(**Unofficial translation**)

THAI AGRICULTURAL STANDARD

TAS 9000-2021

ORGANIC AGRICULTURE:

THE PRODUCTION, PROCESSING, LABELLING AND MARKETING OF ORGANIC PRODUCE AND PRODUCTS

National Bureau of Agricultural Commodity and Food Standards
Ministry of Agriculture and Cooperatives

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The Notification on the establishment of Thai Agricultural Standard on Organic Agriculture Part 1: The Production, Processing, Labelling, and Marketing of Produce and Products from Organic Agriculture was issued by the Ministry of Agriculture and Cooperatives on 1 October B.E. 2552 (2009) and published in the Government Gazette on 28 December B.E. 2552 (2009). In order to harmonise the standard to be in line with international requirements, increase its clarity, and facilitate its implementation and certification, the Agricultural Standards Committee deems it necessary to revise the standard to be used as a guideline in improving the production of organic agriculture in Thailand, to gain wider recognition at national and international levels.

This Thai Agricultural Standard on Organic Agriculture has integrated those previously published as separated parts for different commodity groups (namely organic agriculture, organic rice, organic snakeskin gourami, organic aquatic animal feed, organic marine shrimp farming, organic livestock, and organic honey bee) into one single standard. The main structure of this standard contains principles, objectives, common requirements for all commodity groups, and annexes. Annex A lists the permitted substances for use in organic agriculture production. The specific production management of each commodity group is provided in other annexes, as follows:

Annex B: Production management of organic plants;

Annex C: Production management of organic aquaculture and algae;

Annex D: Production management of organic livestock;

Annex E: Production management of organic honey bees and edible insects.

However, it should be noted that Annexes C, D and E will be published at a later date.

This standard is based on the following documents:

CXG 32-1999. (revised in 2007). Guideline for the Production, Processing, Labelling and Marketing of Organically Produced Foods.

ASEAN. 2014. ASEAN Standard for Organic Agriculture.

European Commission. 2018. Organic Production and Labelling of Organic Products and Repealing Council Regulation (EU) 2018/848. Official Journal of the European Union 2018/L 150/1.

IFOAM. 2014. IFOAM Norms for Organic Production and Processing. International Federation of Organic Agriculture Movements, Germany.

NOTIFICATION OF MINISTRY OF AGRICULTURE AND COOPERATIVES ON THE ESTABLISHMENT OF THAI AGRICULTURAL STANDARD: ORGANIC AGRICULTURE: THE PRODUCTION, PROCESSING, LABELLING AND MARKETING OF ORGANIC PRODUCE AND PRODUCTS UNDER THE AGRICULTURAL STANDARDS ACT, B.E. 2551 (2008)

Whereas it deems necessary to revise the Thai Agricultural Standard on Organic Agriculture Part 1: The Production, Processing, Labelling, and Marketing of Produce and Products from Organic Agriculture, and on Organic Agriculture Part 4: Organic Rice under the Agricultural Standards Act, B.E. 2551 (2008) so as to reflect the current situation,

By virtue of section 5, section 15 paragraph two and section 16 of the Agricultural Standards Act, B.E. 2551 (2008), and the decision of the Agricultural Standards Committee at the Forth Session on 22 September B.E. 2564 (2021), the Minister of Agriculture and Cooperatives hereby issues this Notification as follows:

1. The Notification of the Ministry of Agriculture and Cooperatives on the establishment of Thai Agricultural Standard: Organic Agriculture Part 1: The Production, Processing, Labelling, and Marketing of Produce and Products from Organic Agriculture under the Agricultural Standards Act, B.E. 2551 (2008) dated 1 October B.E. 2552 (2009) is repealed;

2. The Notification of the Ministry of Agriculture and Cooperatives on the establishment of Thai Agricultural Standard: Organic Agriculture Part 4: Organic Rice under the Agricultural Standards Act, B.E. 2551 (2008) dated 4 October B.E. 2553 (2010) is repealed;

3. The Thai Agricultural Standard: Organic Agriculture: The Production, Processing, Labelling and Marketing of Organic Produce and Products (TAS 9000-2021) is established as a voluntary standard, details of which are attached herewith;

4. All certificates issued by conformity assessment service providers in accordance with the Notification of Ministry of Agriculture and Cooperatives on Thai Agricultural Standard: Organic Agriculture Part 1: The Production, Processing, Labelling, and Marketing of Produce and Products from Organic Agriculture under the Agricultural Standards Act, B.E. 2551 (2008) dated 1 October B.E. 2552 (2009), and on Thai Agricultural Standard: Organic Agriculture Part 4: Organic Rice under the Agricultural Standards Act, B.E. 2551 (2008) dated 4 October B.E. 2553 (2010) that have been valid before this Notification becomes effective, can still be used until their expiry dates, or being revoked or repealed. However, the valid dates

of those certificates shall not exceed three years after the date of the publication of this Notification in the Government Gazette;

5. Any food business operators who are not ready to implement the standard in accordance with this Notification, may continue to apply a certification and renew a certificate based on the Notification of Ministry of Agriculture and Cooperatives on Thai Agricultural Standard: Organic Agriculture Part 1: The Production, Processing, Labelling, and Marketing of Produce and Products from Organic Agriculture under the Agricultural Standards Act, B.E. 2551 (2008) dated 1 October B.E. 2552 (2009), and on Thai Agricultural Standard: Organic Agriculture Part 4: Organic Rice under the Agricultural Standards Act, B.E. 2551 (2008) dated 4 October B.E. 2553 (2010) for no more than two years after this Notification becomes effective. However, the valid date of the certificate shall not exceed three years after the date of the publication of this Notification in the Government Gazette.

This Notification shall be effective from the day after the date of its publication in the Government Gazette.

Notified on 11 October B.E. 2564 (2021)

(Mr. Prapat Potasuthon)
Deputy Minister of Agriculture and Cooperatives
For Minister of Agriculture and Cooperatives

THAI AGRICULTURAL STANDARD
ORGANIC AGRICULTURE:
THE PRODUCTION, PROCESSING, LABELLING AND MARKETING OF ORGANIC PRODUCE AND PRODUCTS

1. SCOPE

This Thai Agricultural Standard establishes objectives, principles, production, processing, labelling, transporting, and marketing of organic produce and products used as food and feed, obtained from:

1) Plant production, including crop cultivation, mushroom cultivation, wild harvest, seed and planting materials production;

2) Aquaculture and algae production;

3) Livestock production;

4) Beekeeping and edible insect production.

2. DEFINITIONS

For the purpose of this standard:

2.1 Organic agriculture

means a holistic production management system which promotes agroecosystem health, including biodiversity, biological cycles, and soil biological activities. Organic agriculture emphasises the use of on-farm management practices in preference to the use of off-farm inputs, taking into account the regional conditions required to be adapted to the local conditions. This is accomplished by using, where possible, general methods or biological and mechanical methods, as opposed to using synthetic materials.

2.2 Synthetic

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

2.3 Genetically modified organisms

means organisms that are genetically modified by the use of modern biotechnology.

2.4 Modern biotechnology

means the application of different techniques, namely *in vitro* nucleic acid techniques, including recombinant deoxyribonucleic acid (DNA) and direct injection of nucleic acid into cells or organelles, or fusion of cells beyond the taxonomic family, that

overcome natural physiological reproductive or recombinant barriers and that are not techniques used in traditional breeding and selection.

2.5 Engineered nanomaterials

means any intentionally produced material that has one or more dimensions of the order of 100 nm or less or that is composed of discrete functional parts, either internally or at the surface, many of which have one or more dimensions of the order of 100 nm or less, including structures, agglomerates or aggregates, which may have a size above the order of 100 nm but retain properties that are characteristic of the nanoscale.

2.6 Transition period or conversion period

means the period when organic agriculture in accordance with the requirements of this standard is first practiced until the produce and products are certified as organic.

2.7 Transition to organic or conversion to organic

is a labelling term used for the produce and products obtained from the production and processing in accordance with the organic production system, during the transition period, intended to be sold as food or feed.

2.8 Buffer zone

means a clearly defined boundary of an organic production area in accordance with organic agriculture standard, established to prevent chemical contamination from an adjacent area.

2.9 Crop rotation

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

2.10 Labelling

means any written, printed or graphic matter that is present on the label, accompanies the produce or products, or is displayed near the produce or products, including that for the purpose of promoting their sales.

2.11 Organic Produce

means any agricultural produce that is produced in accordance with the organic agriculture system or wild harvested, including being handled with post-harvest management.

2.12 Organic Product

means a product derived from the processed organic produce, intended to be used as food or feed.

2.13 Operator

means any person who produces, prepares, imports or exports organic produce or products for the purpose of marketing, or any person who markets such produce or products.

2.14 Production

means the operations undertaken to supply agricultural produce or products in the state in which they occur within the farm, including initial packaging and labelling.

2.15 Preparation

means the operations of slaughtering, cutting, processing, preserving and packaging of agricultural products, including the alterations made to the labelling concerning the presentation of the organic production method.

2.16 Organic fertilisers

means fertilisers derived from organic matters produced by means of moistening, chopping, grinding, fermenting, sieving or other methods; but are not chemical fertilisers.

2.17 Biological fertiliser

means a fertiliser derived from living microorganisms enabling to form plant nutrients or to provide essential nutrients for plant growth and offering for soil enrichment to produce any biological, physical, chemical and biochemical changes in the soil. This definition also covers microorganisms in concentrated form.

2.18 Food additives

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

2.19 Food processing aids

means 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, food or its ingredients, to fulfil a certain technological purpose during treatment or processing and which may result in the unintentional but unavoidable presence of residues or derivatives in the final product.

2.20 Feed processing aids

means substance or material (not including apparatus or utensils, and not consumed as feed by itself) intentionally used in the processing of raw materials or feed to fulfil a certain technological purpose during treatment or processing and which may result in

the unintentional but unavoidable presence of residues or derivatives in the final products, provided that these residues do not have any adverse effect to animal or human health or the environment and do not have any technological effect on the finished feed.

2.21 Veterinary drug

means any substance applied or administered to any food-producing animals, 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.

2.22 Feed additives

means substances, microorganisms or preparations (other than feed materials and pre-mixtures) which are intentionally added to feed or water to perform one or more functions particularly those affecting the characteristics of feed, animal products, nutritional needs of animals, colour of ornamental fish and birds, or those having positive effects to the environment, animal welfare in consequences of feed production; or those having a coccidiostatic or histomonostatic effect.

2.23 Ingredient

means raw material and any substance, including a food additive or food processing aid, used in the preparation of food and present in the final product although possibly in a modified form.

2.24 Planting material

means entire plant and parts of the plant used for propagation, including grafted plants by budding and grafting techniques such as approach grafting, top working.

2.25 Food irradiation

means processing of food products by ionising radiation specifically gamma rays, X-rays or accelerated electrons for the purposes of control of foodborne pathogens, reduction of microbial load and insect infestation, inhibition of the germination of root crops, and extension of durable life for perishable foods.

3. GENERAL OBJECTIVES OF ORGANIC PRODUCTION

Organic production shall pursue the following general objectives:

3.1 Contributing to protection of the environment and the climate;

3.2 Maintaining the long-term fertility of soils;

3.3 Contributing to the increase of biodiversity, particularly growing diverse plant genetic material, appropriate to the organic production;

3.4 Contributing to the high animal welfare standards and, in particular, to meeting the species-specific behavioural needs of animals;

3.5 Encouraging the preservation of rare and endangered native species.

4. PRINCIPLES OF ORGANIC AGRICULTURE PRODUCTION

4.1 General Principles

Organic agriculture production is a sustainable management system based on the following general principles:

4.1.1 Respect for the systems and cycles of nature as well as the sustainment of the state of the soil, the water and the air for the health of plants and animals and the balance thereof.

4.1.2 Responsible use of energy and natural resources, such as water, soil, organic matters and air.

4.1.3 The production of a wide variety of high-quality food as well as agricultural products, aquaculture and algae that respond to consumers' demand, using processes that do not harm the environment, human health, plant health, or animal health and welfare.

4.1.4 Ensuring the integrity of organic production at all stages of production, processing and distribution of food and feed.

4.1.5 The appropriate design and management of biological processes on the basis of ecological systems and the use of natural resources, which are internal to the management system, as follows:

1) Use living organisms and mechanical production methods;

2) Practice soil-related crop cultivation and land-related livestock production, or practice aquaculture which complies with the principle of the sustainable exploitation of aquatic resources;

3) Exclude the use of genetically modified organisms (GMOs), produce and products derived from genetic modification, and products produced by genetic modification, with the exception of veterinary medicinal products;

4) Use methods based on risk assessment and precautionary measures and preventive measures, where appropriate.

4.1.6 Restricted use of external inputs. In case where external inputs are required or appropriate practical guidelines and management methods referred to in Section 4.1.5 are not available, the use of external inputs shall be limited to the following:

1) Inputs from organic production

In case of planting material, priority shall be given to the selection of varieties capable of meeting the specific needs and objectives of organic agriculture.

2) Natural or naturally-derived substances

3) Low solubility mineral fertilisers

4.1.7 The adaptation of the production process, where necessary, taking into account the sanitary conditions, regional differences in the ecological balance, climatic conditions and local conditions, development stages and specific husbandry practices, and subject to the requirements of this standard.

4.1.8 The exclusion from the whole organic food chain of animal cloning, of rearing artificially induced polyploid animals and of ionising radiation.

4.1.9 The observance of a high level of animal welfare by respecting the species-specific needs of animals.

4.2 Specific principles applicable to the production of organic plant, livestock and aquaculture

Production of organic plant, livestock and aquaculture shall be based on the following specific principles:

4.2.1 Maintenance and enhancement of the living organisms in soil and natural soil fertility, soil stability, soil water retention capacity and soil biodiversity, preventing and not causing loss of organic matters in soil, soil compaction and soil erosion, and nourishing the plants primarily through the soil ecosystem;

4.2.2 Limitation of the use of non-renewable resources and external inputs to a minimum, and encouragement of recycling waste and by-products from plant and animal origins to be used as inputs;

4.2.3 Maintenance of plant health by using preventive measures, particularly selection of appropriate varieties resistant to pests and diseases, appropriate crop rotations, mechanical and physical methods, and protection of natural enemies of pests;

4.2.4 The use of seeds and animals with a high degree of genetic diversity, disease resistance and longevity;

4.2.5 Choosing plant varieties for organic agriculture production system by focusing on the agronomic performance, disease resistance, adaptation to the diverse local conditions, and respect for the natural crossing barriers;

4.2.6 Possible use of on-farm planting material and seed, complying with the relevant laws and regulations, in order to promote adapted genetic resources to suit the special conditions of organic agriculture production

4.2.7 Selection of animal breeds, having regard to a high degree of genetic diversity, capacity of animals to adapt to local conditions, breeding value, longevity, vitality, and resistance to diseases or health problems;

4.2.8 The practice of site-adapted and land-related livestock production;

4.2.9 The application of animal husbandry practices that enhance the immune system and strengthen the natural defence against diseases, including regular exercise and access to open air areas and pastures;

4.2.10 Feeding of livestock with organic feed composed of the agricultural ingredients obtained from organic production and of natural non-agricultural substances;

4.2.11 The production of organic livestock products derived from animals that have been organically raised throughout their lives since birth or hatching;

4.2.12 The continuing health of the aquatic environment and the quality of surrounding aquatic and terrestrial ecosystems;

4.2.13 Feeding of aquatic organisms with feed derived from sustainably exploited fisheries or with organic feed composed of agricultural ingredients obtained from organic production (including organic aquaculture) and of natural non-agricultural substances;

4.2.14 Avoiding any endangerment of species of conservation interest that might arise from organic production.

4.3 Specific principles applicable to the processing of organic food

Production of organically processed food shall be based on the following specific principles:

4.3.1 Processing of organic food from organic agricultural ingredients;

4.3.2 Limitation of the use of food additives, of non-organic ingredients with technological and sensory functions, in order to use to a minimum extent and to use only when there is an essential technological need or for specific nutritional purposes;

4.3.3 Exclusion of the use of substances and processing methods that might be misleading with regard to the true nature of the product;

4.3.4 Processing of organic food with care, preferably through the use of biological, mechanical and physical methods;

4.3.5 Exclusion of food containing, or consisting of, engineered nanomaterials.

4.4 Specific principles applicable to the processing of organic feed

Production of organically processed feed shall be based on the following specific principles:

4.4.1 Production of organic feed from organic feed materials;

4.4.2 Limitation of the use of feed additives and feed processing aids, to a minimum extent and to use only when there is an essential technological or zootechnical needs or for specific nutritional purposes;

4.4.3 Exclusion of the use of substances and processing methods that might be misleading with regard to the true nature of the product;

4.4.4 Processing of organic feed with care, preferably through the use of biological, mechanical and physical methods.

5. REQUIREMENTS OF THE ORGANIC MANAGEMENT AND PRODUCTION

5.1 General Requirements

Objectives

1. Organic agriculture production system is based on the specific and precise requirements aiming to achieve good agroecosystem, which is socially, ecologically and economically sustainable.
2. The health of agroecosystem, including the biodiversity, biological cycle, and soil biological activities is promoted and enhanced.

Operators shall apply the following guidelines on organic agriculture production:

5.1.1 Operators shall practice in accordance with the requirements of organic management and production as prescribed in Section 5 and with the specific requirements for organic production management for each individual commodity as specified in the related Annex B, C, D or E so as to achieve the established objectives and principles.

5.1.2 The entire holding (land and establishment) shall be managed in compliance with the requirements applicable to the organic agriculture production of this standard.

5.1.3 In the event that an operator cannot simultaneously manage the entire holding in accordance with the requirements applicable to the organic production as in Section 5.1.2, the production may be split or be in parallel by clearly and effectively separating the production units for organic, in-conversion, and non-organic production. In addition, the organic produce shall not be mixed with the produce obtained from non-organic agriculture production areas as in Section 5.4 and the additional conditions set forth in the related Annex B, C, D or E.

5.1.4 The substances as listed in Annex A, or other substances in accordance with the criteria prescribed in Section 13 of this standard may be used for organic production, provided that they are accepted by the competent authority or certification body.

5.2 Conversion

Objective

Conversion to organic production requires a period of time in which healthy soils, sustainable ecosystems are established and contaminants reduced before it can achieve certified organic status.

Operators shall abide by the following requirements:

5.2.1 Operators shall comply with the requirements on conversion as prescribed in this Section and with the conversion period of individual commodity as specified in the related Annex B, C, D or E.

5.2.2 Conversion period shall be calculated from the date of the documented start of organic management and the filing of application for certification from a certification body.

5.2.3 The reduction of conversion period may be approved by the competent authority or certification body where there is a verifiable evidence to prove that the land subject to certification is a natural area or an agricultural area that has not been treated with products or substances, prohibited for use in organic production, for at least three years or the period as specified in the related Annex B, C, D or E.

5.2.4 The competent authority or certification body may consider to extend the conversion period longer than that specified in Section 5. 2. 1 based on the identification and evaluation of relevant issues and risks.

5.3 Maintenance of organic management

Objective

Organic production system requires a commitment to the application of organic production practices.

5.3.1 Organic management shall not be switched back and forth between 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 and in these cases conversion requirements apply.

5.3.2 In case of a natural disaster, such as floods, that may affect the integrity of organic, if operators can provide evidence showing that their produce is not contaminated by pesticide residues or contaminants, they can request a reduction or exemption of conversion period, subject to approval of the competent authority or the certification body.

5.4 Split production and parallel production

Objective

The integrity of an organic farm unit is not compromised by the activities and management of non-organic operations undertaken in the same farm.

In the event that the entire farm is not converted to organic production at the same time, an operator can gradually convert some production units to organic production, subject to the following criteria.

5.4.1 In organic management, the organic part and the non-organic part as well as the produce and products thereof shall be completely and clearly separated, by split or parallel production, such as the use of physical barriers, management practices (such as production of different varieties that can be easily distinguished, different timing of harvest, separation storage of inputs and products).

5.4.2 Additional criteria for split or parallel production of each commodity group are specified in the related Annex B, C, D or E.

5.4.3 In the management of split or parallel production, operators shall:

1) Store raw materials used for the organic and in-conversion production units separately from those for non-organic production units;

2) Store produce and products obtained from the organic, in-conversion, and non-organic production units separately from one another;

3) Keep adequate records to prove that the production units, produce and products are separated effectively.

5.5 Avoiding contamination

Objectives

Organic management highly restricts the use of synthetic inputs at all stages of the organic production and the supply chain. It also limits the exposure of people and the environment to persistent, potentially harmful chemicalss. It contributes to the reduction of pollution and degradation of the production and processing units including their surroundings, as a result of the production and processing activities. Moreover, organic production system excludes certain unproven, unnatural and harmful technologies from the system.

5.5.1 Organic management applies precautionary measures to avoid contamination that may affect the organic integrity of the supply chain. Precautionary measures may include the use of barriers and buffer zones in the production. The specific size or distance of a buffer zone or plant depends on the identified risk of contamination and the local agro-climatic conditions.

5.5.2 Preventive measures against contamination from the use of equipment, including cleaning, which includes cleaning of the cleaning equipment and other facilities, shall be available. Cleaning shall be recorded.

5.5.3 Organic management emphasises the management of the concerned risk of contamination. In case there is reasonable suspicion of contamination, efforts shall be made to identify and address the source of contamination.

5.5.4 When a high risk of the use or contamination of prohibited substances is identified, proper analysis should be conducted to confirm the organic integrity.

5.5.5 Organic management systems do not use GMOs, produce or product derived from GMOs, and product produced by GMOs in food or feed, or as food, feed, processing aids, plant protection products, fertilisers, soil conditioners, plant reproductive materials, microorganisms or animals, in all steps of organic production and processing.

5.5.6 When wastes and pollution are found, a plan should be developed and implemented to avoid and reduce wastage and pollution by recycling waste. Non-recyclable waste such as battery, foil, plastic etc., shall be disposed of properly to avoid contamination in the organic farm.

5.5.7 Operators may assume that the goods purchased from food and feed factories contain neither GMOs nor products derived from GMOs, when the labels or the accompanying documents do not declare that such goods are or are derived from GMOs, as stipulated by law, unless there is other information indicating that the labelling of such goods do not comply with the law and regulations.

5.5.8 Operators who use non-organic products, which are purchased or sourced from the third parties and such products do not have any labelling, shall require the suppliers to confirm that those products are not derived from GMOs or produced by GMOs.

5.6 Wild harvest

Objective

The harvesting of naturally occurring produce is undertaken in a sustainable way, not using any prohibited inputs or carrying out any prohibited practices while ensuring no contamination on produce.

5.6.1 The harvesting of produce from the wild shall be assured that it does not exceed a level that affects the sustainable yield or the environment and ecosystem of such area.

5.6.2 Wild harvesting areas shall be at an appropriate distance from conventional farming, pollution sources and other potential sources of contamination.

5.7 Production requirements for each type of commodities

Operators shall comply with the additional production requirements applied to each type of commodities as specified in the related Annex B, C, D or E.

6. POST-HARVEST MANAGEMENT, COLLECTION, PACKAGING, STORAGE, HANDLING OF PRODUCE AND PRODUCTS AND TRANSPORTATION

Objectives

1. Post-harvest management, collection, packaging, storage, handling of produce and products and transportation maintain the integrity of organic produce and products.
2. Packaging, storage and transportation shall not cause any contamination to the organic produce and products contained therein.
3. During the collection, storage and handling of produce and products, the organic products are protected against any pests in a way that their organic integrity shall not be affected.

6.1 Post-harvest management

6.1.1 Preventive measures against contamination and organic produce mixing with non-organic produce shall be in place, for example in the threshing, peeling, cleaning, cooling, cutting, drying, and on-farm produce packing.

6.1.2 Pesticides, which are not listed in the Table A.3 to Table A.6 in Annex A, are not permitted for use during post-harvest or for protection of plant and animal health as they may cause the produce to lose their organic integrity. Nevertheless, the use of such substances shall be considered by taking into account the criteria specified in Section 13.

6.2 Collection and transportation of produce and products to preparation unit

Operators may carry out the collection and transportation of organic, in-conversion and non-organic produce and products at the same time, provided that appropriate measures are in place to prevent any possible mixing or co-mingling among such produce and products, and ensure that clear identification of such produce and products is provided. The operator shall keep the information relating to collection date and receiving date and time, available to the competent authority or certification body.

6.3 Packaging, storage and handling of produce and products and transportation to other operation units or to other units including wholesalers and retailers

6.3.1 The organic produce and products shall be protected at all times against contamination from and contact with materials and substances prohibited to be used in organic production.

6.3.2 Production inputs or substances other than those permitted to be used in organic production shall not be stored in the organic or in-conversion production units.

6.3.3 Veterinary medicinal products, including antibiotics prescribed by a veterinarian may be stored in the agricultural and aquaculture storage.

6.3.4 The containers used for packaging, storage, and transportation of organic produce and products shall not cause any contamination to the produce and products. For instance, it is prohibitied to use the following: packaging materials or storage containers that contain synthetic fungicides, preservatives or fumigant; or reused bags or containers, or containers that have been in contact with any substances that are likely to affect the organic integrity of the produce and products or ingredients contained therein.

6.3.5 Preventive measures against mixing of organic produce and products with non-organic produce and products shall be in place at all times.

6.3.6 It shall be ensured that organic produce and products in a package, container or vehicle are in good condition. In case of being packaged or packed in a container,

the package and the container shall be sealed or free from any trace of damage, enabling the prevention against mixing or substituting goods contained therein. In the event that the produce and products are not packed in a container, measures shall be in place to prevent any mixing or substitution of the organic produce and products.

6.3.7 In the event that operators store organic or in-conversion or non-organic produce and products in a facility that also stores other agricultural products or foodstuff. The operators shall carry out as follows:

1) Organic or in-conversion produce and products shall be kept separately from other agricultural products or foodstuff.

2) Measures shall be taken to ensure the identification of consignments and to avoid any mixing or switching between the organic or in-conversion and the non-organic produce and products.

3) Appropriate cleaning measures, of which effectiveness has been validated, shall be in place. The measures shall be carried out to clean the storage and the related equipment and tools before storing organic or in-conversion produce and products. The operators shall record the operations and keep such records.

6.3.8 For cleaning and disinfection of storage facility, only substances permitted for organic production according to the list in Table A.8 of Annex A shall be used.

6.3.9 The use of bio-degradable, recycled, or recyclable packaging materials shall be encouraged.

7. Organic food processing

Objectives

1. Management system for processing and handling produce and products maintains the organic integrity throughout all stages of operations, from raw materials to final products.
2. Organic processed products are made from organic ingredients.
3. Organic food is processed by using biological, mechanical or physical methods.
4. During processing, organic products are protected against pests, in a way that their organic integrity is not affected
5. Cleaning, disinfection and sanitisation in food processing establishment shall not cause contamination to the organic products.

Operators shall carry out as follows:

7.1 The processing management of organic food maintains the organic integrity throughout all stages of processing, handling, and packaging by implementing preventive measures against contamination (including prevention against the contamination of substances prohibited for use in organic production), and mixing of organic products with non-organic products.

7.2 Operators producing organic processed food shall establish and update appropriate procedureson the basis of a systematic identification of critical processing steps. Such procedures shall be implemented accordingly, especially the precautionary measures.

7.3 The preparation of processed organic, in-conversion and non-organic products shall be kept separate from one another, by time, by place or by using separate areas. When carrying out such operations, the operator shall:

1) inform the competent authority or certification body;

2) carry out the operations continuously until the production processes are completed and separate the similar operations either by place or by time for organic, in-conversion, and non-organic products;

3) separately store organic, in-conversion and non-organic products before and after the operations, either by place or by time;

4) develop and update a register of information on operations and the quantities processed, and keep such records;

5) take the necessary measures to ensure the identification of lots and to avoid mixing, co-mingling or substitution amongst organic, in-conversion, and non-organic products;

6) carry out operations on organic or in-conversion products only after proper cleaning of the production equipment.

7.4 Processing should be carried out in accordance with the principles of good hygienic practices or good manufacturing practices, and in compliance with the requirements of good hygienic practices for food production specified in the relevant standards.

7.5 Only ingredients (excluding added water and salt) obtained from organic agriculture shall be used in organic processing. Unless such ingredients are not available, the requirements on labelling specified in Section 11.4 shall apply.

7.6 The same food ingredients shall not be obtained from both organic and non-organic sources.

7.7 Only food additives listed in Table A.6 of Annex A shall be used in organic food processing.

7.8 Minerals (including trace elements), vitamins, essential fatty acids, essential amino acids, and isolated nutrients can be added in organic food processing, only when they are required by law or recommended by the competent authority.

7.9 Only mechanical, physical or biological methods (such as hulling, milling, grinding, pressing, dehydrating and fermenting) can be used in organic food processing.

7.10 Only food processing aids, other substances that modify organic products, and solvents used for extraction, as listed in Table A.7 of Annex A, can be used in organic food processing.

7.11 Food irradiation techniques shall not be used in organic food processing. Organic produce and products shall not be irradiated for the purposes of controlling pests, preservation, and elimination of pathogens or sanitisation.

7.12 Filtration equipment shall not contain asbestos, or techniques or substances that may contaminate the product shall not be used. Filtration agents and adjuvants are considered to be food processing aids; therefore, they shall be one of those listed in Table A.7 of Annex A.

7.13 Only water, ethanol, plant and animal oils, vinegar, carbon dioxide and nitrogen shall be used in extraction process.

7.14 Products, substances and techniques that reconstitute properties that are lost in the processing and storage of organic food, that correct the results of negligence in the processing of organic food, or that otherwise may be misleading as to the true nature of products intended to be marketed as organic food, shall not be used

8. Organic feed processing

Objective

The organic integrity of produce and products are maintained throughout all stages of operations, from raw materials to final products.

Operators shall carry out as follows:

8.1 The principles of good manufacturing practices shall be followed in using the feed additives, processing aids, other substances, and feed ingredients, including the applied processing methods, such as smoking.

8.2 Operators producing organic processed feed shall establish and update procedures on the basis of a systematic identification of critical processing steps. Such procedures shall be implemented accordingly, especially the precautionary measures.

8.3 The preparation of processed organic, in-conversion and non-organic products shall be kept separate from one another, by time or by place. When carrying out preparation or storage of organic, in-conversion and non-organic products in the preparation units concerned, the operator shall:

1) inform the competent authority or certification body;
2) carry out the operations continuously until the production processes are completed and separate the similar operations for other products (organic, in-conversion, and non-organic products) either by place or by time;
3) separately store organic, in-conversion and non-organic products before and after the operations, either by place or by time;
4) develop and update a register of information on operations and the quantities processed, and keep such records;
5) take the necessary measures to ensure the identification of lots and to avoid mixing, co-mingling or substitution amongst organic, in-conversion and non-organic products;
6) carry out operations on organic or in-conversion products only after proper cleaning of the production equipment.

8.4 Organic or in-conversion feed materials shall not be used as ingredients for organic feed product simultaneously with the same materials, produced by non-organic means.

8.5 Any feed materials used or undergone organic processing shall not be treated with chemically synthesised solvents.

8.6 Only the non-organic feed materials of plant, algae, animal or yeast, feed materials of mineral origins, feed additives and processing aids for feed processing as listed in Table A.7 of Annex A can be used.

9. Pest control

Objectives

Organic produce and products are protected from pests without affecting the organic integrity during the processing, storage and handling of such produce and products.

9.1 Organic processing management system shall be used to control pests according to hierarchy of practices as follows:

1) The first step is prevention methods, such as destroying and eliminating the harbourage of pests, and taking preventive measures against the entry of pests;

2) In case prevention methods are not sufficient, the first option should be to use physical, mechanical and biological methods, such as using physical barrier, sound (ultra-sound), light (UV-light), traps (pheromone and stationary bait), temperature control, controlled atmosphere (carbon dioxide, oxygen, nitrogen) and diatomaceous earth;

3) In case such mechanical, physical and biological methods are not effective, substances as listed in Table A.3 of Annex A or those in compliance with the criteria specified in Section 13 may be used, provided that they do not come into contact with the organic produce and products.

9.2 Pests should be avoided and prevented by good manufacturing practices.

10. Cleaning, disinfection and sanitisation of the facilities for producing and processing organic produce and products

Objectives

Cleaning, disinfection and sanitisation of the production and processing facilities do not cause contamination to organic produce and products.

10.1 Organic management shall employ only the systems for cleaning and disinfecting surfaces, equipment, machines, facilities, and areas for production and processing that prevent organic produce and products from contamination.

10.2 Disinfecting and sanitising substances that may come into direct contact with organic produce and products are water and the substances listed in Table A.8 of Annex A. In case the use of such water and the substances is not effective and other substances are needed, they shall not come into direct contact with organic produce and products.

11. Labelling and claims

Objectives

Labelling clearly identifies organic produce and products, and provides relevant information for consumers to make appropriate choices and avoid misleading them.

11.1 Labelling shall be in compliance with Section 3, "the Labelling Requirements for Agricultural Commodities", of TAS 9060 (Thai Agricultural Standards on the Labelling of Agricultural Commodities).

11.2 Labelling of agricultural commodities shall be in accordance with the provisions specified in the relevant Thai Agricultural Standards. In case where there is no specific Thai Agricultural Standard, Section 4, "the List of Information to be Displayed on the Label of Food", or Section 5, "the List of Information to be Displayed on the Label of Non-food", of TAS 9060 shall be considered according to the types of the concerned agricultural commodities, as appropriate.

11.3 Labelling or claims of produce and products as "Organic" or "Organic Agriculture" or "Or-ga-nic" (transliteration in Thai) shall be allowed only when:

11.3.1 such produce or products are from organic production systems according to the objectives, principles and requirements of this standard;

11.3.2 all ingredients of the products obtained from agricultural origins are from organic production systems according to the objectives, principles and requirements of this standard;

11.3.3 the ingredients of the products obtained from non-agricultural origins to be used are only those listed in Table A.6 of Annex A;

11.3.4 any individual product does not contain the same ingredient that is derived from both organic and non-organic sources;

11.3.5 a product or an ingredient of the product is not GMOs, has not undergone irradiation or does not use substances other than those listed in Annex A;

11.3.6 produce or products that are manufactured, prepared, or imported by any operator are subject to inspection and certification in organic agriculture;

11.3.7 produce or products are certified by a certification body and the labelling indicates either the name or the code number or both, of the certification body.

11.4 Produce or products, which have been inspected by a certification body that are in compliance with this standard and in accordance with the requirements in Section 11.3, are permitted to label as "conversion to organic". However, they are not allowed to display a certification mark on the produce or products as they may mislead consumers of being certified as organic agriculture.

11.5 Labelling clearly distinguishes in-conversion products or similar terms from organic products. Labelling helps to ensure that products labelled as "organic", or other equivalent terms of "conversion to organic" (such as "in process of biological or ecological transition", "in conversion to organic", "in transition to organic"), comply with the applicable organic agriculture standards.

11.6 Labelling of organic food shall comply with the requirements from Section 11.3 to Section 11.5 as well as the additional requirements as follows:

11.6.1 All ingredients shall be declared and listed in descending order of the approximate percentage by weight, whether or not they are organic. In case of herbs and spices that contain less than 2% of total weight of the product, they may be declared as "herbs" or "spices";

11.6.2 A product that can display label and certification mark as "organic" shall contain not less than 95% of organic ingredients (by weight for solids or by volume for liquids) in the final product, excluding water and salt. The non-organic ingredients shall not be GMOs, irradiated, or treated with processing aids not listed in Table A.6 and A.7 of Annex A;

11.6.3 A claim that a processed product is "made from organic food ingredients" or similar terms can be made only when such product contains not less than 70% of organic ingredients (by weight for solids or by volume for liquids - excluding water and salt);

11.6.4 A product containing less than 70% of organic ingredients (by weight for solids or by volume for liquids - excluding water and salt) shall not be labelled as "organic" or "made from organic ingredients" or similar terms. Even though the term "organic" may be used to characterise certain food ingredients in the list of food ingredients;

11.6.5 In case of organic food, a claim as "organic" shall be displayed at a prominent position on the label in relation to the list of ingredients, indicating the percentage of each organic ingredient in proportion to the total quantity of ingredients, including food additives but excluding salt and water

11.6.6 The list of all food ingredients on the label shall appear in the same colour, style, and font size.

11.7 Labelling or claims as organic animal feed shall comply with the requirements in Section 11.3 to Section 11.5 and animal feed of not less than 95% of dry weight shall be obtained from organic production.

12. Traceability system and record keeping

Objectives

Record keeping ensures traceability of organic integrity throughout the whole organic operation by following the production data (e.g. raw material data, production input) and quantity of every step of the supply chain, including sales. It shall be transparent and enable easy retrieval of information.

12.1 Operators shall identify names or codes of each separate production site. Names, coordinates or codes shall be recorded on a map as well as on all documents and records referred to each site.

12.2 Operators shall keep records on procurement, handling, and processing, including stock inventory of all materials used for the production, processing and handling of organic produce or products as well as organic finished products.

12.3 Documents and records shall be clearly identified of their sources, movement, use and inventory of organic materials and non-organic materials at every step of production, processing and handling of produce or products.

12.4 Records, documents and accounts shall be traceable and made available for evaluation and traceability or verification by inspector at all times.

12.5 All the above-mentioned records (including information related to subcontractors) shall be kept for at least 5 years.

13. Permission for use of substances other than those specified in Annex A in the organic production system

Objective
Use of substances complies with the principles and objectives of organic production system.

Permission for use of substances other than those specified in Annex A shall be pursued as follows:

13.1 Stakeholders (consisting of, at least, government agencies, certification bodies, operators, consumers) should have the opportunity to be involved in the process of assessment of any substances for addition and amendment of the list;

13.2 Consideration on the permission for use of substances other than those specified in Annex A shall comply with the following criteria:

13.2.1 They shall be in consistence with the objectives and principles of organic production of this standard;

13.2.2 The use of the substance is necessary/essential for its intended use;

13.2.3 The production, use and disposal of the substances shall not cause or contribute to the harmful effects on the environment;

13.2.4 The substances shall have minimal negative impacts on the human and animal health and quality of life;

13.2.5 Approved alternatives are not available in sufficient quantity and/or quality.

13.3 The criteria in section 13.2, sub-section 13.2.1 to sub-section 13.2.5, shall be evaluated as a whole to properly protect the organic integrity. In addition, the following criteria should be applied for the evaluation process.

13.3.1 In case the substances are used for fertilisation or soil conditioning purposes:

13.3.1.1 They shall be necessary to maintain the level of soil fertility, or to fulfil the specific nutrient requirements of plants, or to adjust or enrich soil condition that cannot be achieved by the methods in the production requirements or by the use of the substances listed in Table A.1 of Annex A;

13.3.1.2 The ingredients shall be derived from plants, animals, microbials, or minerals that may undergo different processes, such as physical process (such as mechanical, thermal), enzymatic process, or microbial process (such as composting, fermentation);

13.3.1.3 The use of substances for the above-mentioned purposes shall not affect the balance of soil ecosystem or the physical properties of soil or the quality of water and air.

13.3.2 In case the substances are used for control of diseases, pests and weeds:

13.3.2.1 They shall be used only when it is necessary to control harmful living organisms or specific diseases, that there are no other biological, physical options, or alternative use of resistant varieties; or the effective management methods are not accessible;

13.3.2.2 Such substances should be derived from plants, animals, microbials, or minerals that may undergo physical process (such as mechanical, thermal), enzymatic process, or microbial process (such as fermentation)

13.3.2.3 In exceptional circumstances, the substances used in traps or dispensers, such as synthetic pheromones, they shall be considered for addition to the list, if not available in their natural forms and not in sufficient quantities, provided that such use shall not directly or indirectly cause any residues on the edible portion of the produce.

13.3.3 In case the substances are used for food additives or feed additives or processing aids in preservation of food or feed, such substances:

13.3.3.1 should be derived from natural origins and may undergo mechanical or physical processes (such as extraction, precipitation), biological or enzymatic and microbial processes (such as fermentation);

13.3.3.2 In case the substances from above-mentioned processes are not available in sufficient quantities but are needed in preparation, synthetic substances may be allowed as an exceptional circumstance. However, consumers shall not be misled on the nature of the substances and the quality of the food and feed.

13.4 Any proposed addition of substances other than those specified in Annex A, should provide the following information:

1) Detail description of product, methods and conditions of use;
2) Information demonstrating that it complies with the requirements of Section 13.2.

Annex A
(Normative)
Substances permitted for use in organic production

A.1 Precautions

A.1.1 Any substances used in an organic production system for soil fertilisation, soil conditioning, aquaculture pond improvement, plant pest and disease control, livestock and aquatic animal health care, and product quality or preparation, preservation and storage of food products, shall comply with the national as well as the trading partner countries' requirements.

A.1.2 Conditions for use of certain substances contained in the following lists may be specified by the competent authority or certification body, such as quantity, frequency of application according to the specific purposes.

A.1.3 Where any substances are required for primary production, even though they are permitted substances for use, they shall be used with caution according to the technical principles to prevent any misuse, which may affect the ecosystem of the soil or farm.

A.1.4 The lists in Table A.1 to Table A.8 are of substances permitted for use in organic production. Nevertheless, the substances may be added to or withdrawn from the lists according to the approval of the competent authority or certification body. Such decisions shall be in compliance with the criteria specified in Section 13 of this standard.

Table A.1 Substances for use in soil fertilising and conditioning

Substances	Description and conditions of use
1. Livestock and poultry manures	- Need to be recognised by competent authority or certification body, if not sourced from organic production systems. - Factory farming sources are not permitted (heavily reliant on chemical or veterinary drugs and raising in battery cages). - Manure from fertiliser factory, undergone full decomposition, is permitted for on-farm use. - Fresh manure is not permitted for food crops in a manner that presents risk of pathogen contamination to the edible portion of the plant.

Substances	Description and conditions of use
2. Compost from animal and poultry excrements	- Need to be recognised by competent authority or certification body if not sourced from organic production system. - Factory farming sources are not permitted (heavily reliant on chemical or veterinary drugs and raising in battery cages). - Manure from fertiliser factory, undergone full decomposition, is permitted for on-farm use. - Fresh manure is not permitted for food crops in a manner that presents risk of pathogen contamination to the edible portion of the plant.
3. Manure and compost from animal manure	- Need to be recognised by competent authority or certification body if not sourced from organic production system. - Factory farming sources are not permitted (heavily reliant on chemical or veterinary drugs and raising in battery cages). - Manure from fertiliser factory, undergone full decomposition, is permitted for on-farm use. - Fresh manure is not permitted for food crops in a manner that presents risk of pathogen contamination to the edible portion of the plant.
4. Dried manure from livestock and poultry	- Need to be recognised by competent authority or certification body if not sourced from organic production system. - Factory farming sources are not permitted (heavily reliant on chemical or veterinary drugs and raising in battery cages). - Manure from fertiliser factory, undergone full decomposition, is permitted for on-farm use.
5. Slurry and urine from animal	Need to be recognised by competent authority or certification body if not sourced from organic production system. They should have undergone fermentation and/or dilution under controlled condition. Factory farming sources are not permitted. Manure from fertiliser factory, undergone full

Substances	Description and conditions of use
	decomposition, is permitted for on-farm use, except for those from poultry kept in battery husbandry.
6. Fertilisers from nature (guano: fish fertiliser, bird manure, bat manure)	Need to be recognised by a competent authority or certification body.
7. Straw (e.g. rice straw)	Need to be recognised by a competent authority or certification body.
8. Compost from spent mushroom substrate	- Need to be recognised by a competent authority or certification body. - The initial composition of the substrate shall be limited to the products on this list.
9. Compost from home organic materials refuse	Need to be recognised by a competent authority or certification body.
10. Compost from plant residues	
11. Refuse from slaughterhouses and fish industries	- Do not use synthetic substances. - Need to be recognised by a competent authority or certification body.
12. By-products of food and textile industries	- Not treated with synthetic additives. - Need to be recognised by a competent authority or certification body.
13. Seaweeds and seaweed products	Need to be recognised by a competent authority or certification body.
14. Sawdust, bark and wood waste	Need to be recognised by a competent authority or certification body.
15. Wood ash	Need to be recognised by a competent authority or certification body.
16. Natural phosphate rock	- Need to be recognised by a competent authority or certification body. - cadmium shall not exceed 90 mg/kg P_2O_5.
17. Basic slag	Need to be recognised by a competent authority or certification body.
18. Rock potash, mined potassium salts (such as kainite, sylvinite)	Shall comprise less than 60% chlorine.
19. Sulphate of potash (such as patenkali)	- Obtained from physical procedures but shall not be enriched by chemical processes to increase its solubility. - Need to be recognised by a competent authority or certification body.
20. Calcium carbonate of natural origin (such as chalk, marl, limestone, phosphate chalk, sugar beet lime)	Need to be recognised by a competent authority.
21. Magnesium rock	-

Substances	Description and conditions of use
22. Calcareous magnesium rock	- Need to be recognised by a competent authority. - Obtained only from natural sources or origin.
23. Epsom salt or kieserite	-
24. Gypsum (calcium sulphate)	Obtained only from natural sources or origin.
25. Stillage and stillage extract	Ammonium stillage excluded.
26. Sodium chloride	Mined salt only.
27. Aluminium calcium phosphate	Cadmium shall not exceed 90 mg/kg P_2O_5.
28. Trace elements (such as boron, copper, iron, manganese, zinc)	Need to be recognised by a competent authority or certification body.
29. Sulphur	- Need to be recognised by a competent authority or certification body. - Permit only those from natural sources.
30. Stone meal	-
31. Clay such as bentonite, perlite, zeolite	-
32. Naturally occurring biological organisms (such as worms)	-
33. Vermiculite	-
34. Peat	- Excluding synthetic additives permitted for seed, certain potting module composts. - Other uses as recognised by a competent authority or certification body. - Not permitted as a soil conditioner.
35. Humus from earthworms and insects	-
36. Zeolite	-
37. Charcoal from wood	-
38. Chloride of lime	- Needs to be recognised by a competent authority or certification body. - Obtained only from natural sources or origin.
39. By-products of sugar industry, and biodegradable processing by-products, parts of plants or animals (such as by-products of food, feed, oil seed, brewery, distillery, molasses, sugar press mud/mud press, or textile processing)	- Need to be recognised by a competent authority or certification body. - By-products should not come from GMOs (not treated with synthetic additives).
40. By-products of industries processing ingredients from organic agriculture	Need to be recognised by a competent authority or certification body.

Substances	Description and conditions of use
41. By-product of oil palm, coconut and cocoa	Need to be recognised by a competent authority or certification body.
42. Neem, long pepper flower, powdered sweet flag	For seed coating to control rice pest.
43. Water fern	For soil conditioning by adding nitrogen.
44. Blue-green algae	For soil conditioning by adding nitrogen.
45. Dried animal blood	For soil conditioning by adding nitrogen.
46. Bone meal	For soil conditioning by adding nitrogen, phosphorus and calcium.
47. Seed meal	For soil conditioning by adding phosphorus.
48. Blood meal, meat meal, bone meal	-
49. Parts of hoof, horn, feather, fishery and its products, wool, hair, milk products	-
50. Mulch	-
51. Calcium lignosulfonate	Need to be recognised by a competent authority or certification body.
52. Plant preparations and extracts	Not from GM plants.
53. Calcium chloride solution	Obtained only from natural sources or origin.
54. Pulverized rock	-
55. Microbiological preparations based on naturally occurring organisms	-
56. Biodynamic preparations	-

Table A.2 Substances for use in aquaculture pond fertilising and conditioning

Substances	Description and requirements
1. Organic substances permitted for use	
1.1 Organic fertiliser from organic materials, i.e., compost from decomposing plant debris, rice straw, sawdust, bark, wood chips, and other agricultural residues	Need to be recognised by a competent authority or certification body.
1.2 Manure	-Prevent contamination to water sources - Need to be recognised by a competent authority or certification body. - Dried or fully decomposed type.
1.3 Green manure, plant debris, and organic farm residues	Need to be recognised by a competent authority or certification body.
1.4 Leftovers from processes in slaughter houses, industrial factories, such as sugar factory, cassava factory, fish sauce factory	Need to be recognised by a competent authority or certification body

Substances	Description and requirements
1.5 Growth control substances for aquatic animals, free from synthetic substances	If not from organic production system, need to be recognised by a competent authority or certification body.
1.6 Bacteria, fungi and enzymes	If not from organic production system, need to be recognised by a competent authority or certification body.
2. Inorganic substances permitted for use	
2.1 Phosphate rock	-
2.2 Ground limestone in the form of calcite or dolomite. Do not use burnt dolomite	-
2.3 Calcium silicate	-
2.4 Sodium silicate	-
2.5 Magnesium sulphate	-
2. 6 Clay minerals, such as smectite, kaolinite, chlorite	-
2.7 Perlite, zeolite, bentonite	-
2.8 Rock potash, potassium salt with less than 60% of chloride	-
2.9 Calcium from seaweeds	-
2.10 Shell	-
2. 11 Potassium sulphate produced from physical process	-
2.12 Rock salt	-
2.13 Oxygen	-

Table A.3 Substances for plant pest and disease control, plant growth regulators, and seed treatment for storage

Substances	Description and requirements
1. Plant pest and disease control	
1.1 Chitin nematicides	-
1.2 Coffee grounds	-
1.3 Corn gluten meal	-
1.4 Casein	-
1.5 Natural acid (e.g. vinegar)	Need to be recognised by a competent authority or certification body.
1.6 Preparations/products of neem or azadirachtin from *Azadirachta* spp.	Need to be recognised by a competent authority or certification body.
1.7 Fermented product from *Aspergillus* spp.	-
1.8 Plant and animal oils	-
1.9 Fishtail palm extracts	-
1.10 Natural plant preparations	Need to be recognised by a competent authority or certification body.

Substances	Description and requirements
1.11 Plant based repellents such as fermented plant juice, marigold	-
1.12 Preparations on basis of pyrethrins extracted from *Chrysanthemum cinerariaefolium*	- Need to be recognised by a competent authority or certification body. - Synthetic piperonyl butoxide (PBO) shall not be added into chrysanthemum preparation.
1.13 Preparations from *Quassia amara*	Need to be recognised by a competent authority or certification body.
1. 14 Preparations of rotenone or active ingredients from *Derris elliptica*, *Lonchocarpus, Thephrosia* spp.	- Prevent contamination to water sources. - Need to be recognised by a competent authority or certification body.
1.15 Tea seed meal	Need to be recognised by a competent authority or certification body.
1.16 Wood vinegar	Need to be recognised by a competent authority or certification body
1.17 Preparations from *Ryania speciosa*	Need to be recognised by a competent authority or certification body.
1.18 Sabadilla derived from seed of sabadila lily, which is native plant of South America	-
1.19 Tobacco tea, except pure nicotine	Need to be recognised by a competent authority or certification body.
1.20 Chloride of lime	-
1. 21 Inorganic compounds, such as bordeaux mixture, copper hydroxide, copper oxychloride	Need to be recognised by a competent authority or certification body
1.22 Burgundy mixture	Need to be recognised by a competent authority or certification body
1.23 Copper salts	- Used as fungicide, subject to the conditions that they shall be applied in such a way that reduce the copper accumulation in the soil - Need to be recognised by a competent authority or certification body.
1.24 Diatomaceous earth	Need to be recognised by a competent authority or certification body.
1.25 Paraffin oil	Need to be recognised by a competent authority or certification body.
1.26 Lime sulphur or calcium polysulfide	-
1.27 Sodium bicarbonate	-
1.28 Calcium hydroxide or hydrated lime	Used for aerial plant parts.
1.29 Potassium bicarbonate	-
1.30 Potassium permanganate	Need to be recognised by a competent authority or certification body.

Substances	Description and requirements
1.31 Iron phosphates	Need to be recognised by a competent authority or certification body.
1.32 Calcium oxide or quicklime	-
1.33 Sulphur and sulphur in elemental form	- Need to be recognised by a competent authority or certification body. - Other forms need to be recognised by a competent authority or certification body.
1.34 Fungal preparations, such as *Metarhizium anisopliae, Trichoderma harzianum, Beauveria bassiana*	-
1.35 Spinosad	- Use only where measures are taken to minimise the risk to parasitoids and to minimise the risk of development of resistance. - Conditions and rate of application shall be specified. - Need to be recognised by a competent authority or certification body.
1.36 Release of parasites, such as *Trichogramma* sp., predators, such as ladybird beetle, earwig, lacewing, and sterilised insects	-
1.37 Microorganisms (bacteria, virus, fungi, such as *Bacillus thuringiensis*, *Granulosis virus*, Nuclear Polyhedrosis Virus (NPV))	Need to be recognised by a competent authority or certification body.
1.38 Potassium soap (soft soap)	-
1.39 Rodenticides	Obtained from natural sources.
1.40 Thermal controls	-
1.41 Conventional prepared substances (of non-synthesised chemicals) based on natural products	-
1.42 Physical methods (such as chromatic trap, mechanical trap)	-
1.43 Mineral oils	Need to be recognised by a competent authority or certification body.
1.44 Mulch (including plastic mulch), net	-
1.45 Pheromone	-
1.46 Preparations from metaldehyde used in trap	Need to be recognised by a competent authority or certification body
1.47 Sulphur dioxide	
2. Plant growth regulator	
2.1 Algal preparations, such as Chlorella	-
2.2 Preparations from animals and oils, such as fish extracts	-

Substances	Description and requirements
2.3 Beeswax	-
2.4 Dairy products, such as milk, casein	-
2.5 Seaweed, seaweed meal or seaweed extracts, sea salts and salty water	Not chemically treated.
2.6 Gelatin	-
2.7 Lecithin	Need to be recognised by a competent authority or certification body.
2.8 Preparations from shiitake fungus	-
2.9 Propolis	Need to be recognised by a competent authority or certification body.
2.10 Ethylene	- For degreening of citrus for fruit fly prevention and as a flowering agent for pineapple. - As sprouting inhibitor for potatoes and onions: need to be recognised by a competent authority or certification body 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. - Enhance ripening of kiwifruits, bananas and other tropical fruits but shall be used in a manner that minimise exposure to operators and workers.
2.11 Potassium hydrogen carbonate	-
3. Seed treatment for storage	
3.1 Wood ash	-
3.2 Silicates and bentonite	-
3.3 Sodium silicate	-
3.4 Carbon dioxide and nitrogen gas	Need to be recognised by a competent authority or certification body.
3.5 Ethyl alcohol	
4. Plant growth regulator and seed treatment for storage	
4.1 Mineral powders such as stone meal, silicates	-
5. Plant pest and disease control and seed treatment for storage	
5.1 Sterilised male insects	Need to be recognised by a competent authority or certification body.
5.2 Seaweed, seaweed meal or seaweed extracts, sea salts and salty water	Not chemically treated.

Substances	Description and requirements
6. Plant pest and disease control, plant growth regulator and seed treatment for storage	
6.1 Herbal and preparations from biodynamics	-
6.2 Soda	-
6.3 Sterilised male insects	Need to be recognised by a competent authority or certification body.
6.4 Homeopathic and ayurvedic preparations	-

Table A.4 Substances for aquaculture pest and disease control

Substances	Description/requirements
1. Tea seed meal	Use as necessary in minimal quantity.
2. Rotenone and preparations of rotenone from *Derris* spp.	Use as necessary in minimal quantity.
3. Potassium permanganate	May be used in a hatchery under the supervision of a fishery biologist or a veterinarian.
4. Hydrogen peroxide	May be used in a hatchery under the supervision of a fishery biologist or a veterinarian.
5. Povidone iodine	May be used in a hatchery under the supervision of a fishery biologist or a veterinarian.
6. Chlorine	- Use as necessary in minimal quantity. - Use only sodium hypochlorite and calcium hypochlorite.
7. Herbs	Use as necessary in minimal quantity.

Table A.5 Substances for bee pest and disease control

Substances	Descriptions/requirements
1. Formic acid	To control bee mites.
2. Lactic acid	To control bee mites.
3. Acetic acid	To control bee mites.
4. Oxalic acid	To control bee mites.
5. Menthol	To control bee mites.
6. Thymol	To control bee mites.
7. Eucalyptol	To control bee mites.
8. Camphor	To control bee mites.

Table A.6 Ingredients from non-agricultural origins

INS no.	Substances	Description/requirements
(1) Food additives, including carriers, processing aids for plant products		
170	Calcium carbonate	-
181	Tannin	For wine products
184	Tannic acid	- For wine products - Filtration aids
220	Sulphur dioxide	For wine products.
224	Potassium metabisulphite	For wine products.
270	Lactic acid	For - fermented vegetable products - concentrated fruits and vegetable juices, - fruit and vegetable juices
290	Carbon dioxide	-
296	Malic acid	-
300	Ascorbic acid	- Provided natural sources are not sufficiently available - For vegetables and fruits
306	Tocopherols (mixed natural concentrates)	-
322	Lecithin	Obtained without bleaches and organic solvents.
327	Calcium lactate	For products of animal origin only.
330	Citric acid	- For vegetables and fruits. - Not more than 1 g/l. - Produced by microbial fermentation of carbohydrate substances.
331i	Sodium dihydrogen citrate	For products of animal origin only.
332i	Potassium dihydrogen citrate	For products of animal origin only.
333	Calcium citrates	
334	Tartaric acid	For wine products.
335	Sodium tartrate	For cake, confectionary and biscuit.
335ii	Sodium L(+)-tartrate	Included in INS 335.
336	Potassium tartrate	For cereal, cake, confectionary and biscuit
337	Potassium sodium L(+)-tartrate	-
341	Calcium phosphate (monobasic, dibasic, tribasic)	- For cereals - For raising flour only.
342	Ammonium phosphate	For wine products, at the restricted level of 0.3 g/l.
400	Alginic acid	-
401	Sodium alginate	-
402	Potassium alginate	-

INS no.	**Substances**	**Description/requirements**
406	Agar	-
407	Carrageenan	-
410	Locust bean gun	-
412	Guar gum	-
413	Gum tragacanth	-
414	Arabic gum	For confectionary.
415	Xantan gum	For products from fat, fruits, vegetables, cakes, biscuits, salads.
416	Karaya gum	-
418	Gellan gum	
422	Glycerol	Obtained from plant origin; used as a carrier for plant extracts.
428	Gelatin	-
440	Pectin	For jam production.
500	Sodium carbonate	For cakes, biscuits, confectionary.
500iii	Sodium sesquicarbonate	-
501	Potassium carbonate	For cereals, cakes, biscuits, confectionary, vegetables, fruits and wine.
503	Ammonium carbonate	- For cereals, cakes, biscuits, confectionary. - Used as a leavening agent.
504	Magnesium carbonate	For cereals, cakes, biscuits, confectionary.
504ii	Magnesium hydroxide carbonate	-
508	Potassium chloride	For frozen and canned fruits and vegetables, vegetable sauce, ketchup and mustard.
509	Calcium chloride	For soybeans, vegetables and fruits.
511	Magnesium chloride	- Derived from sea water. - For soybean product.
516	Calcium sulphate	- For cakes, biscuits, soybean product/ yeast for pastry. - From mined source. - Used as a coagulating agent.
517	Ammonium sulphate	For wine products at the restricted level of 0.3 mg/l.
524	Sodium hydroxide	For cereal products.
526	Calcium hydroxide	-
551	Silicon dioxide or silica	For vegetables, fruits, and wine.
553	Talc	-

INS no.	**Substances**	**Description/requirements**
558	Bentonite	For vegetables and fruits.
575	Glucono delta-lactone	- Production by oxidation of D-glucose with bromine water is prohibited. - For verification.
901	Beeswax	
903	Carnauba wax	
938	Argon	-
941	Nitrogen	-
948	Oxygen	-
	Activated carbon, charcoal	- From plant sources. - Used as filtering aid only.
	Asbestos free filter materials	-
	Attapulgite	Processing aid in plant and animal oils production
	Casein	For wine.
460	Cellulose	- Regenerative casings. - Anti- caking agent (non- chlorine bleached). - Filtering aid
	Diatomaceous earth	- Sweetener - For wine as filtering aid only
	Egg white lysozyme/albumin	-
	Enzyme (rennet, catalase, lipase, pancreatin, pepsin, trypsin)	Obtained from natural sources (edible and, nontoxic plants, non-pathogenic fungi or non- pathogenic bacteria) and not produced from GMOs [animal derived].
	Ethanol	Use as solvent.
	Ethylene	- Use to ripen fruits. - Only non- synthetic source is allowed.
	Ferrous sulphate	For iron enrichment or fortification of foods, as required by regulation.
	Food colouring (natural source) such as green from pandan leaf, red from hibiscus, yellow from turmeric	-
471	Glycerides (mono and di)	For food dehydrated by drum dryer.
	Isinglass	For wine.
	Kaolin	-
	Nut shells	-
470(iii)	Magnesium stearate	-

INS no.	Substances	Description/requirements
518	Magnesium sulphate or Epsom salt	-
	Micro-organisms	- Not from GMOs. - Food grade .
	Natural flavour	-
	Nutrients, vitamins and minerals	According to the regulatory requirements.
	Perlite	Filtering aid in food processing.
	pH adjusters, such as citric acid, sodium bicarbonate or vinegar	Obtained from natural sources.
525	Potassium hydroxide	pH adjustment
	Potassium iodide	For iodine fortification according to the regulatory requirements.
	Preparations of bark	-
	Salt	From clean sources without any contamination.
	Sodium acid pyrophosphate	As leavening agent.
	Vegetable oils	-
445(iii)	Glycerol ester of wood rosin	-
	Yeast	Shall be organic for human consumption. Non- organic may be used if organic is unavailable. Growth on petrochemical substrate and sulfite waste liquor is prohibited. For smoked yeast, nonsynthetic smoke flovoring process shall be documented.
(2) Substances used for processed products from aquaculture		
170	Calcium carbonate	-
181	Tannic acid	-
220	Sulphur dioxide	-
260	Acetic acid	-
270	Lactic acid	-
296	Malic acid	-
3 0 0 , 3 0 1 , 303	Ascorbic acid, sodium and potassium salts	-
330	Citric acid and salts	-
334	Tartaric acid and salts	-
338	Phosphoric acid	-
500	Sodium carbonate	-
503	Ammonium carbonate	-
504	Magnesium carbonate	-

INS no.	Substances	Description/requirements
508	Potassium chloride	-
509	Calcium chloride	-
511	Magnesium chloride	-
516	Calcium sulphate	-
526	Calcium hydroxide	-
	Sodium hydroxide	-
	Potassium hydroxide	-
	Carbon dioxide	-
	Argon	-
	Nitrogen	-
	Oxygen	-
	Hydrogen peroxide	-
	Gelatin	-
	Casein	-
	Aluminum-free leavening agent	-
(3) Substances used for processed food product and processed food product from livestock and products from bees		
170	Calcium carbonate	It is used with dairy products but not as colourant.
270	Lactic acid	- Used with casing for sausage making. - Used with dairy products as pH regulator.
290	Carbon dioxide	-
300	Ascorbic acid	Antioxidant
322	Lecithin	Obtained without the use of bleaches or organic solvents; used with dairy products and infant formulae with milk as main ingredient; products from fat and mayonnaise.
406	Agar	-
407	Carrageenan	Used with dairy products.
410	Locust bean gum	Used with dairy products and meat products.
412	Guar gum	Used with dairy products, meat in sealed containers; egg products.
413	Gum tragacanth	-
440	Pectin, unmodified	Used with dairy products.
450iii	Tetrasodium pyrophosphate	Used in products from meat only.
509	Calcium chloride	Used with dairy products.
938	Argon	Modified atmosphere packaging
941	Nitrogen	Modified atmosphere packaging

INS no.	Substances	Description/requirements
948	Oxygen	Modified atmosphere packaging
	(4) **Flavouring agents**	- Substances and products labelled as natural flavouring agents or natural flavouring preparations shall comply with the national regulations. - Permit use only as necessary and in accordance with the regulations for its application in food products.
	(5) **Drinking water**	-
	(6) **Salt**	- Comprising sodium chloride or potassium chloride as basic components, generally used in food processing. - Permit use only as necessary and in accordance with the regulations for its application in food products.
	(7) **Preparations of micro-organisms and enzymes**	- Used in food processing, except for the microorganisms derived from GMOs or enzymes derived from genetic modification or GMOs. - Permit use only as necessary and in accordance with the regulations for its application in food products.
	(8) **Trace elements**	- Vitamins, essential fatty and amino acids and other nitrogen compounds - Permit use only as necessary and in accordance with the regulations for its application in food products..

Table A.7 Processing aids for the preparation of products of agricultural origin

Substances	Description/requirements
(1) For plant products	
Calcium chloride	Coagulation agent
Calcium carbonate	-
Calcium hydroxide	-
Calcium sulphate	Coagulation agent
Magnesium chloride or nigari	Coagulation agent
Potassium carbonate	Drying of grapes
Carbon dioxide	-
Nitrogen	-
Ethanol	Solvent
Natural ethylene	- Flowering agent for pineapple - Ripening agent for fruits
Tannic acid	- Filtering aid - For wine.
Tannin	For wine.
Egg white albumin	-
Casein	-
Gelatin	-
Isinglass	
Vegetable oil	Greasing or releasing agent.
Silicon dioxide	Gel or colloidal solution.
Activated carbon	-
Talc	-
Bentonite	-
Kaolin	-
Diatomaceous earth	-
Perlite	-
Hazelnut shells	-
Beeswax	Releasing agent
Sulphuric acid	pH adjustment of extraction water in sugar production
Sodium hydroxide	pH adjustment in sugar production
Tartaric acid and salts	-
Sodium carbonate	Sugar production
Preparations of bark components	-
Potassium hydroxide	pH adjustment in sugar production
Citric acid	pH adjustment in sugar production
(2) For livestock and bee products	
Calcium carbonate	-
Calcium chloride	Firming, coagulation agent in cheese making

Substances	Description/requirements
Kaolin	Extraction of propolis
Lactic acid	Coagulation agent for dairy product, pH regulation for cheese
Sodium carbonate	Neutralising substance for dairy products
(3) **Preparations of microorganisms and enzymes**	Any preparations of microorganisms and enzymes normally used as processing aids in food processing, with the exception of GM microorganims and enzymes derived from GMOs.

Table A.8 Substances for cleaning and disinfection of equipment in direct contact with organic produce and products

Substances	Description/requirements
Javel water	Need to be recognised by a competent authority or certification body.
Biodegradable powder detergent	Need to be recognised by a competent authority or certification body.
Vinegar from plants or fruits	Need to be recognised by a competent authority or certification body.
Sodium carbonate	Need to be recognised by a competent authority or certification body.
Sodium bicarbonate	Need to be recognised by a competent authority or certification body.
Sodium hydroxide	Need to be recognised by a competent authority or certification body.
Hydrogen peroxide	- For disinfection. - Need to be recognised by a competent authority or certification body.
Iodine	Need to be recognised by a competent authority or certification body.
Potassium permanganate solution	Need to be recognised by a competent authority or certification body.
Lime solution	Need to be recognised by a competent authority or certification body.
Caustic potash	Need to be recognised by a competent authority or certification body.
Quicklime	Need to be recognised by a competent authority or certification body.
Bleaching agents (up to 10%)	Need to be recognised by a competent authority or certification body.
Phosphoric acid	- Cleaning agent for tools and equipment in the production process for dairy product. - Need to be recognised by a competent authority or certification body.

Substances	Description/requirements
Acetic acid	Cleaning agents.
Ethyl alcohol or ethanol	Disinfectant.
Isopropyl alcohol, isopropanol	Disinfectant.
Calcium hydroxide or slaked lime	-
Calcium oxide or quicklime	Cleaning agent.
Chloride of lime, such as calcium oxychloride, calcium chloride, calcium hydroxide	- Disinfectant. - Residues not exceeding the safety level for drinking water.
Citric acid	-
Cyclohexylamine: BWA	Use only as boiler water additive for packing sterilisation
Diethylaminoethanol: BWA	Use only as boiler water additive for packing sterilisation
Formic acid	-
Lactic acid	-
Natural essences of plants	-
Octadecylamine: BWA	Use only as boiler water additive for packing sterilisation
Oxalic acid	-
Ozone	-
Peracetic acid	- Use as sanitiser on food contact surfaces - Use according to the FDAlimitations.
Plant extracts	-
Sodium carbonate	-

Annex B

(Normative)

Organic Crop Production Management

B.1 Ecosystem management and diversity in crop production

Objectives

1. All farming systems ensure the long-term management and resilience of an organic farm holding by respecting, maintaining, improving, and completing ecological cycles and the quality of ecosystems and the landscape

2. The selection of crop and varieties is based on an understanding of:

1) their adaptation to local conditions, pests, and diseases and

2) the broader relationships in ecosystems within the farming systems.

B.1.1 Soil-based system shall be used for organic crop production.

A soil-based system means a system that is, at least, made up of living soil and other natural materials. All the materials used shall not come from non-organic production systems. The system permits planting in containers capable of sustaining the living of microorganisms found in the soil ecosystem, such as bacteria and fungi by using appropriate management practices (such as addition of compost), and soil used in such containers should be reused.

B.1.2 Hydroponic cultivation is prohibited. It is a method of growing crops which do not naturally grow in water, but using a method of soaking their roots in a nutrient solution or in an inert medium added only with plant nutrients.

B.1.3 Any operations in the organic management shall not cause negative impacts to the officially recognised high conservation values and heritage areas.

B.1.4 Organic management maintains and enhances biodiversity on the farm holding where food crops are grown and as far as possible on non-food crop habitats.

B.1.5 Organic crop production includes the use of diverse plantings as a part of the farm management system. Perennial crops include cover crops, while annual crops include practicing crop rotation, growing cover crops as green manures, using integrated crop management, intercropping or other diverse plant production with comparable achievements.

B.2 Land, soil fertility and water management

Objectives

1. Organic production systems conserve and improve the soil, maintain both ground and surface water quality and use water efficiently and responsibly. Risks of environmental pollution are identified and minimised.

2. Soil fertility management nourishes plants primarily through the soil ecosystem and achieves nutrient balance.

B.2.1 Land clearing and land preparation by burning are prohibited, except where it is part of well-managed traditional management practices. For example, cutting trees as well as slash-and-burn agriculture shall be limited.

B.2.2 Organic crop production systems employ measures to prevent land degradation, such as erosion, salinisation and other risks related to soil loss and degradation.

B.2.3 Organic crop production systems conserve or improve physical, chemical and biological properties of soil, including organic matters, fertility, and soil biodiversity.

B.2.4 Organic crop production systems enhance soil fertility primarily by using cultural management practices, incorporating manures and other biodegradable inputs, or by nitrogen fixation from plants.

The fertility and biological activity of the soil are maintained and increased as follows:

1) Cultivation of legumes, cover crops, soil nourishing plants as rotation crops and as green manures, such as cowpea, sword bean, Sunn hemp, Sesbania pea;

2) Incorporation into the soil of organic materials, which are by-products from farm plots or livestock farms practicing in accordance with this standard;

3) For compost activation, microorganisms or plant materials obtained from organic agriculture system may be used;

4) Use of biodynamic preparations from stone meal, farmyard manure or plant materials;

5) Compost or organic materials shall be completely decomposed and obtained from organic production or in accordance with Table A.1 of Annex A;

6) For organic paddy field, plough up and over rice stubs is used after harvesting to increase organic matters to soil.

Note *In case the methods described in 1) and 2) provide insufficient amount of nutrients to the crop or organic materials obtained from the implementation according to this standard are not sufficiently available, other soil conditioners specified in Table A.1 of Annex A may be applied.*

B.2.5 Soil fertility management employs measures to recycle organic materials within the production system, where possible, such as green manuring and composting.

B.2.6 Organic soil fertility management uses only naturally occurring mineral fertilizers and only as a supplement to biologically-based fertility methods such as green manures and compost.

B.2.7 Organic soil fertility management uses only crop fertility substances that are listed in Table A.1 of Annex A.

B.2.8 Organic soil fertility management does not use:

1) Synthetic fertilisers

2) Fertilisers that are soluble by chemical methods, such as superphosphates

3) human excrement on food crops.

B.2.9 Organic management uses water resources to meet farm production requirements to optimise water use and prevent wastage.

B.3 Selection of crops and varieties

Objectives

1. Appropriate crops and varieties, including production of seeds and planting materials, are grown to suit local conditions (growing condition and market).

2. The organic integrity of crops is maintained in production.

B.3.1 Operators are encouraged to preserve the genetic integrity of varieties and traditional ecotypes. Use of locally sourced or native varieties is encouraged while the use of GMO varieties is prohibited.

B.3.2 Organic crop production uses seeds and planting materials that come from organic agriculture systems unless such seeds and planting materials are unavailable. Therefore, seeds and planting materials coming from conventional sources may be allowed. However, the use of quality seeds and planting materials, suitable for organic agriculture production, is encouraged.

B.3.3 Organic crop production systems use untreated seeds and planting materials whenever available. In case the use of treated seeds and planting materials is necessary, only substances listed in Table A.3 of Annex 3 are used.

In case it is necessary to use substances not listed in Table A.3 of Annex 3 or when seeds and planting materials not treated with such substances are not available, the substances shall be removed before use and shall be accepted by the competent authority or certification body. This exemption is limited in time or subject to review.

B.3.4 The competent authority or certification body may permit to use in-conversion or non-organic planting materials (except seeds, if an operator demonstrates that organic planting materials are not available in sufficient quantity. The non-organic planting materials shall not be treated with chemicals or plant protection products other than those authorised for phytosanitary purposes in accordance with related laws and

regulations. The authorisation shall be granted only to individual users for one growing season.

B.3.5 For the production of organic crop varieties suitable for organic agriculture production, plant breeding activities shall be conducted under organic conditions and shall focus on enhancement of genetic diversity, reliance on natural reproductive ability, as well as agronomic performance, disease resistance and adaptation to diverse local soil and climate conditions.

All multiplication practices except meristem culture shall be carried out under certified organic management.

B.4 Pest (insects, animals, pathogens, and weeds) and crop growth management

Objective

Crop production management systems promote and sustain plant health while maintaining productivity and the integrity of the agro-ecosystem.

B.4.1 Organic crop production management employs interrelated positive processes and mechanisms for the management of pests, diseases, and weeds. These include site and crop adapted fertility management and soil tillage, crop cultural practices, choice of appropriate varieties, enhancement of functional biodiversity e.g. planting host plants for beneficial organisms, mulching to control weeds. In case additional measures are required, thermal controls and the use of crop protectants and growth regulators are permitted.

B.4.2 Pests, diseases and weeds control or prevention shall rely primarily on the protection by using any one, or a combination, of the following measures:

1) Choice of appropriate species and varieties, including disease resistant varieties

2) Crop rotation to cut off pest and disease cycles

3) Use of mechanical tools in cultivation

4) Conservation of natural enemies of pests through providing of favourable habitats, such as shrubland, hedges, shrub, nesting sites, and availability of buffer zones to maintain biodiversity that is the habitat of natural enemies of pests

5) Maintaining the diverse ecosystems, for example, making strip to prevent soil erosion, agroforestry, and the use of crop rotation

6) Use of natural enemies including releasing of predators and parasitoids

7) Use of microorganisms (bacteria, virus, fungi)

8) Use of biodynamic preparations from stone meal, manure, or plant

– biodynamic preparations from stone meal, farmyard manure or plants;

9) Mulching such as the use of rice straws to cover the soil and maintaining grass by trimming (but not plowing)

10) Weed control by animal grazing. In case of food crops, care shall be taken to prevent pathogen contamination from manure to edible parts of crops

11) Use of water level to control weeds

12) Mechanical controls such as sticky clue traps, light traps, or sound repellent.

13) Use of insect repellent plants such as citronella.

B.4.3 In cases where measures identified in Section B.4.2 cannot prevent severe damage to the crops, the substances in Table A. 3 of Annex A, may be used as necessary. Operators shall keep records demonstrating the necessity to use those substances.

B.5 Conversion

Objective

Conversion to organic production requires a period of time in which healthy soils, sustainable ecosystems are established, and contaminants reduced before it can achieve certified organic status.

B.5.1 Produce and products of plants are considered as organic when organic management practice according to this standard have been applied during conversion period of at least:

1) 12 months before cultivation of annual crops,

2) 18 months before the first harvest of organic products of perennial crops,

3) 12 months for grassland or 18 months for perennial forage ~~crops~~, before their uses as organic feed.

The above-mentioned conversion periods shall be calculated from the date of the documented start of organic management that operators started the implementation according to this standard and the filing of application for certification from a Certification Body (CB).

B.5.2 The reduction of conversion period may be approved by the competent authority or certification body, where there is verifiable evidence to prove that prohibited activities have not been practiced, and that the non permitted substances or production inputs have not been used in the area applying for the certification longer than 12 months for annual crops and 18 months for perennial crops.

B.5.3 The competent authority or certification body may consider to extend the conversion period specified in Section B.5.1 based on the identification and evaluation of relevant issues and risks. For example, information of land use history showing that any part or several parts of the area are contaminated with products or substances prohibited for organic production according to this standard, or large quantities of synthetic chemicals were previously used.

B.5.4 In case of using a products or a substance which is not permitted to be used in organic production, the competent authority or certification body shall require to count a new conversion period in accordance with Section B.5.1. However, such conversion period may be shortened in the following cases:

1) treatment with a product or a substance not permitted to use in organic production as part of a compulsory control measure for pests or weeds, including quarantine organisms or invasive species, imposed by the competent authority.

2) treatment with a product or a substance not permitted to use in organic production as part of scientific tests, approved by the competent authority.

B.6 Split production and parallel production

Objective

The integrity of an organic farm unit is not compromised by the activities and management of non-organic operations undertaken on the same farm.

In the event that the entire farm is not converted to organic production at the same time, an operator can gradually convert some production units, subject to the requirements in Section 5.4. Split Production and Parallel Production and additional requirements as follows:

In case where the area applying for organic rice certification is not converted to organic at the same time, operators may convert some areas to organic rice production, but rice shall be of different types (such as Hom Mali rice, colour rice, glutinous rice), and of different varieties (such as Hom Mali, Dok Payom), that the produce can be clearly distinguished. The area and management practices shall be clearly distinguished. Organic rice produce shall not be mixed with those from the conventional rice production.

B.7 Avoiding contamination

Objectives

Organic management highly restricts the use of synthetic inputs at all stages of the organic production and the supply chain. It also limits the exposure of people and the environment to persistent, potentially harmful chemicals. It contributes to the reduction of pollution and degradation of the production and processing units including their surroundings, as a result of the production and processing activities. Moreover, organic production system excludes certain unproven, unnatural, and harmful technologies from the system.

B.7.1 Operators shall have preventive measures, such as barriers, ridges or buffer zones to prevent contamination that may come from soil, water and air arising from adjacent area or polluted area. The methods shall be suitable for the risks of contamination.

B.7.2 All crop production techniques used shall contribute to prevent or minimise any contamination to the environment.

B.7.3 Measures shall be taken to prevent contamination including cleaning of facilities used for planting, harvesting, processing, packing, and transporting as well as cleaning of the cleaning equipment. Cleaning shall be recorded.

B.8 Wild harvest

Objective

The harvesting of naturally occurring produce from the wild is undertaken in a sustainable way while concerning sustainability, not using any prohibited inputs or carrying out any prohibited practices and while ensuring no contamination on produce.

Plants and edible parts of plants harvested from the wild for consumption can be considered as organic produce in the following cases:

B.8.1 Produce comes from areas that are clearly defined as natural areas. Such areas have never been used for agricultural purposes or applied with prohibited substances for at least 3 years. Harvesting of the produce shall be certified by a certification body.

B.8.2 Organic wild harvest shall not exceed the sustainable yield of the harvested species or otherwise threaten the local environment and ecosystem of such areas, and does not affect the preservation of the species in those areas.

B.8.3 Organic wild harvest management excludes systems that harvest officially protected or endangered species or where harvest is prohibited by law.