-	-
b. Fry crumble	28	4	5	16
c. Starter crumble/Pellet	26	4	5	16
d. Grower/Juvenile pellet	22	4	6	16
e. Finisher/Adult pellet	22	4	6	16
f. Broodstock/Breeder pellet	22	4	5	16
C. Carnivore fishes (e.g. Grouper, snapper, seabass				
a. Larval diet	(48)[1]	8	6	16
b. Fry mash	44	8	6	16
c. Starter crumble	40	8	6	16
d. Grower pellet	38	8	6	16
e. Finisher pellet	35	8	6	16
f. Broodstock pellet[2]	(44)[1]	-	-	-

Legend: **NLT** - Not less than **NMT** - Not more than

[1] values are requirement levels
[2] no existing feed type in the market
[3] the following protein levels (%) suggested for supplemental feeds for Milkfish for ponds are: *a)* starter crumble 30, *b)* grower pellet 28, and *c)* finisher 27.

Table 2 – Physical requirements at plant

A. Fish and prawn or shrimp

Feed form	Fines[4] (%)	Moisture content maximum (%)
a. Mash[5]	100	12
b. Crumble	Not more than 10	12
c. Pellet (Sinking)		
Starter	Not more than 2	12
Grower	Not more than 2	12
Finisher	Not more than 2	12
d. Extruded		
Starter	Not more than 2	12
Grower	Not more than 2	12
Finisher	Not more than 2	12

[4] measured using a sieve having mesh size of 16 openings per square inch
[5] 1 mm and 0.5 mm particle sizes for fish and prawn/shrimp, respectively

Table 3 – Pellet feed water stability and floatability

Pellet feed type	Water stability % /	Floatability %
a. Pellet for fish		
Floater (Extruded)	90% / 45	90
Slow sinker	90% / 3	10[6]
Sinker	90% / 3	0
b. Pellet for prawn/shrim	90% / 180	

[6] most of the feed is slow sinking

5.4.3 Any organic aquaculture feed that does not comply with levels in Table 1 is considered supplemental feed and must be labeled as such.

6 Hygiene and handling

The final product shall be free from any foreign material and contaminants, microorganisms or substances originating from microorganisms, and any other substances which may present a hazard to the aquaculture species and human health.

7 Packaging and labeling

7.1 Packaging

The product shall be packed in sacks, bags, barrels, boxes, bins, cans, canisters or any other containers for feeds and/or feed ingredients that are clean and free from any foreign matters or contaminants.

7.2 Labeling

7.2.1 All containers or packages of organic *aquafeeds*, feed ingredients, specialty feeds and other nutrient/feed preparations for sale or offered for sale shall bear a complete label or tag.

7.2.2 Labels shall be attached or affixed to the package or to the container in such a way that the whole content of the label can be read without detaching it. Labels can also be printed directly to the container or package of the feed product.

7.2.3 Each label shall be printed in English, must be legible, clear and distinct in its meaning. Translations in Filipino and other languages shall be allowed provided English is the main language used.

7.2.4 Brand name and feed type or class of the feed, feed ingredient, feed supplement, feed additive, concentrate, base mix, specialty feed, special feed nutrient preparation or other feed products shall be printed with the biggest font size and located at the upper front portion of the tag or label.

7.2.5 Labels shall not contain any form of advertisement and/or claims that are false and misleading. Any advertisement containing any claim that the feed is suited for all purposes shall not be allowed and shall be considered a misleading advertisement.

7.2.6 Labels shall be placed on a conspicuous place on the container or package showing the following information:

a) Brand name or trademark of the product;
b) Generic name, type or class and form of the product;
c) Recommended species and species life stage;
d) Guaranteed analysis of the product which includes the following:
   -minimum percent of crude protein;
   -minimum percent of crude fat;
   -maximum percent of crude fiber;
   -maximum percent of moisture;
   -maximum percent of ash; and/or
   -other information relevant to the product;
e) Accepted or official name of each and every ingredient used in the product;
f) Name and complete address of the company;
g) storage condition;
h) Control/Code/Batch/Lot number;
i) Date of manufacture (MM/DD/YYYY);
j) Best Before Date (MM/DD/YYYY);
k) Net weight in metric equivalent;
l) Bureau of Animal Industry Registration Number of the company and the product;
m) OCB accreditation number issued by competent authority;
n) Organic certification mark/logo;
o) Certification number issued by OCB; and
p) the label “Product of the Philippines”.

7.2.7 Label or tag on each container shall show the production plant net weight in kilograms of the feed and/or feed ingredient. Such statements as "50 kilos gross" or "50 kilos when packed", etc. shall not be allowed.

8 Methods of sampling, examination and analysis

8.1 Method of sampling

Sampling of lots for physico-chemical examination of the product shall be in accordance with sampling plans based on FAO/WHO Codex Alimentarius Commission Sampling Plans for Prepackaged Foods (AQL =6.5) (CAC/RM42-1969). A sample lot (N) shall be the quantity of the product under similar conditions. A sample unit shall be the primary container where the product is in bulk, while the individual feed sack is the sample unit for retail packaged products.

8.2 Method of physical examination

Samples taken for physical examination shall be assessed by persons trained in such examination and using procedures elaborated in 8.3.

8.3 Methods of analysis

8.3.1 Proximate analysis and nutritional composition

8.3.1.1 Determination of ash
According to Association of Official Analytical Chemists (AOAC) International Official Methods of Analysis (OMA), Method No. 942.05, 18th Ed., Rev. 2, 2007.

8.3.1.2 Determination of crude fat
According to Association of Official Analytical Chemists (AOAC) International Official Methods of Analysis (OMA), Method No. 920.39, 18th Ed., Rev. 2, 2007.

8.3.1.3 Determination of crude fiber
According to Association of Official Analytical Chemists (AOAC) International Official Methods of Analysis (OMA), Method No. 962.09, 18th Ed., Rev. 2, 2007.

8.3.1.4 Determination of crude protein
According to Association of Official Analytical Chemists (AOAC) International Official Methods of Analysis (OMA), Method No. 968.06, 18th Ed., Rev. 2, 2007.

8.3.1.5 Determination of moisture
According to Association of Official Analytical Chemists (AOAC) International Official Methods of Analysis (OMA), Method No. 925.04, 18th Ed., Rev. 2, 2007.

8.3.2 Determination of aflatoxins B_1 content
According to Association of Official Analytical Chemists (AOAC) International Official Methods of Analysis (OMA), Method No. 975.36, 18th Ed., Rev. 2, 2007.

8.3.3 Determination of feed floatability
According to Method of Determining Floatability as described in Annex C.

8.3.4 Determination of feed water stability
According to Method of Determining Water Stability as described in Annex B.

8.3.5 Determination of heavy metals
According to the Codex Recommended Methods of Analysis and Sampling (CODEX STAN 37 234-1999) or an equivalent analysis method.

8.3.6 Determination of pesticides
According to Association of Official Analytical Chemists (AOAC) International Official Methods of Analysis (OMA), Method Nos. 990.06 and 992.14, 18th Ed., Rev. 2, 2007.

8.3.7 Determination of veterinary drugs in feeds
According to Association of Official Analytical Chemists (AOAC) International Official Methods of Analysis (OMA), Method No. 957.23, 18th Ed., Rev. 2, 2007.

9 Definition of defectives

The sample unit shall be considered as defective when it exhibits any of the properties defined below.

9.1 Foreign matter

The presence in the sample unit of any matter, which has not been recognized as feed composition (excluding packing material), that can cause harm to the aquaculture species, and is readily recognized without magnification or is present at a level determined by any method including magnification that indicates non-compliance with good manufacturing and sanitation practices.

9.2 Aflatoxin contaminations

Sample unit having a higher level of Aflatoxin (B_1) of more than 20 ppb at the plant level (production level).

9.3 Veterinary drugs

The presence in the sample unit of veterinary drugs i.e. antibiotics.

9.4 Pesticides

The presence in the sample unit of any pesticide.

References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

A.O. No. 12 s. 2007. Revised Implementing Rules and Regulations on the Registration of Feed Establishments and Feed Products. Bureau of Animal Industry, Department of Agriculture. Quezon City, Philippines.

Association of Official Analytical Chemists (AOAC) International, 2007. Official Methods of Analysis.18th Ed., Rev. 2 (www.eoma.aoac.org).

BAFS/PNS 07:2016. Philippine National Standard for Organic Agriculture. Bureau of Agriculture and Fisheries Standards. Department of Agriculture. Diliman. Quezon City.

BAFS/PNS 84-2010. Philippine National Standard for Aquaculture Feeds. Bureau of Agriculture and Fisheries Standards. Department of Agriculture. Diliman, Quezon City.

BAFS/PNS 112-2012. Philippine National Standard for Organic Aquaculture. Bureau of Agriculture and Fisheries Standards. Department of Agriculture. Diliman, Quezon City.

Bioland Standards April 26, 2005, page 45/45 (organic agriculture).

CAC/GL 80-2013. Guidelines on the Application of Risk Assessment for Feed. Food and Agriculture Organization/World Health Organization Codex Alimentarius Commission. Rome, Italy.

CAC/GL 81-2013. Guidance for Governments on Prioritizing Hazard in Feeds. Food and Agriculture Organization/World Health Organization Codex Alimentarius Commission. Rome, Italy.

CAC/RCP 52-2003, Rev. 2-2005. Code of Practice for Fish and Fishery Products. Food and Agriculture Organization/World Health Organization Codex Alimentarius Commission. Rome, Italy.

C.D.Webster and C.E. Lim (Eds), 2002. Nutrient Requirements and Feeding of Finfish for Aquaculture. CABI Publishing.10 E 40th Street Suite 3203, New York, NY 10016 USA. ISBN 0-85199-519-5.

CODEX STAN 193-1995, Rev. 2-2006. Codex General Standard for Contaminants and Toxins in Food. Food and Agriculture Organization/World Health Organization Codex Alimentarius Commission. Rome, Italy.

CODEX STAN 107-1981. Codex General Standard for the Labeling of Food Additives When Sold as Such. Food and Agriculture Organization/World Health Organization Codex Alimentarius Commission. Rome, Italy.

FAO, 1995. Technical Papers No. 343. Farm-made Aqua Feeds. ASEAN-EEC Aquaculture Development and Coordination Programme. Food and Agriculture Organization of the United Nations. Rome, Italy.

Final report on feed. Expert group for technical advice on organic production (EGTOP/1/2011). European Commission Agriculture and Rural Development. E-mail address: agri-exp-gr-organic@ec.europa.eu.

Herrman T. 2002. Mycotoxin in Feed Grains and Ingredients: U.S. Food and Drug Administration Guidelines for Acceptable Levels of Aflatoxin in Food and Feed. Kansas State University Agricultural Experiment Station and Cooperative Extension Service and Department of Grain Science and Industry.

J.E. Halver & R.W. Hardy (Eds), 2002. Fish Nutrition. 3rd Edition. Academic Press. 525 B Street, Suite 1900 San Diego California 92101-4495 USA. ISBN 0-12-319652-3.

Joint A.O. No. 2 s. 2000. Declaring a Ban/Phase-Out of the Use of Nitrofurans in Food-Producing Animals. Department of Health/Bureau of Animal Industry, Department of Agriculture. Metro Manila, Philippines.

Joint D.O.H. A.O. No. 4-A s. 2000 and D.A. A.O. No. 1 s. 2000. Banning and Withdrawal of Olaquindox and Carbadox from the Market. Department of Health/Bureau of Animal Industry, Department of Agriculture. Metro Manila, Philippines.

Joint D.O.H. A.O. No. 91 s. 1990 and D.A. A.O. No. 60 s. 1990. Declaring a Ban on the Use of Chloramphenicol In Food Producing Animals. Department of Health/Bureau of Animal Industry, Department of Agriculture. Metro Manila, Philippines.

Millamena, O.M., Coloso, R.M., and Pascual, F.P. 2002. Nutrition in Tropical Aquaculture. Essentials of fish nutrition, feeds, and feeding of tropical species. Aquaculture Department, Southeast Asian Fisheries Development Center. Tigbauan, Iloilo, Philippines

Nutrient Requirements of Fish. Committee on Animal Nutrition. Board on Agriculture. National Research Council. NATIONAL ACADEMY PRESS Washington, D.C. 1993.

Official Journal of the European Union L154/12. 15.6.2012. Commission implementing regulation (EU) no. 505/2012 of 14 June 2012 amending and correcting Regulation (EC) No. 889/2008 laying down detailed rules for the implementation of Council regulation (EC) No 834/2007 on organic production and labeling of organic products with regard to organic production, labeling and control.

Philippine Veterinary Drug Directory 2006. 8th Edition, pp. 411.

Roubach, R. *et al*., 2006. European Aquaculture Society and World Aquaculture Society –

Aqua 2006. Physical, Chemical and Biological Evaluation of Commercial Fish Feeds in Amazonas State (PowerPoint Presentation). Aquaculture Department. Instituto Nacional des Pesquisas da Amazonia. Amazonas, Brazil.

Tacon, A.G.J. The nutrition and feeding of farmed fish and shrimp – a training manual. Brasilia Brazil September 1987. FAO Trust Fund GCP/RLA/075/ITA Project Support to the Regional Aquaculture Activities for Latin America and the Caribbean.

Annex A

List of Permitted Additives, Processing Aids for the Production of Organic Aquaculture Feed

Feed additives, processing aids and other ingredients	Use
Calcium carbonate Calcium sulphate Oyster shell Ground limestone	Macro minerals
Sodium chloride Potassium chloride	Macro minerals
Dicalcium phosphate, anhydrous Dicalcium phosphate, dihydrate Tricalcium phosphate Bone meal[4]	Macro minerals
Chromic chloride	Micro minerals
Cobalt chloride, pentahydrate Cobalt chloride, hexahydrate	Micro minerals
Copper sulphate Copper sulphate, pentahydrate Copper chloride	Micro minerals
Potassium iodide Potassium iodate Calcium iodate Sodium iodide Ethyenediamine dihydriodide	Micro minerals
Ferrous sulphate, heptahydrate	Micro minerals
Magnesium (Mg) Magnesium carbonate Magnesium sulphate Magnesium sulphate, heptahydrate	Micro minerals
Manganese dioxide Manganese carbonate Manganese chloride, tetrahydrate Manganese sulphate Manganese sulphate, hydrate Manganese sulphate, tetrahydrate	Micro minerals
Sodium molybdate, dihydrate	

Sodium molybdate, pentahydrate	Micro minerals
Potassium orthophosphate Potassium dihydrogen orthophosphate Sodium dihydrogen orthophosphate Sodium dihydrogen orthophosphate, hydrate Sodium dihydrogen orthophosphate, dihydrate Rock phosphate	Micro minerals
Potassium chloride Potassium carbonate Potassium bicarbonate Potassium acetate Potassium orthophosphate Potassium sulphate	Micro minerals
Sodium selenite Sodium selenite	Micro minerals
Sodium chloride Sodium bicarbonate Sodium sulphate	Micro minerals
Zinc carbonate Zinc chloride Zinc oxide Zinc sulphate Zinc sulphate, hydrate Zinc sulphate, heptahydrate	Micro minerals
Ferric oxide Ferrous carbonate Ferrous sulphate, monohydrate Basic cobaltous carbonate, monohydrate Cobaltous sulphate monohydrate and/or heptahydrate Basic cupric carbonate, monohydrate Cupric oxide Cupric sulphate, pentahydrate Manganous carbonate Manganous oxide Manganous sulphate, monohydrate	Trace minerals
Sorbic acid Formic acid Acetic acid Lactic acid Propionic acid Citric acid Fumaric acid Sodium formate	Preservative
Sodium ferrocyanide	

Natrolite-phonolite Clinoptilolite (e.g. zeolite) Silicic acid	Anti-caking material
Colloidal silica Kieselgur (purified diatomaceous earth) Bentonite-montmorillonite Kaolonitic clays, asbestos-free Natural mixtures of stearite and chlorite Vermiculite Sepiolite Perlite	Binder
Calcium carbonate Magnesium carbonate	Feed materials
Lecithin	Emulsifying agent
Enzymes and microorganisms	Zootechnical additives
Vitamins and provitamins	Vitamins
Flavoring compounds	Flavor additives of agriculture origin only

Annex B
Banned drugs (as of 2009)

Drug	Administrative Order	Subject	Date
Clenbuterol, Salbutamol, Terbutalin, Pirbuterol	No. 14, Series of 2003 (Department of Agriculture)	Ban on the use in food animals of beta-agonist drugs used in human as bronchodilators and tocolytic agents.	May 12, 2003
Furaltadone, Furazolidone, Nitrofurazone	No. 2, Series of 2000 (Dept. of Agriculture & Dept. of Health)	Declaring a ban/phase-out of the use of nitrofurans in food-producing animals.	August 17, 2000
Carbadox, Olaquindox	No. 60, Series of 2000 (Dept. Agriculture) No. 4-A, Series of 2000 (Dept. of Health)	Ban and withdrawal of Olaquindox and Carbadox from the market.	January 11, 2000
Chloramphenicol	No. 60, Series of 1990 (Dept. Agriculture) No. 91, Series of 1990 (Dept. of Health	Declaring a ban on the use of chloramphenicol in food-producing animals.	April 30, 1990
Source: Philippine Veterinary Drug Directory, 8th Edition, 2006, pp. 411			

Annex C

Method of determining water stability

1. Wire baskets are totally oven-dried at 100°C (1-3 h), cooled in a dessicator, and weighed to constant weight.

2. A certain amount of feed (about 5 g) with known moisture content is then placed in the wire basket.

3. The wire baskets with feed are then allowed to stay in the water under conditions similar to those of the experimental tanks at designated times (2, 4, 6, and 8 h).

4. The wire baskets are then oven-dried, cooled in a dessicator, and weighed to constant weight.

5. Percent dry weight loss is calculated after subtracting the basket weight.

6. Percent water stability is then computed as: $\% \text{ Water stability} = \frac{Fo}{Io} \times 100$

where:

Io is the initial dry weight of feed; and

Fo is the final dry weight of feed.

Annex D

Method of determining feed floatability

1. Percent feed floatability can be determined using the equation:

$$\% \text{ Feed floatability} = \frac{100 - \text{immerse pellets}}{100} \times 100$$

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PHILIPPINE NATIONAL STANDARD

PNS/BAFS 337:2022
ICS 65.020

Organic Crop Production, Postharvest, and Processing — Code of Practice

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Foreword

In 2022, the Bureau of Agriculture and Fisheries Standards-Department of Agriculture (BAFS-DA) initiated the revision of sections on crop production, postharvest and processing of the PNS/BAFS 07:2016 (Organic Agriculture). This is in response to the result of the harmonization assessment of the Association of Southeast Asian Nations Expert Working Group on Organic Agriculture (ASEAN EWG – OA) of the national standards of the ASEAN Member States (AMS) against the ASEAN Standard on Organic Agriculture (ASOA). The revision aims to align the PNS to ASOA and update it based on industry practices to facilitate the trade of organic produce and products.

The Technical Working Group (TWG) tasked to develop the PNS was created through the Special Order (SO) No. 103, series of 2022 (Creation of TWG for the development of the PNS for agriculture and fishery products, machineries, and infrastructures) and SO No. 350, series of 2022 (Addendum to SO No. 103, series of 2022 entitled "Creation of TWG for the development of PNS for agriculture and fishery products, machineries, and infrastructures"). The TWG was composed of representatives from the relevant competent authority agencies, academe, private sector, and Civil Society Organizations (CSO). The draft PNS underwent a series of TWG meetings, stakeholder consultations, and writeshops conducted physically and via online platforms before its endorsement to the DA Secretary for approval.

This Standard cancel all the provisions related to crop production, postharvest, and processing under PNS/BAFS 07:2016 (Organic Agriculture). Provisions of PNS/BAFS 07:2016 related to animal production remain valid unless otherwise revoked.

This PNS is drafted in accordance with the BAFS-Standards Development Division (SDD) Standardization Guide No. 1: Writing the PNS.

1 Scope

This Standard defines the seed and crop production (including mushrooms), wild harvest (excluding honey), post-harvest, processing, handling, storage, and transport of organic produce and processed products to ensure their organic integrity.

2 Normative References

The following documents are referred to in the text in such a way that some or all their contents constitute requirements of this document. The latest edition of the referenced documents (including any amendments) applies.

An Act for Salt Iodization Nationwide (ASIN), Republic Act No. 8172. (1995). https://www.officialgazette.gov.ph/1995/12/20/republic-act-no-8172/

An act amending the Republic Act No. 10068 or the Organic Agriculture Act of 2010, Republic Act 11511. (2020). https://lawphil.net/statutes/repacts/ra2020/ra_11511_2020.html

Association of Southeast Asian Nations (ASEAN). (2014). ASEAN Standard for Organic Agriculture (ASOA). https://asean.org/wp-content/uploads/2021/08/ASEAN-STANDARD-FOR-ORGANIC-AGRICULTURE-ASOA.pdf

Bureau of Agriculture and Fisheries Standards -Department of Agriculture (BAFS-DA). (2018a). Code of hygienic practice for fruits and vegetables (PNS/BAFS 183:2018). http://www.bafs.da.gov.ph/bafs_admin/admin_page/pns_file/PNS%20BAFS%20233_2018.pdf

BAFS-DA. (2018b). Revised guidelines for the official accreditation of Organic Certifying Bodies (OCB). https://www.da.gov.ph/wp-content/uploads/2022/05/dc01_s2018.pdf

BAFS-DA. (2019). Code of practice for the production of organic soil amendments (PNS/BAFS 291:2019). http://www.bafs.da.gov.ph/bafs_admin/admin_page/pns_file/PNS%20291%20COP%20OSA.pdf

BAFS-DA. (2020). Organic Soil Amendments (OSA) (PNS/BAFS 183:2020). http://www.bafs.da.gov.ph/bafs_admin/admin_page/pns_file/PNS_OSA_183_2020_ENDORSED.pdf

Codex Alimentarius Commission (CAC) (2021). General standard for food additives (CXS 192-1995). https://www.fao.org/fao-who-codexalimentarius/sh-proxy/en/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FStandards%252FCXS%2B192-1995%252FCXS_192e.pdf

DA. (2018). Revised guidelines for the official accreditation of OCB (Department Circular [DC] No. 01, series of 2018). https://www.da.gov.ph/wp-content/uploads/2022/05/dc01_s2018.pdf

DA. (2020a). Guidelines for the establishment, maintenance and amendment of the national list of the permitted substances for organic agriculture (DC No. 07, series of 2020). http://www.bafs.da.gov.ph/bafs_admin/admin_page/laws_files/DC.No.07.Guidelines%20for%20the%20Establishment,%20Maintenance%20and%20Amendment%20of%20the%20NLPSOA.pdf

DA. (2020b). National list of permitted substances for organic agriculture (DC No. 09, series of 2020). http://bafs.da.gov.ph/bafs_admin/admin_page/laws_files/DC.No.09%20s%202020%20National%20List%20of%20Permitted%20Substances%20for%20OA.pdf

DA. (2022). Guidelines for the accreditation of the core Participatory Guarantee System Groups (PGS) and its operations as OCB (DC No. 03, series of 2022). https://www.da.gov.ph/wp-content/uploads/2022/07/dc03_s2022.pdf

Department of Health (DOH). (2017). Philippine National Standards (PNS) for drinking water of 2017 (DOH-Administrative Order [AO] 2017-0010). https://www.fda.gov.ph/wp-content/uploads/2021/08/Administrative-Order-No.-2017-0010.pdf

Ecological Solid Waste Management Act of 2000, Republic Act 9003. (2001). https://www.lawphil.net/statutes/repacts/ra2001/ra_9003_2001.html

Food and Drug Administration (FDA)-DOH. (2004). Current Good Manufacturing Practices (GMP) in manufacturing, repacking, or holding food (FDA AO No. 153, s.2004). https://www.fda.gov.ph/wp-content/uploads/2020/03/General-Standard-for-Food-Hygiene-Repealing-Administrative-Order-No.-153-s.-2004.pdf

FDA-DOH. (2007). Updated standards for iodine level of salt (Bureau Circular No. 2007-009). https://www.fda.gov.ph/wp-content/uploads/2021/08/Bureau-Circular-No.2007-009.pdf

Philippine Clean Air Act of 1999, Republic Act 8749. (1999). https://lawphil.net/statutes/repacts/ra1999/ra_8749_1999.html

Philippine Food Fortification Act, Republic Act 8976. (2000). https://www.lawphil.net/statutes/repacts/ra2000/ra_8976_2000.html

Wildlife Resources Conservation and Protection Act, Republic Act 9147. (2001). https://lawphil.net/statutes/repacts/ra2001/ra_9147_2001.html

3 Terms and Definitions

3.1
annual crop
crop produced by a plant whose entire life cycle is completed within a single growing season (BAFS-DA, 2016)

3.2
biodegradable inputs
inputs composed of natural materials that can be decomposed by bacteria or other biological means and includes compost, green manure, and plant and animal wastes (ASOA, 2014, *modified*)

3.3
biodiversity
variety of life forms and ecosystem types on earth. It includes genetic diversity (i.e., diversity within species), species diversity (i.e., the number and variety of species), and ecosystem diversity (total number of ecosystem types) (ASOA, 2014, *modified*)

3.4
breeding
selection of plants (including hybridization) to produce and/or to further develop desired varieties/strains/breeds (ASOA, 2014, *modified*)

3.5
buffer zone
clearly defined and identifiable boundary area bordering an organic production site that is established to prevent the introduction of, or contact with, prohibited substances from an adjacent area (ASOA, 2014, *modified*)

3.6
certification
the procedure by which a competent authority agency or an OCB provides written or equivalent assurance that farms, or production and

processing systems, conform to organic standards as mandated by the amended Organic Agriculture Act of 2010 (Republic Act 11511, 2020)

3.7
commingling
intentional or unintentional mixing together or the physical contact between organic and non-organic products which are unpackaged or permeably packaged, which leads to a loss of integrity of the organic product during production, processing, transportation, storage, or handling (BAFS-DA, 2016, *modified*)

3.8
contamination
contact of organic crops, land, or products with substance that would compromise organic integrity (ASOA, 2014, *modified*)

3.9
conventional
any material, production, or processing practice that is not certified organic (ASOA, 2014, *modified*)

3.10
conversion period
time between the start of organic management and certification of the crop production system or site as organic (ASOA, 2014, *modified*); also known as transition period

3.11
crop rotation
practice of alternating the species or families of annual and/or biennial crops grown on a specific field in a planned pattern or sequence to break weed, pest, and disease cycles and to maintain or improve soil fertility and organic matter content (ASOA, 2014, *modified*)

3.12
desertification
process of land degradation in arid, semi-arid and dry humid areas resulting from various factors, including climatic variations (e.g., drought) and human activities (e.g., over exploitation of drylands) (United Nations [UN], 1997)

3.13
disinfecting
to reduce, by physical or chemical means, the number of potentially harmful microorganisms in the environment to a level that does not compromise food safety or suitability (ASOA, 2014)

3.14
farm unit
total area of land under the control of one farmer or collective of farmers, including all the farming activities or enterprises (ASOA, 2014, *modified*)

3.15
food additive
any substance not normally consumed as a food by itself and not normally used as typical ingredient for the food, whether or not it has nutritive value, the intentional addition of which to food or a technological (including organoleptic) purpose in the manufacture, processing, preparation, treatment, packaging, transport, or holding of such food results, or may reasonably be 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 (ASOA, 2014, *modified*)

3.16
Genetically Modified Organisms (GMOs)
organisms made with techniques that alter the molecular or cell biology of an organism by means that are not possible under natural conditions or processes. Genetic engineering includes recombinant DNA, cell fusion, micro-, and macro- encapsulation, gene deletion and doubling, introducing a foreign gene, and changing the positions of genes. It shall not include breeding, conjugation, fermentation, hybridization, in-vitro fertilization, and tissue culture (BAFS-DA, 2016)

3.17
green manure
crop that is grown and then incorporated into the soil for the purpose of soil improvement, prevention of erosion, prevention of nutrient loss, mobilization and accumulation of plant nutrients, and balancing soil organic matter. Green manure may include spontaneous crops, plants, or weeds (ASOA, 2014)

3.18
habitat
area over which a plant species naturally exists. It is also used to indicate types of habitat (e.g., ocean, seashore, riverbank, woodland, and grassland) (ASOA, 2014, *modified*)

3.29
herb
plant that is not woody and with no persistent parts above ground level (BAFS-DA, 2016)

3.20
high conservation value areas
areas that have been identified as having outstanding and critical importance due to their environmental, cultural, socioeconomic, biodiversity, or landscape values (ASOA, 2014)

3.21
ingredient
any substance, including an additive, used in the manufacture or preparation of food and present in the final product although possibly in a modified form (ASOA, 2014, *modified*)

3.22
inspection
the examination of farms, food and non-food products, food control systems, raw materials, materials, processing, distribution and retailing, including in-process and finished product testing, in orders to verify that they conform to the requirements for being organic. Inspection includes the examination of the reproduction and processing systems (RA 11511, 2020)

3.23
irradiation
technology using high-energy emissions from radio-nucleotides, such as gamma rays, x-rays, or accelerated electrons, capable of altering a product's molecular structure for the purpose of controlling microbial contaminants, pathogens, parasites, and pests in products (generally food), preserving products, or inhibiting physiological processes such as sprouting or ripening. Irradiation does not include low-level radiation sources such as the use of X-rays for foreign body detection (ASOA, 2014, *modified*)

3.24
isolated nutrients
individual and separate forms of nutrients (ASOA, 2014)

3.25
labeling
any written, printed, or graphic representation that is present on the label of a product, accompanies the product, or is displayed near the product at the point of sale, for the purpose of promoting its sale or disposal (ASOA, 2014, *modified*)

3.26
organic agriculture
holistic production management system which promotes and enhances agroecosystem health, including biodiversity, biological cycles, and soil biological activity; emphasizes the use of management practices over the use of off-farm inputs; and utilizes cultural, biological, and mechanical methods as opposed to synthetic materials. Organic agriculture

combines tradition, innovation, and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved (CAC, 1999)

3.27
organic integrity
adherence to the principles, objectives, and standards for organic production (ASOA, 2014)

3.28
organic produce
any agricultural produce from organic management systems or gathered from nature, and/or handled with post-harvest management (ASOA, 2014)

3.29
organic product
product from organic management systems that have been processed for the use as food or feed (ASOA, 2014, *modified*)

3.30
organic soil conditioner
any product n solid or liquid form, derived from plants or animals that have undergone substantial decomposition that can supply available nutrients to plants with a total Nitrogen (N) - Phosphorus (P2O5) - Potassium (K2O) content of 5% to 10% (BAFS-DA, 2020)

3.31
parallel production
situation where the same operation is producing visually indistinguishable products in both organic and non-organic systems. A situation with “organic” and “in conversion” production of the same product may also be parallel production. Parallel production is a special instance of split production (ASOA, 2014, *modified*)

3.32
perennial crop
any crop, other than a biennial crop, that can be harvested from the same planting for more than one crop year, or that requires at least one year after planting before harvest (BAFS-DA, 2016)

3.33
processing aid
any substance or material, not including apparatus or utensils, and not consumed as a food ingredient by itself, intentionally used in the processing of raw materials, foods, or its ingredients, to fulfill a certain technical purpose during treatment or processing and which may result in the non-intentional, but unavoidable presence of residues or derivatives in the final product (ASOA, 2014)

3.34
sanitizing
any treatment that is effective in destroying or substantially reducing the number of vegetative cells of microorganisms of public health concern and other undesirable microorganisms (ASOA, 2014, *modified*)

3.35
salinization
increase in salt concentration in an environmental medium, notably soil (UN, 1997)

3.36
seed
plant material used for the production of food, forage, fibers, industrial crops, oil, flowers, grasses, herbs, and aquatic plants, including but not limited to meristem, and clonal propagules such as tubers, corms, and micro-propagated plantlets (Seed Industry Development Act of 1992, 1992).

3.37
split production
situation where only part of the farm or processing unit is certified as organic. The remainder of the property can be non-organic or in conversion. It is a special case of parallel production (ASOA, 2014, *modified*)

3.38
synthetic
substance that is formulated or manufactured by a chemical process or by a process that chemically changes a substance extracted from naturally occurring plant, animal, or mineral sources. Substances created by naturally occurring biological processes are not considered synthetic (ASOA, 2014, *modified*)

3.40
wild harvest
plants or portions of plants and mushrooms that are collected or harvested from defined sites which are maintained in a natural state and are not cultivated or otherwise managed (ASOA, 2014, *modified*)

4 Crop Production Management

4.1 Conversion to organic crop production

4.1.1 The operator shall follow and meet the minimum requirements of this Standard from the beginning of the conversion period onwards. The start of the conversion period shall be calculated from the date of the documented start of organic management and the filing of the application for certification to the competent authority agency or an

organic certification body (OCB).

4.1.2 An exemption to this requirement, which is the reduction of the conversion period, may be approved by the competent authority agency or an OCB, when there is verifiable evidence of no use of non-permitted inputs or implementation of activities or practices allowed in organic agriculture.

4.2 Length of crop conversion period

4.2.1 There shall be a period of at least 12 months before the start of the production cycle of organic management for annuals and 18 months before the first harvest for perennials that meet all the requirements of this Standard before the resulting product can be considered organic.

4.2.2 The conversion period can be extended based on the identification and evaluation of the competent authority agency or an OCB on the relevant issues and risks such as, but not limited to, pesticides, heavy metals, and nitrate accumulation.

4.2.3 Any of the following written evidence is required to be submitted to grant reduction of the prescribed conversion period:

a) Official attestation from the competent authority agency (national or local) or research institution on non-application of prohibited inputs for the past two years; and
b) Notarized affidavit from two neighbors as proof that the land was cultivated under practices allowed for organic agriculture for the past two years.

4.3 Maintenance of Organic Management

Converted areas and production areas should not be switched back and forth from organic and non-organic management. Exceptions to this may only be made in cases where compelling reasons to cease organic management on the certified organic land are present. In these cases, conversion requirements shall apply.

4.4 Split production and parallel production

If there is a presence of parallel/split production in the unit, the operator shall ensure that:

a) proper demarcation and identification of organically managed production areas are in place. Organically managed production areas shall be inspected for compliance with organic certification;
b) there is a clear boundary between organic and non-organic units including for similar and indistinguishable varieties;
c) organically managed production areas are identifiable and should be inspected for certification; and

d) all farm records and accounting are identifiable for both farming systems.

4.5 Contamination management

4.5.1 Buffer zones shall be established to prevent contamination from non-organic farms. These shall be sufficient in size or other features (e.g., windbreaks or a diversion ditch) to prevent contact by prohibited substances applied to adjacent land areas. These may include but are not limited to, multi-purpose tree species of sufficient density and height, runoff diversions, water filtration ponds and/or diversion systems, and open space.

4.5.2 Products from buffer zones shall not be sold as organic.

4.5.3 In cases of reasonable suspicion of contamination to production areas, crop or produce, soil and/or water analysis of the soil, crop, and/or water shall be done.

4.5.4 All organic produce shall be adequately identifiable throughout the whole process until final labeling.

4.5.5 Farm tools and equipment should be used exclusively in organic farms. If not possible, measures shall be taken to prevent contamination from the use of equipment, including cleaning and keeping and maintaining cleaning records. Cleaning records shall be kept and maintained.

4.5.6 Methods for pollution control and contamination management shall comply with Chapter 3, Articles 1 to 6 of Republic Act (RA) 9003 (The Solid Waste Management Act of 2001*)*.

4.5.7 If wastes and pollutants have been identified, a plan shall be developed and implemented to avoid or reduce wastage and pollution by recycling wastes. Non-recyclable wastes such as batteries, foils, plastics, and others shall be properly disposed to avoid contaminating the organic farm.

4.5.8 Organic management systems shall not use any material and/or products produced from GMO in all stages of organic production and processing.

4.6 Land, soil fertility, and water management

4.6.1 Organic production systems, being soil-based, shall take care of the soil and surrounding ecosystems, in support of increased diversity of species while encouraging nutrient cycling and mitigating soil and nutrient losses.

4.6.2 Tillage and cultivation implements shall be selected and used in a

manner that maintain or improve the physical and biological qualities of the soil and minimize erosion.

4.6.3 The fertility and biological activities of the soil shall be maintained, enhanced, or increased, where appropriate, through:

a) cultural management practices such as incorporating manure and other biodegradable inputs, and/ or by nitrogen fixation from plants;
b) soil fertility management through recycling of organic materials within the production system where possible (e.g., green manuring and composting); and
c) organic soil fertility management through the use of naturally occurring mineral fertilizers, which should only be a supplement to biologically based fertility methods such as green manures and compost.

4.6.4 Organic soil amendments (OSA), as listed in Section A.2 of the DC No. 09, series of 2020 (National list of permitted substances for organic agriculture), shall be the basis of the fertilization program, provided that these follow proper composting methods (if applicable). Any revision/amendment of the list from the competent authority shall be adopted in accordance with the criteria established in DC No. 7, series of 2020 (Guidelines for the establishment, maintenance, and amendment of the national list of the permitted substances for organic agriculture*).*

4.6.5 When the supplementary application of organic fertilizer is needed, the materials shall be certified as organic in conformance with the requirements of the PNS/BAFS 183:2020 (Organic soil amendments).

4.6.6 Application of raw or undecomposed manure shall not be allowed. Manure should undergo proper decomposition methods following PNS/BAFS 291:2019 (Code of practice of the production organic soil amendment).

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4.6.7 Organic crop production systems shall enhance soil primarily by employing cultural management practices, incorporating properly decomposed manure and other biodegradable inputs, and/ or by nitrogen fixation from plants.

4.6.8 Organic and mineral (naturally mined) soil amendments, particularly those with high risk for contamination, shall be applied in such a way that it will have minimum adverse effects on the environment (e.g., on ground and surface waters). Mineral fertilizers shall be applied in their original form and shall not be rendered more soluble by a chemical treatment.

4.6.9 Storage places of manure and compost sites shall be covered or sheltered to prevent the leaching of nutrients and pollution of water.

4.6.10 Organic soil amendment ingredients, which may have a considerable content of heavy metals and/or other toxic substances, shall not be used.

4.6.11 The dyes and growth regulators used shall be prepared from plants, animals, and microorganisms listed in Section A.4 of the DC No. 09, series of 2020 (National list of permitted substances for organic agriculture). These shall only be used for the growth, quality, and development of crops.

4.6.12 Relevant measures shall be taken to prevent soil erosion and ensure water conservation. Appropriate conservation measures, including management practices such as grass waterways, contour strips, diversion canals, catch/filtration ponds, buffers, windbreaks, mulch, and cover crops to prevent wind and water erosion, shall be established.

4.6.13 Reasonable water conservation measures shall be taken to avoid excessive exploitation and depletion of water resources.

4.6.14 Appropriate measures shall be taken to prevent salinization and desertification.

4.6.15 Operators shall not practice land clearing through burning, in compliance with RA 8749 (Philippine Clean Air Act of 1999).

4.7 Choice of crops and varieties

4.7.1 Operators should preserve the genetic integrity of varieties and traditional ecotypes. Use of locally sourced or native varieties should be encouraged. Use of GMO varieties shall be prohibited.

4.7.2 Organic crop production shall use seeds that come from organic agriculture systems when available. The operator shall establish appropriate actions to obtain untreated and organic planting materials through documentation.

4.7.3 Materials allowed for the treatment of seeds include the substances listed in Section A.1 of DC No. 09, series of 2020 (National list of permitted substances for organic agriculture).

4.7.4 Treated seeds shall only be used when required by competent authority authorities as part of phytosanitary regulations necessary to prevent the spread of seed-borne diseases or when natural disasters like floods, drought, earthquakes, pest outbreaks, or other unanticipated circumstances have occurred that may cause the destruction of organic seed supply.

4.7.5 If untreated seeds are not available, only then shall the use of treated seeds be allowed. Prohibited treatments shall be removed from seeds

and planting materials before use. Exemptions shall have time limitations and subject to review.

4.7.6 Seeds derived from tissue culture may be used for the production of organic and disease-free planting materials.

4.7.7 Organic seeds sourced from other countries shall comply with statutory requirements set by the competent authority agency.

4.8 Diversity in crop production

4.8.1 The diversity of crops and cropping systems on organic farms should sustain and promote diversity suited to the local agro-ecosystem. Crop diversification systems should be used such as crop rotation, intercropping, alley cropping, relay cropping, and multi-story cropping.

4.8.2 Organic management shall only engage in actions that do not create any negative impacts in officially recognized high conservation value and heritage areas such as forests wildlife protection areas and watershed areas.

4.8.3 Organic management should maintain and/or enhance biodiversity on the farm holding the crop and where applicable, in non-crop habitats.

4.8.4 Organic crop production should include diversification as an integral part of the farm management system. For perennial crops, this includes the use of plant-based ground cover. For annual crops, this includes the use of crop rotation practices, cover crops (green manures), integrated crop management, intercropping, or other diverse plant production with comparable achievements. Organic crop production systems should produce terrestrial crops in soil-based systems.

4.9 Pest, disease, and weed management

4.9.1 Organic crop production management shall employ interrelated positive processes and mechanisms for the management of pests, diseases, and weeds. These should include but are not limited to site- and crop-adapted fertility management and soil tillage, crop cultural practices, choice of appropriate varieties, and enhancement of functional biodiversity (e.g., planting host plants for beneficial organisms, mulching to control weeds). In case additional measures are required, the operator shall employ thermal controls, use of certified organic crop protectants, and biological control agents and substances included in Section A.3 of the DC No. 09, series of 2021 (National list of permitted substances for organic agriculture).

4.9.2 If preventive methods are inadequate, mechanical/physical, and biological methods should be preferred.

4.9.3 The use of synthetic pesticides (e.g., herbicides, fungicides, insecticides, molluscicides, nematicides, rodenticides, acaricides etc.) shall be prohibited.

4.9.4 Use of natural enemies and predators shall be subject to appropriate existing phytosanitary regulations and measures, as well as national registration requirements.

4.9.5 Physical methods for pest, disease, and weed management shall be allowed. Thermic sterilization of soils to combat pests, disease, and weeds should be restricted in circumstances where a proper rotation or renewal of soil cannot take place.

5 Seed Production

5.1 The operators of organic seed production and nursery management shall comply with the applicable requirements of Clause 4 of this Standard.

5.2 The soil used for potted or container-grown seeds should be from a certified organic production farm. If not, the conversion period in 4.1 of this Standard applies.

5.3 All the organic soil amendments and other planting media used (e.g., carbonized rice hull, coco coir, peat, etc.), shall be in accordance with the PNS/BAFS 183:2020 (PNS on OSA) and Section A.2 of DC No. 09, series of 2020 (National list of permitted substances for organic agriculture).

5.4 Organic management systems shall not use any materials and/or products produced from GMO in all stages of organic seed production and processing.

5.5 The operators of organic seed production should only use organic seeds of good quality.

5.6 In the case of asexual propagation, the source of planting materials used shall be from an organic origin. If there are no organic sources of planting materials available, such shall undergo conversion requirements under 4.1 of this Standard.

5.7 Pest, disease, and weed control for seed production shall comply with the requirements of 4.8 of this Standard. The organic seed production management systems should follow the hierarchy of practices based on this order:

a) preventive methods (e.g., using resistant crop varieties, cultural management, etc.);

b) if preventive methods are inadequate, the next choice for pest control should be mechanical/ physical and biological methods; and
c) if mechanical/physical and biological methods are inadequate for pest control, substances accepted for use in handling, storage, transportation, or processing facilities by the competent authority shall be used and shall not come in contact with the organic seed.

5.8 Appropriate measures shall be practiced to prevent the contamination of the seeds and soil.

5.9 Seed should be harvested at the right maturity. Non-organic and non-distinguishable varieties shall be harvested, processed, and stored separately.

5.10 Only substances included in Section A.1. of DC No. 09, series of 2020 (National list of permitted substances for organic agriculture) shall be used as a seed treatment.

5.11 Seed storage should have the appropriate environmental conditions (e.g., temperature, humidity, etc.) to maintain the quality of the seeds.

5.12 The packaging, storage, and transportation containers shall not contaminate the organic seeds. For example, packaging materials or storage containers that contain a synthetic fungicide, preservative, or fumigant shall be prohibited as well as the use of reused bags or containers that have been in contact with any substance likely to compromise the organic integrity of the seeds.

5.13 Use of packaging materials from biodegradable, recycled, or recyclable sources should be encouraged.

5.14 The practices (e.g., cleaning of the storage facility, pest control in seed storage, etc.) and materials (e.g., organic soil amendments, cleaning agents, tools and equipment, etc.) used in seed production shall be properly documented through record.

6 Mushroom Production

6.1 The operator should use organically produced spawn. Otherwise, non-organically produced spawn may be used provided it has only been treated with substances in DC No. 09, series of 2020 (National list of permitted substances for organic agriculture) and its future amendments and has not been raised on a GMO substrate.

6.2 The operator shall not use chemically treated construction materials for new installations or replacement purposes in contact with the growth substrate.

6.3 The operator shall maintain a production environment that prevents contact between organically produced mushrooms and prohibited substances throughout the entire growing cycle, harvesting and post-harvesting process.

6.4 Substrates shall be composed of any of the following components:

a) products of agricultural origin from farms produced according to organic production methods. If not available, products should only be exposed to substances permitted in DC No. 9, series of 2020 (National list of permitted substances for organic agriculture) and its future amendments;
b) sawdust, logs, or other materials derived from wood used as a growth substrate which have not been treated with wood preservatives after tree harvest;
c) mineral products allowed in DC No. 9, series of 2020 (National list of permitted substances for organic agriculture), water, and soil; and
d) Only sanitizers and disinfectants included in the DC No. 9, series of 2020 (National list of permitted substances for organic agriculture) and its future amendments shall be used for mushroom production.

6.5 In cases of pest infestation, chemical sanitizers and fumigants should be allowed in the farm is as long as it does not have contact with the substrate and the mushroom. The operators shall follow the label instructions on the withholding period and safety precautions.

7 Wild Harvest

7.1 Organic wild harvest operators shall ensure that harvesting does not exceed the sustainable yield of the harvested species or threaten the local ecosystem.

7.2 Organic operators shall harvest produce only from within the boundaries of the clearly defined wild harvest area. The wild harvest area should not have been used for agricultural purposes or have been applied with prohibited substances for at least 18 months.

7.3 Organic wild harvest operators shall exclude systems that are officially protected or endangered species or where the harvest is prohibited by law.

7.4 Wild harvest areas shall be at an appropriate distance from conventional farming, pollution, and other potential sources of contamination.

8 Post-harvest Management

8.1 Post-harvest management shall take measures to prevent contamination and commingling of organic with non-organic produce, for example in the threshing, peeling, cleaning, cooling, cutting, drying, and on-farm packing.

8.2 All organic produce shall be adequately identifiable throughout the whole process until final labeling.

8.3 Post-harvest management, including the use of tools, equipment, and area, should be exclusive to organic produce. If not possible, tools, equipment, and area shall be cleaned to prevent contamination. Cleaning records shall be kept and maintained.

8.4 Post-harvest management should follow the applicable Good Agricultural Practice (GAP) standards and the PNS/BAFS 233:2018 (Code of hygienic practice for fruits and vegetables).

8.5 Only natural ripening agents are allowed, for as long as their application will not deceive consumers of the nature, substance, and quality of the product. Substances listed in DC No. 9, series of 2020 (National list of permitted substances for organic agriculture), where use is explicitly stated as ripening agent, may be used.

9 Processing and Handling of Organic Products

9.1 The integrity of the organic product shall be maintained throughout the processing phase and shall be identifiable throughout the whole process until final labeling.

9.2 Only food additives listed under Section D of DC No. 09, series of 2020 (National list of permitted substances for organic agriculture) shall be used. The level of use shall comply with the latest edition of the CXS 192-1995 (General standard for food additives).

9.3 Compliance with the current FDA AO No. 153, series of 2004 (Current GMP in manufacturing, packing, repacking, or holding food) and its future amendments shall be met in conjunction with the requirements of this Standard.

9.4 The provisions for organic agriculture for processing shall meet the following:

9.4.1 Use of Ingredients

9.4.1.1 Organic processing should only use ingredients from organic agriculture production and postharvest except when they are not available and subject to the labeling requirements of RA 11511 (An act

amending the Republic Act No. 10068 or the Organic Agriculture Act of 2010). The operator shall establish that appropriate actions were undertaken to obtain untreated and organic ingredients through documentation. The same ingredient in a product shall not be derived from both organic and non-organic sources. These ingredients shall not be genetically modified.

9.4.1.2 Organic processing should only use minerals (including trace elements), vitamins, essential fatty acids, essential amino acids, and other isolated nutrients when their use is legally required or strongly recommended by the competent authority in the food products in which they are incorporated.

9.4.1.3 If fortification is required, the use of vitamins and minerals shall be in accordance with RA 8976 (Philippine Food Fortification Act of 2000).

9.4.2 Use of Food Additives and Processing Aids

9.4.2.1 Substances used as processing aids are listed in the DC No. 09, series of 2020 (National list of permitted substances for organic agriculture) and shall be used in accordance with noted conditions. Any revision/amendment of the list from the standard-setting bodies shall be adopted in accordance with the criteria established in DC No. 7, series of 2020 (Guidelines for the establishment, maintenance, and amendment of the national list of the permitted substances for organic agriculture*).*

9.4.2.2 Only natural ripening agents are allowed as long as their application will not deceive consumers of the nature, substance, and quality of the product.

9.4.2.3 The salt and water to be used shall comply with RA 8172 (An act on promoting salt iodization nationwide) and for related purposes, DOH AO 2017-0010 (PNS for drinking water of 2017), and the FDA Circular 2013-007 (Updated standards for iodine level of salt).

9.4.2.4 The use of GMO and its by-products shall be prohibited.

9.4.3 Processing Methods

9.4.3.1 Methods that will be used to process organic products may be biological, physical, and/or mechanical in nature, as may be appropriate.

9.4.3.2 Filtration equipment shall not contain asbestos or utilize techniques or substances that may contaminate the product. Only filtration agents and adjuvants considered as processing aids listed in the DC No. 09, series of 2020 (National list of permitted substances for organic agriculture) shall be used.

9.4.3.3 The use of irradiation shall not be allowed for any ingredient or the final product.

9.4.3.4 Substances and methods should not be used to reconstitute properties lost by the processing and storage of organic products.

9.4.4 Packaging

9.4.4.1 The packaging, storage, and transportation containers used for organic products shall not contaminate the organic product. For example, packaging materials or storage containers that contain a synthetic fungicide, preservative, or fumigant shall be prohibited as well as the use of reused bags or containers that have been in contact with any substance likely to compromise the organic integrity of a product or ingredient placed in those containers.

9.4.4.2 Use of packaging materials from biodegradable, recycled, or recyclable sources should be encouraged.

9.4.5 Pest control

Pest control for organic processing management systems shall follow the hierarchy of practices based on this order:

a) preventive methods;
b) if preventative methods are inadequate, the next choice for pest control should be mechanical/physical and biological methods; and
c) If mechanical/physical and biological methods are inadequate for pest control, substances accepted for use in handling, storage, transportation, or processing facilities by the competent authority agencies shall be used and shall not come in contact with the organic product.

9.4.6 Cleaning, disinfecting, and sanitizing of food processing tools, equipment, and processing facilities

9.4.6.1 Organic management should employ systems for cleaning and disinfecting surfaces, machinery, tools, equipment, and processing facilities that prevent contamination of the organic product.

9.4.6.2 Disinfecting and sanitizing substances that may come into contact with organic products shall be composed of water and substances that are listed in the DC No. 09, series of 2020 (National list of permitted substances for organic agriculture). In cases where these substances are ineffective and other substances are used, these should not come in contact with any organic products.

9.4.6.3 Operations that use cleaners, sanitizers, and disinfectants on food contact surfaces shall use them in a way that maintains the organic integrity of the food. Unless otherwise indicated in the DC No. 09, series

of 2020 (National list of permitted substances for organic agriculture), the operator is required to perform an intervening event between the use of any cleaners, sanitizers, or disinfectant and the contact of the organic food on that surface. Acceptable intervening events include a hot-water rinse, a sufficient flush of organic product that is not sold as an organic product, or adequate time for the substances to volatilize.

9.4.6.4 Operators shall prevent the residues of boiler water additives from direct contact with organic food by using entrained water, filters, traps, or other means that prevent steam in contact with organic foods from carrying such compounds.

9.4.6.5 Operators shall plan and maintain a record of cleaners, cleansers, disinfectants, and sanitizers used in the organic processing management.

10 Storage and Transport

10.1 Measures to prevent contamination with prohibited substances or co-mingling with non-organic produce/product shall be taken during storage and transport, including clear identification and physical separation.

10.2 Pest control for storage shall comply with the requirements of 4.8 of this Standard. The organic produce/product should follow the hierarchy of practices based on the following order of preference:

a) preventive methods;
b) if preventative methods are inadequate, the next choice for pest control should be mechanical/physical and biological methods; and
c) if mechanical/physical and biological methods are inadequate for pest control, substances accepted for use in handling, storage, transportation, or processing facilities by the competent authority shall be used and shall not come in contact with the organic produce/product.

11 Traceability and Recordkeeping

11.1 Each separate production site shall be identified by a name or code. The name or code is placed on the site and recorded on a property map. The site name or code is recorded on all documents and records that refer to the site.

11.2 Operators shall maintain purchase, handling, and processing records, and inventory of all materials used for organic production, processing, and handling as well as finished products.

11.3 Documentation and records shall clearly identify the source, movement, use, and inventory of organic from non-organic materials at all stages of production and/or processing.

11.4 Records, documentation, and accounts shall provide traceability and be made available to the competent authority and certifying bodies for audit trail and traceback verification at any time.

11.5 Abovementioned records (including those related to the use of sub-contractors) shall follow a retention period of at least five years.

12 Labeling

The labeling of organic crops should generally comply with the requirements of the Codex General Standard for the Labelling of Prepackaged Foods (CXS 1-1985, rev. 2018) and General Standard for the Labelling of Non-Retail Containers of Foods (CXS 346-2021). All organic food labeling shall meet additional requirements established by the competent authorities including the following and their future amendments:

a) Republic Act 10068 (Organic Agriculture Act of 2010);
b) Republic Act 11511 (An act amending the Republic Act 10068 or the Organic Agriculture Act of 2010);
c) DC No. 01, series of 2018 (Revised guidelines for the official accreditation of organic certifying bodies); and
d) DC No. 03, series of 2022 (Guidelines for the accreditation of the core PGS and its operation as OCB).

Bibliography

An act amending Republic Act No. 10068 or the Organic Agriculture Act of 2010, Republic Act 11511. (2020). https://lawphil.net/statutes/repacts/ra2020/ra_11511_2020.html

An Act for Salt Iodization Nationwide (ASIN), Republic Act 8172. (1995). https://www.officialgazette.gov.ph/1995/12/20/republic-act-no-8172/

Association of Southeast Asian Nations (ASEAN). (2014). ASEAN Standard for Organic Agriculture (ASOA). https://asean.org/wp-content/uploads/2021/08/ASEAN-STANDARD-FOR-ORGANIC-AGRICULTURE-ASOA.pdf

Bureau of Agriculture and Fisheries Standards-Department of Agriculture (BAFS-DA). (2016). Organic agriculture (PNS/BAFS 07:2016). https://bafs.da.gov.ph/bafs_admin/admin_page/pns_file/2021-03-01-BAFS%20PNS%2007-2016%20Organic%20Agriculture.pdf

Bureau of Agriculture and Fisheries Standards (BAFS)-Department of Agriculture (DA). (2018). Code of hygienic practice for fruits and vegetables (PNS/BAFS 183:2018). http://www.bafs.da.gov.ph/bafs_admin/admin_page/pns_file/PNS%20BAFS%20233_2018.pdf

Bureau of Agriculture and Fisheries Standards (BAFS)-Department of Agriculture (DA). (2019). Code of practice for the production of organic soil amendments (PNS/BAFS 291:2019). http://www.bafs.da.gov.ph/bafs_admin/admin_page/pns_file/PNS%202291%20COP%20OSA.pdf

Bureau of Agriculture and Fisheries Standards (BAFS)-Department of Agriculture (DA). (2020). Guidelines for the establishment, maintenance and amendment of the national list of the permitted substances for organic agriculture (Department Circular No. 07, series of 2020). http://www.bafs.da.gov.ph/bafs_admin/admin_page/laws_files/DC.No.07.Guidelines%20for%20the%20Establishment,%20Maintenance%20and%20Amendment%20of%20the%20NLPSOA.pdf

Bureau of Agriculture and Fisheries Standards (BAFS)-Department of Agriculture (DA). (2020). National list of permitted substances for organic agriculture (Department Circular No. 09, series of 2020). http://bafs.da.gov.ph/bafs_admin/admin_page/laws_files/DC.No.09%20s%202020%20National%20List%20of%20Permitted%20Substances%20for%20OA.pdf

Bureau of Agriculture and Fisheries Standards (BAFS)-Department of Agriculture (DA). (2020). Organic Soil Amendments (OSA) (PNS/BAFS 183:2020).

http://www.bafs.da.gov.ph/bafs_admin/admin_page/pns_file/PNS%20BAFS%20183.2020%20Organic%20Soil%20Ammendments.pdf

Ecological Solid Waste Management Act of 2000, Republic Act 9003. (2001). https://www.lawphil.net/statutes/repacts/ra2001/ra_9003_2001.html

Codex Alimentarius Commission (CAC).(2001). Commission standards for organic agriculture. https://www.fao.org/3/Y2772E/Y2772E00.htm

Codex Alimentarius Commission (CAC). (2015). General principles for the addition of essential nutrients to foods (CAC/GL 9-1987). https://www.fao.org/fao-who-codexalimentarius/sh-proxy/ar/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FStandards%252FCXG%2B9-1987%252FCXG_009e_2015.pdf

Codex Alimentarius Commission (2019). General standard for food additives (CXS 192-1995). https://www.fao.org/fao-who-codexalimentarius/sh-proxy/en/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FStandards%252FCXS%2B192-1995%252FCXS_192e.pdf

Department of Health (DOH). (2017). Philippine National Standards (PNS) for drinking water of 2017 (DOH Administrative Order 2017-0010). https://www.fda.gov.ph/wp-content/uploads/2021/08/Administrative-Order-No.-2017-0010.pdf

Food and Drug Administration (FDA)-Department of Health (DOH). (2004). Current Good Manufacturing Practices (GMP) in manufacturing, repacking or holding food (FDA Administrative Order No. 153, series of 2004). https://www.fda.gov.ph/wp-content/uploads/2020/03/General-Standard-for-Food-Hygiene-Repealing-Administrative-Order-No.-153-s.-2004.pdf

Food and Drug Administration (FDA)-Department of Health (DOH). (2007). Updated standards for iodine level of salt (Bureau Circular No. 2007-009). https://www.fda.gov.ph/wp-content/uploads/2021/08/Bureau-Circular-No.2007-009.pdf

International Federation of Organic Agriculture Movements (IFOAM). (2014). IFOAM norms for organic production and processing version. https://ifoam.bio/sites/default/files/2020-09/IFOAM%20Norms%20July%202014%20Edits%202019.pdfs

Laying down detailed rules for the implementation of Council Regulation (EC) No 834/2007 on organic production and labelling of organic products with regard to organic production, labelling and control, Commission Regulation (EC) No. 889/2008. (2008). https://www.ecolex.org/details/legislation/commission-regulation-ec-no-8892008-laying-down-detailed-rules-for-the-implementation-of-council-

regulation-ec-no-8342007-on-organic-production-and-labelling-of-organic-products-with-regard-to-organic-production-labelling-and-control-lex-faoc082157/#:~:text=(EC)%20No.-,889%2F2008%20laying%20down%20detailed%20rules%20for%20the%20implementation%20of,organic%20production%2C%20labelling%20and%20control.&text=834%2F2007%2C%20which%20sets%20out,legislative%20framework%20on%20organic%20production

Organic Agriculture Act of 2010, Republic Act 10068.(2010). https://lawphil.net/statutes/repacts/ra2010/ra_10068_2010.html

Organic production and labeling of organic products and repealing Regulation (EEC) No 2092/91, Council Regulation (EC) No. 834/2007. (2007).https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32007R0834

Philippine Clean Air Act of 1999, Republic Act 8749. (1999). https://lawphil.net/statutes/repacts/ra1999/ra_8749_1999.html

Philippine Food Fortification Act of 2000, Republic Act 8976. (2000). https://www.lawphil.net/statutes/repacts/ra2000/ra_8976_2000.html

United Nations. (1997). Glossary of Environment Statistics, Studies in Methods, Series F. https://stats.oecd.org/glossary/detail.asp?ID=2370#:~:text=Salinization%20refers%20to%20the%20increase,is%20also%20known%20as%20salination

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