



ORGANIC AGRICULTURE PRODUCTION SYSTEM

General principles & management standards

Hanoi, January 2023

VOAA Organic Standard ¹

INTRODUCTION

The Organic Agriculture Standards of the Vietnam Organic Agriculture Association (VOAA) (TCCS-VOAA.V1 2021) is a fundamental standard developed by VOAA based on the Vietnamese organic standards of PGS Vietnam that have been recognized by IFOAM and referenced according to the basic standards of IFOAM and the National Standard TCVN 11041-2017 on production and processing of organic products issued by the Ministry of Science and Technology on December 29, 2017. The VOAA Organic Standards include cultivation, breeding, processing, input materials, natural harvesting, and beekeeping. The following standards are presented to clarify the relationship between the general principles of organic agriculture in specific standards, helping producers to apply them in practice and VOAA-certified organizations to assess suitability.

1. *General Principles* are the intended goals of organic production. These principles are written as positive statements, using words such as “is” and “are”.
2. *Standards* are the basic requirements which farmers must follow in order to be certified. It should be noted that **all** the standards applicable to the particular farm must be met before the farm can be certified as organic.
3. *Recommended practices* are practical suggestions for farmers to implement in organic farms. The VOAA encourages farmers to use these practices as much as possible but their application is not enforced.

OBJECTIVES OF ORGANIC AGRICULTURE

- Creating healthy food with high nutritional value;
- Restoring and protecting land, water, environment and ecological resources;
- Creating a sustainable agricultural system that produces production based on biodiversity and local resources;
- Reducing the use of non-renewable resources;
- Increasing adaptability to climate change;
- Reducing external costs, increasing income is especially important for poor farmers.

¹ VOAA: Vietnam Organic Agriculture Association – Version 01, Mar 2021

DEFINITION

Genetic engineering	The recombinant DNA technology, such as ODM, CRISPR, Meganuclease, connects the broken DNA ends and recombines them using molecular biology techniques or enzymes. It is then transferred to living cells and repeated.
GMOs	Living organisms, either plants, animals or micro-organisms, which are derived from genetic engineering
Annual crop	Annual plants are those that are sown, harvested, and complete their production cycle within a period of no more than one year.
Perennial crop	Perennial plants are those that are sown once, grow, and are harvested for many years.
Green Manure	The type of plant that can improve soil fertility includes legumes, naturally growing plants, or grasses.
Processing	The process of processing fresh or pre-processed agricultural products using either industrial or manual methods to create food ingredients or food.
Synthetic substance	Substances created through the synthesis of chemicals or through the chemical modification of substances originating from plants, animals, or natural minerals.
Social justice	Basic social rights that employees and laborers in organic farms and related activities deserve to receive fairly, including fair trade, reasonable prices, and reliable quality for producers, buyers, and businesses.
Production facilities	Organisations, individuals, and groups involved in the production, processing, packaging, or distribution of organic products.
Input	Products used in organic production and processing, e.g. fertilisers, soil conditioners, plant protectants, including additives and processing aids used in organic processed products.
Farmland	Either farmland or a piece of land used for organic agriculture production.
Farm	Any agricultural land (including dwellings) used for livestock breeding, cultivation, or rented from others for production (for cultivation or livestock breeding).

Labelling	Any words, features, trade names, brands, certification organisation names, images, or logo symbols appearing on packaging, signage, or straps to indicate the product.
Conventional agriculture	An uncertified organic farming system, including safe production or organic conversion in progress.
Organic Agriculture	A production system that complies with organic agriculture standards, protects, maintains, and enhances soil health, ecological environment, and human health by excluding synthetic chemical inputs.
Operator	This refers to the business owners involved in processing and selling organic products, including wholesale and retail sales, distribution, and export.
Farmer/ Producer	The person responsible for farming from cultivation until harvesting and selling the products.
Handling	Processing the harvested products to create fresh food or raw materials for food processing.
Parallel production	The production of both organic and conventional products in the same facility/farm without visual differentiation between the organic and non-organic products.
Split production	Only a portion of the production facility or farm is used for organic production, and the rest may be used for conventional production or transitioning. This is a special case of parallel production.
Conversion period	The period from the start of organic production according to VOAA standards until the product is certified organic.
Production waste	Material that the producer no longer uses or is discarded during the production process.
Hydroponics	The method of growing plants without soil, using a mineral nutrient solution that the plants absorb directly through the roots.
Buffer zone	A region surrounding the organic production area to prevent contamination from prohibited substances from outside the organic production area.

Food additives	Substances used to enhance or improve the quality of the final product or as additives to the product for preservation, flavor, color, or other value.
Processing aids	These additives are removed during processing and are not considered as a component of the final product and do not remain in the final product.

1. GENERAL MANAGEMENT

1.1 CONVERSION OF ENTIRE FARM PRODUCTION

General Principles

A production facility that is transitioning to organic production must be managed according to organic standards for a certain period of time. The production facility must commit to applying organic standards and measures continuously.

Standards

1.1.1 Parallel production is not allowed, meaning that organic crops, livestock, and processing at the farm or production facility must be separate from conventional crops, livestock, or processing. If conventional production exists, organic and non-organic products must be visually distinguishable.

1.1.2 In the case where the production facility does not transition entirely to organic production, organic and non-organic fields must be separate and all fields must be inspected.

1.1.3 Areas that have been certified as organic production areas are not allowed to be converted back and forth between organic and non-organic production.

1.2 Conservation of soil and water

General principles

Organic production methods must preserve soil and increase its fertility, maintain water quality, use water efficiently, and act responsibly.

Standards

- 1.2.1** If the production area is at risk of soil erosion, the production facility must apply measures to prevent erosion such as planting cover crops, using contour planting, etc.
- 1.2.2** Production facilities must apply measures to prevent soil salinization and pollution.
- 1.2.3** Burning agricultural waste, crop residues, or natural vegetation in abandoned land inside or outside the organic production area is prohibited.
- 1.2.4** Production facilities must apply measures to prevent excessive exploitation of water resources, preserve water quality, and manage water use efficiently and effectively.
- 1.2.5** Production facilities must return to the soil the nutrients, organic matter, and other resources taken away from the soil through harvested products by means of recycling, reconstitution, nutrient supplementation, and organic material addition. In cases where the organic production facility operates livestock farming in the certified area, the livestock management work must include measures to prevent soil degradation and pollution and to manage water resources.

1.3 Ecosystem management

General principles

Organic production preserves ecosystems and increases the quality of ecosystems and natural landscapes.

Standards

- 1.3.1** Production facilities are required to maintain and enhance biological diversity in the production area by setting aside at least 5% of farmland as a habitat for various plant and animal species. These areas may include forests, wetlands, shrubs, large trees in fields, hedgerows, mixed fruit orchards, canals, natural ponds, and unexploited areas with naturally growing vegetation.
- 1.3.2** The use of lighting in areas with primary and natural forest ecosystems is strictly prohibited.
- 1.3.3** Hydroponic and soilless cultivation systems are not permitted in organic farming.

1.4 Genetic Engineering

General Principles

*Genetic engineering is the process of modifying **genes** using biotechnology. It encompasses various **techniques** that are utilized to alter the genetic material of cells, including the transfer of **genes** within and between species, resulting in the creation of new or improved organisms.*

Genetic engineering is not allowed in organic production and processing.

Standards

1.4.1 The use of all inputs obtained from genetically engineered sources is prohibited throughout the entire production facility.

1.4.2 Inputs used for production must be traceable to verify that they were not produced from plants, animals, or microorganisms that were derived from genetic engineering, both directly and indirectly.

1.5 Documentation

Principles

Ensure the full traceability of all organic production activities.

Standards

1.5.1 The production facility must maintain records and retain all documents proving the origin of input materials used for production, processing, including quantities used, storage, packaging, labelling, transportation, and transactional documents. These documents shall be provided for inspection.

1.5.2 Each production area must be identified by name or code, clearly shown at the production site, and represented on the map. The identification of production areas shall be kept in all relevant documents and records concerning that area.

1.5.3 Records, databases, and documents must allow traceability of organic products at any time. Records include personnel and subcontractor records, which must be stored for at least 5 years.

1.5.4 If any changes occur during production, such as an increase or decrease in production area, change in crop or animal species, etc., the production facility must immediately notify the VOAA authorized quality control agency.

2. ORGANIC CROP PRODUCTION

2.1 Production Area

General Principles

The organic farming area must ensure the conditions for safe production according to the regulations of the Vietnamese state, be demarcated and have measures to prevent banned substances from contaminating the production area.

Standards

2.1.1 The soil and water used in organic farming must comply with the standards QCVN 08-MT:2015 BTNMT and QCVN 09-MT:2015.

2.1.2 The water source used for sprouts and mushroom production must be filtered or treated by permeation method, complying with the QCVN 6-1:2010/BYT quality standards for drinking water, free of microorganisms and chemicals.

2.1.3 The organic farming area must be separated from sources of pollution such as industrial zones, construction sites, hospitals, major transportation routes, etc.

2.1.4 When the organic farming area is at risk of being contaminated by banned substances from nearby conventional farming areas or other sources of pollution, there must be a buffer zone of at least 01 meter to prevent chemical contamination, specifically:

- If it is air pollution, a type of tree must be planted as a barrier to block the dust from contaminating the area. The trees planted in this buffer zone must be different from those planted in the organic farming area.
- If the source of pollution is from water, a raised bank or drainage ditch must be created to prevent contamination from dirty water overflowing.

When there is a risk of chemical or heavy metal pollution due to external factors, historical farming practices, or the use of inputs on the farm, the production facility must agree to let VOAA/ authorized organization take samples for testing.

2.2 Conversion Request

General Principles

The conversion phase aims to establish an organic production system and restore soil fertility.

Standards

2.2.1 The area of organic certification production must go through a *conversion phase*. During this time, the production facility must comply with the VOAA standards. Products produced during the conversion phase cannot be sold as organic products.

2.2.2 The conversion start date will be calculated from the date the quality control agency receives the registration application and agrees in writing with the specified start and estimated end time of the conversion.

2.2.3 For perennial crops, the minimum conversion period is 12 months if the production area has evidence of soil and water safety or has been certified by the government to meet the safe production conditions. Products harvested after 6 months of conversion can be sold as "converted organic products". Products harvested after 12 months of conversion can be sold as

"organic products" with labels and tags according to VOAA regulations after being evaluated and certified.

2.2.4 For long-term crops, the minimum conversion period is 24 months, which is a complete cycle from the end of the previous crop to the harvest of the new crop. Products harvested after 12 months of conversion can be sold as "converted organic products". Products harvested after 24 months of conversion can be sold as "organic products" with labels and tags according to VOAA regulations after being evaluated and certified.

2.2.5 The conversion period may be shortened or extended depending on the production history and compliance with the standards of the production facility during the conversion process.

2.2.6 Exceptions may allow for a shortened conversion period if the production facility does not use chemicals or has been certified according to the Vietnamese organic standards, TCVN 11041:2017, or equivalent standards. Such cases must be verified and evaluated through evidence submitted to the authorized VOAA control agency.

2.3 Selecting Plant Types and Varieties

General Principles

The selection of plant species and varieties for organic production systems must be adapted to local soil and climate conditions and have the ability to resist pests and diseases.

All seeds and planting materials must have an organic origin.

Standards

2.3.1 Whenever possible, organic seeds and planting materials should be used. If not available, conventional seeds may be used, but they must not be treated with prohibited plant protection products before sowing. If untreated seeds cannot be found, the seeds may be washed with clean water to remove chemicals before use. The washing water must be discharged into the wastewater system, ensuring that it does not pollute the organic production area.

2.3.2 For perennial crops, organic farms are allowed to use varieties produced from conventional plant materials, but the products from these crops cannot be sold as organic-labelled products for the first 12 months.

2.4 Diversification in Crop Cultivation

General Principles

Soil and soil management methods are the foundation of organic production. Organic farming systems rely on soil as a basis, soil and ecosystem

management, diversity of species, and encourage closed natural nutrient cycles, reducing erosion and nutrient depletion in soil.

Standards

In one year of crop production, the producer must establish a minimum diversity of plant species in the production area by intercropping, crop rotation, and relay cropping to reduce pests and weeds, including intercropping leguminous plants to enhance organic matter and soil fertility.

For perennial crops, the producer must establish a minimum diversity of plant species in the production area by planting ground cover and/or diversifying the plant species wherever possible.

2.5 Soil Fertility and Crop Growth Management

General principles

Organic farming returns to the soil animal, plant and microbial materials that increase or at least maintain soil fertility and biological activities in the soil.

The use of synthetic fertilizers and growth hormones is prohibited.

Recommended methods

- Depending on the actual conditions and the results of analyzing food safety risks in the production area, soil samples may be taken to assess nutrient content, heavy metal limits, and residual pesticide levels in the soil as a basis for developing a fertilizer program to improve soil fertility and determine suitable crops.
- Vegetative cover methods should be applied to protect the soil surface, and leguminous plants should be used for this purpose.

Standards

2.5.1 Producers must try to use organic matter from plants and animals produced in household farms to improve the soil and limit the use of organic materials purchased from outside sources.

1. Each year, one type of green manure crop should be incorporated into the crop structure.
2. Crop rotation should include different types of crops, including leguminous plants, cover crops, or plants with deep roots.
3. Plant and animal materials must be composted.
4. A suitable crop rotation plan must be combined with the use of plant materials that do not require special composting, especially leguminous plants, plough-down crops, or plants with deep roots.

2.5.2 Fertilizers and soil nutrients not listed in the input list (Appendix 1) may be permitted for use after being checked and approved by the VOAA.

- 2.5.3** In cases where producers do not have enough animal manure to produce, it must be clearly stated in their Farm Management Plan (FMP). VOAA will check and approve the quantity, type, and origin of animal manure before use.
- 2.5.4** There must be a plan to coordinate the use of organic fertilizers. The use of organic fertilizers in appropriate amounts should consider the balance of nutrients in the soil and the nutritional needs of the crops.
- 2.5.5** Only approved types of fertilizers, soil nutrients, and growth regulators listed by VOAA are allowed to be used.
- 2.5.6** The use of human feces is prohibited.
- 2.5.7** Animal manure from outside the farm must be put into a hot pile. Compost made from mass-scale animal manure must have evidence of no residual antibiotics.
- 2.5.8** The use of animal manure from the farm or from outside the farm is permitted, but the organic material components put into the compost must be listed in the approved VOAA list (Appendix - Part 1). If the material is not listed in the VOAA list, the producer must provide VOAA with evidence of information and origin of the organic material used.
- 2.5.9** Urban waste should not be used for composting because of the high risk of heavy metal contamination.
- 2.5.10** Biogas effluent and sediment should not be directly applied to crops but can be used after treatment processes (such as fermentation, sedimentation, filtration) to reduce harmful organisms.
- 2.5.11** Piles of compost and animal manure should be kept away from processing and packaging areas of harvested products.
- 2.5.12** Natural mineral fertilizers are permitted as a supplementary source and are included in long-term plans to address nutritional needs in agriculture, in combination with other techniques such as nutrient cycling, planting leguminous plants, crop rotation, and organic matter utilization.
- 2.5.13** The input list of trace nutrients approved by the Associate Professor has been provided in Appendix - Part 1 and can be used if crops show clear signs of deficiency. However, producers must notify the VOAA of any issues encountered, the methods employed to resolve them, and/or the results of plant cell and soil tests.
- 2.5.14** Microorganisms are allowed for soil improvement, composting, water treatment, and animal waste processing, except for those produced through genetic engineering techniques.

2.5.15 The use of all types of synthetic fertilizers, such as urea, phosphorus, or potassium fertilizers, is prohibited.

2.5.16 The use of synthetic plant growth hormones is also prohibited.

2.6 Management of pests, diseases, and weeds

General principles

The organic farming system applies biological methods and means to prevent excessive damage caused by pests, diseases, and weeds. Farmers use plant varieties that are well adapted to the environment and have balanced fertilization plans to maintain soil fertility for healthy crop growth.

Recommended methods

- Promoting the distribution of beneficial organisms and predators (predatory and parasitic species) by planting flowers with main crops, planting trees to create habitats or nests for birds, and using fungal antagonists.
- Planting repellent crops alongside main crops can reduce insect pests, such as planting garlic with cabbage or lemongrass with leafy greens.
- Avoid repeating the same crop on the same plot to reduce pest damage. Crop rotation is recommended.
- Using reasonable crop management measures to control weeds, such as ploughing, crop rotation, intercropping, and covering the soil with natural materials.

Standards

2.6.1 The entire organic production system must demonstrate a series of active measures applied to manage pests, diseases, and weeds.

2.6.2 Only measures and products in the approved input catalogue issued by VOAA (Appendix 2 - Part 2) are allowed to be applied.

2.6.3 Other substances not listed may be used after being assessed by VOAA to determine their composition. However, they are restricted in use and can only be used when there is a serious risk of loss of productivity and quality.

The substances used include buffering agents such as conductive agents, wetting agents that are not carcinogenic, mutagenic, or neurotoxic.

2.6.4 Synthetic plant protection products are prohibited from use.

2.6.5 The use of synthetic cleaning agents or adhesives is prohibited.

2.6.6 The use of straw to cover weeds and maintain soil moisture is permitted. Priority is given to using straw from organic farms, but if not available, straw from conventional farms may be used.

2.6.7 The use of plastic products made from polyethylene, polypropylene, or polycarbonates for covering, fruit wrapping paper, or insect nets is allowed. After use, plastic sheets must be removed from the organic production area. Burning them on the farm is not permitted.

2.6.8 The use of biodegradable nylon coverings is not permitted.

2.6.9 The use of banned plant protection substances is strictly prohibited in storage areas for products.

2.7 Pollution Prevention

General principles

All appropriate measures need to be applied to ensure that the soil, water, and organic food are protected from pollution.

Standards:

2.7.1 The spraying equipment used in conventional farming should not be used in organic farming.

2.7.2 Other tools and equipment used in conventional farming must be thoroughly cleaned before being used in organic farming.

2.7.3 Foam boxes, bags, and containers that contain banned substances in organic farming should not be used for storing and transporting organic products.

3. NATURAL RESOURCES EXPLOITATION

Scope

Products extracted from nature are those derived from plants and animals (such as mushrooms, medicinal herbs, honey, etc.) that are extracted from the wild or grown without any cultivation.

General Principles

Extracting wild natural products will not impact the environment and ecosystem in those areas, including the risk of extinction of animal and plant species. Equipment and harvesting methods must be sustainable for the

ecosystem, ensuring minimal negative impact from the extraction process on the environment and other livelihoods.

Standards

- 3.1** Products grown in the wild/nature are considered organic and must be harvested from an area or production base that is clearly identified. There must be evidence that, in the harvesting area, chemicals prohibited in organic farming have not been used for at least 36 months.
- 3.2** Extracting wild products will not affect the environment and ecosystem, leading to a risk of extinction of animal and plant species in those areas. Equipment and methods used in the extraction process must maintain a sustainable ecosystem, ensuring minimal negative impacts from extraction on the environment and other livelihoods. Harvesters must be responsible for:
 - a. Creating a detailed description of the harvesting area's history for at least the past 3 years
 - b. Providing a statement describing the methods used in the harvesting process
 - c. Proposing measures to protect natural plant species (wild) to prevent environmental disturbance and disruption.
- 3.3** In the case of wild plants, if the harvesting area is at risk of pollution from adjacent conventional production facilities, from an industrial zone, golf course, waste site, etc., the harvesting area must have a buffer zone of at least 25 meters from conventional agricultural production facilities, and at least 1,000 meters from industrial zones, golf courses, and waste sites.
- 3.4** For wild aquatic organisms, the harvesting area must be at least 1,000 meters away from pollution sources and conventional breeding sites.
- 3.5** Training and informing employees and delegated personnel to understand and comply with the requirements and Organic VOAA standards.
- 3.6** Keeping records of harvests, product storage, raw materials, and sales documents. The condition of natural harvest products must be specified in sales documents, indicating whether they are "organic" or "approved" by a certification organization.

4. GROWING SPROUTS AND MUSHROOMS

General principles:

Production and management must comply with the principles and standards of organic farming.

Standards:

4.1 General management

4.1.1 The growing area must be ensured not to be contaminated by prohibited substances from spray or water sources outside the production area.

4.1.2 The substrate used to grow sprouts and mushrooms must ensure adequate nutrition, which is organic matter made from compost and vegetable residue or from effective biological methods using indigenous microorganisms in fields and surrounding areas.

4.1.3 In the case of additional nutrition to support plant growth, only organic fertilizers and soil nutrients listed in this standard are allowed or additional living organisms except those created from genetic technology.

4.1.4 Seedlings/ embryos used to make sprouts or grow mushrooms must comply with organic farming standards. Synthetic chemicals for sterilization are not permitted, and there should be no genetically modified sources.

4.1.5 To control harmful animals, insects, and diseases, only physical, manual, or biological methods and formulated chemicals, processing, and so on that are on the list permitted by this standard can be used.

4.1.6 Radiation technology is not allowed.

4.2 Substances as culture media

4.2.1 For mushroom cultivation, it is permitted to use:

- Substrate with a source originating from wood such as raw split wood, sawdust, wood shavings, and wood chips extracted from areas NOT using or contaminated with at least banned substances for 2 years and not chemically treated after wood extraction.
- Non-wood-based materials are only allowed from organic farming production sources that comply with organic food processing standards, such as cereal bran, other sources from animals, aquaculture, or plant-based textile industry (cotton, fibers ... non-GMO).
- For mushrooms grown with composted manure, the list of permitted substances listed in the appendix tables attached to this standard may be used.

4.2.2 For sprouts, the cultivation environment is created from:

- Natural sources, or
- Natural sources that have not been chemically treated, or
- If using farmland to grow sprouts, it must ensure that this soil source has not been treated with banned substances for at least 2 years before being used for sprout cultivation.

- Artificial light is prohibited.
- 4.3** Sprouts/ mushrooms produced must comply with Vietnam's food safety criteria. They must be controlled and have organic quality preservation measures after harvesting to avoid contact with banned substances such as pesticides, detergents, disinfectants, and other chemicals.

5. ORGANIC LIVESTOCK

Scope

This husbandry standard applies to groups of animals including livestock and poultry and their products.

5.1 Animal management

General principles

Organic farming is based on a harmonious relationship between the soil, plants and animals, respecting the physiological needs of livestock and providing nutrition with good quality feeds produced according to the organic practices.

Standard

- 5.1.1** Organic husbandry areas must be zoned, away from polluted areas such as gathering areas, domestic waste treatment, industrial parks, hospitals, and residential areas. It must be isolated by a buffer zone separate from the conventional production area.
- 5.1.2** Organic farming establishments must meet the requirement of this principle regarding barn and grazing areas and a place to store and treat livestock waste that meets veterinary hygiene and environmental sanitation.
- 5.1.3** Animals shall have access to fresh air, clean water and nutritious feed and be handled according to the needs of the animal.
- 5.1.4** Animals shall have access to protection from sunlight, heat, rain, mud and excessive noise to reduce stress and ensure their well-being.
- 5.1.5** If animals are housed, they shall have:
- Sufficient space to stand naturally, lie down easily, turn around, groom themselves and assume all-natural postures and movements, such as stretching or wing flapping;
 - Adequate fresh, natural bedding materials for animals that require bedding (cattle, sheep, goats, pigs, chicken, duck), and pens that are kept clean;
 - Enclosures that are constructed so as to ensure adequate insulation, heating, cooling and ventilation, and that enable dust levels,

temperature, relative humidity and gas, NH₃, H₂S, CO₂ to be kept within levels that are not harmful to livestock;

- Capacity to maintain social structures, e.g. by ensuring that herd animals are not kept in isolation from other animals of the same species;
- Enclosures, and any associated production equipment, that are constructed of materials that do not harm human or animal health.
- Recycles the farm's waste to maximise the use and prevent soil and water contamination from nitrates and harmful bacteria.

5.1.6 Poultry, rabbit and pig shall not be kept in cages.

5.1.7 Landless animal husbandry systems are prohibited and all animals shall have access to pasture or an open-air exercise area or run, whenever the physiological condition of the animal, the weather and the state of the ground permit.

5.1.8 The use of artificial light should be limited. In case it is necessary to supplement artificial light when there is not enough natural light, the lighting time must not exceed 16 hours/day. For laying hens, the daily rest period without light should be at least 8 hours.

5.1.9 The number of animals raised per unit area and the size of the herd must be limited so that the animals can freely express instinctive actions, while ensuring no damage to the land and water source. The number of animals stocked is closely related to the area of pasture, along with the enclosed space of the barn and the open-air area. The minimum area of the barn combined with the open-air area for the respective species is as follows:

Animals	In-barn density	Outdoor density
Beef and dairy cows	12 m ² / animal including barn space and open-air area	
Pig meat: < 50 kg	0.8 m ² / animal including space in cage and pasture	
Pig meat: > 50 kg	1.3 m ² / animal both the space in the cage and the pasture	
Sows and piglets up to 40 days old	Space in the barn 7.5 m ²	2.5 m ² / sow
Gilts and weaning sows (pending mating)	2.5 m ² / animal	1.9 m ² / animal

Laying hens	5 birds /m ² The size is not allowed to exceed 3,000 chickens in the coop	At least equal to the floor area of the barn
Day old chicks	50 chicks / 1m ²	
3-4 weeks old chicken	20 birds /1m ² (0.05 m ² / bird)	
> 28 days old chickens	10 birds /1m ² (0.1 m ² /animal)	The stocking density in the open-air area was initially 1 bird /2m ²
For chickens and (swans) ducks,	1m ² / 10 birds	The stocking density in the outdoor area was initially 1 bird / 2m ²

5.1.10 In the case of animals that are kept mainly on pasture, the animals should have easy access to fresh water and shelter, they should be sufficiently protected from rain and sun. The minimum pasture area for the species concerned is:

- Beef and dairy cows: ensure density of 0.16 ha/animal
- Laying hens: make sure the running space is at least twice the coop space.
- Hens are allowed to peck, scratch the ground and exercise their natural behaviour unless the government requires them to be kept in closed coops for reasons of disease.

5.1.11 In case animals are kept in cages, the cage must ensure efficient space for animals to exhibit all-natural postures and movements. The cage or the ground must be stable, clean, and free from mud.

For laying hens:

- The coop must have a perch of at least 18 cm/chicken. Have separate pens for up to 8 chicken, or common pens of at least 120cm²/chicken.
- Between each layer of laying hens, the cage must be cleaned and disinfected for at least 7 days, or according to the regulations of the government in case of disease outbreak.
- For laying hens, a daily rest period of at least 8 hours without light is required. When using artificial light supplements the natural light, the

duration of lighting during the day should not exceed 16 hours per day.

5.2. Request conversion

General principles

Animal husbandry systems that are changed from conventional to organic production require a conversion period to develop natural behaviour, immunity and metabolic functions.

Standards

5.2.1 Parallel breeding should not be allowed.

- Animals in organic farms must be different from animals in conventional farms. If organic animals are kept on a farm, the same type of animal cannot be kept on the farm under conventional management.
- If establishment has both organic and conventional animals (parallel production), must notify VOAA of all measures to prevent confusion, must ensure management and recording of organic and conventional production are clearly separated

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5.2.2 Production facilities must comply with the conversion of land for livestock feed, pastures, and playgrounds for livestock according to VOAA organic animal husbandry standards.

5.2.3 Breeding facilities and animals can be converted at the same time and the conversion time depends on the type of crop produced and the species according to the requirements of the standard.

5.2.4 In case Where existing animals are converted to organic on an organic property, they shall undergo a one-time minimum conversion period according to the following schedule:

- For animal for meat production (cow, goat, sheep) at least 90 days
- For cattle for meat production for at least 12 months
- For calves for meat production: organically raised right after weaning and must be under 6 months old
- For goats for meat production: at least 4 months
- Pigs for meat production: at least 4 months
- Poultry for egg production: at least 42 days
- Poultry for meat production: entire life span from 2 days

5.3 Animal Sources/ Origin

General principles

Organic animals are born and raised in organic holdings.

Standards

5.3.1 Animals shall be raised organically from birth. However, if such animals are not available, conventional animals may be brought in before they reach the following maximum ages:

- 2-day-old chickens for meat production;
- 18-week-old hens for production (farmers must have a plan to source organic seed or breed organic chicks);
- 2 weeks for any other poultry;
- Piglets up to 6 weeks and after weaning;
- Dairy calves and goats – animals up to 4 weeks old (but before being sold as organic one year of organic management is needed)
- Calves after weaning or 8-week-old for meat production

5.3.2 Livestock that comply with the 5.3.1 conditions must be converted in accordance with this standard.

5.3.3 Any livestock introduced from outside a farm, other than certified organic livestock, must be quarantined in a designated area separate from organic stock and the organic production system for a minimum period of 48 hours. Pasture areas used for quarantine shall not be used for organic production for a period of at least 12 months after use; pens and cages can be used once cleaned of manure and bedding material used during the quarantine.

5.4 Breeds and breeding

General principles

Breeds are adapted to local conditions. Animals should be bred by natural reproduction methods.

Standards

5.4.1 Breeds are adapted to local conditions. Animals should be bred by natural reproduction methods.

5.4.2 Artificial insemination is permitted but not recommended.

5.4.3 Embryo transfer techniques and cloning are prohibited.

5.4.4 The use of hormones to include ovulation and birth is prohibited.

5.5 Mutilations

General principles

Organic farming respects the animal's distinctive characteristics.

Standard

5.5.1 The use of routine surgical treatment for animals is prohibited and may only be used for reasons of safety, to ease suffering, and to sustain the health and welfare of the animal. In such situations, but only when animal suffering is minimised and anaesthetics are used where appropriate, the following treatments are permitted:

- Detusking, debeaking, dehorning for the sake of animals' safety and health;
- Castration is required (eg boar, bull, rooster...) to improve the quality of livestock products;
- Number animals, eg ears, but do not use heat;
- Trimming the tail, cutting off the wing feathers is not allowed

The above activities must be carried out at the most appropriate age and must minimise pain.

5.6. Animal nutrition

General principles

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

Standard

5.6.1 Animals shall be fed a balanced diet that provides all of their nutritional needs, with all ruminants having daily access to roughage.

5.6.2 Feed is to be made up of 100% organic feedstuffs ("organic" as defined by these PGS Standards). Where organic feed of sufficient quantity or quality is not available, raw materials from conventional production (including in-conversion) may be used but the daily maximum percentage shall be 10% for ruminants and 15% for non-ruminants based on annual dry matter consumed.

5.6.3 Over 50% of feed shall come from the farm itself or be produced in cooperation with other organic farms. The remaining balance between fully organic (> 50%) and conventional (<10 – 15% depending on the

animal) can be met by feed that is produced without using inputs not allowed by this standard.

5.6.4 Converting feed produced and supplied to animals in the holdings will count as part of an organic diet, but not sold as organic feed.

5.6.5 Animals may be fed vitamins, trace elements and supplements from natural sources for a maximum of 5% of all feed. However, the operator should be able to demonstrate the source of these additives.

5.6.6 The feeding of mammalian material excluding milk and milk products to ruminants is prohibited

5.6.7 Animals may be fed with carried fresh fodder where this is a more sustainable way to use land resources than grazing. Animal welfare shall not be compromised. Animals shall on a regular basis be allowed to move.

5.6.8 The grazing of animals in natural/range land areas is considered part of an organic production method provided that the following are met:

- Grazing occurs within clearly defined areas that are subjected to inspection;
- Those areas have received no treatments with products other than those listed on the VOAA approved inputs register for a period of three years before grazing;
- The grazing does not disturb the stability of the natural habitat.

5.6.9 Weaning, Young mammals (pigs, cows, ...) shall be provided milk from their mother or organic milk from the same species, and only weaned corresponding to the natural behaviour after they reach the following maximum ages:

- Calves for meat and milk production: after 3 months old
- Pigs: up to 35 days old

Milk from conventional production can be used when organic milk is not available. Milk substitutes or other products for emergency use only as long as they do not contain antibiotics, synthetic additives or slaughter products of the same species.

5.6.10 The following substances are prohibited from use as feed:

- For ruminants, farm animal by-products (e.g. abattoir waste);
- Slaughter products of the same species;
- All types of excrement, including droppings or other manure;
- Feed subjected to solvent extraction (e.g. hexane) or the addition of other chemical agents;
- Synthetic amino acids and amino-acid isolates;
- Urea and other synthetic nitrogen compounds;
- Synthetic growth promoters or stimulants;
- Synthetic appetisers;
- Preservatives, except when used as a processing aid;
- Artificial colouring agents.

5.6.11 Only the following feed preservatives can be used:

- Bacteria, fungi and enzymes (including EM);
- Food industry by-products (e.g. molasses);
- Plant-based products.

5.7 Animal health

General principles

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

Recommended methods:

Animal health should be maintained and diseases and parasites in livestock controlled using the following management practices:

- Selection of appropriate breeds or strains of animals to natural conditions;
- Adoption of practices appropriate to the requirements of each species, increase resistance and prevent diseases;
- Provision of adequate organic feed supplies at all times, combined with regular exercise and exposure to pastures and/or open-air/exercise areas, increases the animals' natural immunity;
- Appropriate stocking densities to avoid overcrowding and health problems. The maximum number of livestock is equivalent to the amount of manure containing 170 kg of nitrogen/ha/year according to regulations;
- Application of biosecurity measures such as animal hygiene, use of vaccines and biological extracts, quarantine of infected animals and new livestock, etc.
- Rotational grazing management;

Standards

5.7.1 The operator shall take all practical measures to ensure the health and well-being of the animals through preventive animal husbandry practices.

5.7.2 The reliance on substances rather than management practices for the control of pests and diseases is not in accordance with organic farming principles. Products listed on the VOAA approved inputs register are to be used as aids, where the above practices are, or would be, insufficient.

5.7.3 If an animal becomes sick or injured the animal shall be treated promptly and adequately. Producers shall not withhold medication where it will result in unnecessary suffering for livestock, even if the use of such

medication will cause the animal to lose its organic status. Chemical veterinary drugs and vaccines can be used if:

- Preventive and alternative practices are unlikely to be effective to cure sickness or injury
- They are used under the supervision of a veterinarian. In any case, withholding periods shall be double those required by legislation, or a minimum of 48 hours, whichever is longer the treatment is legally required

5.7.4 The use of veterinary drugs (including antibiotics) on livestock in the absence of illness is prohibited.

5.7.5 The use of synthetic growth promoters or suppressants is prohibited.

5.7.6 Vaccines may be used in the following cases:

- A disease known or expected to become a problem in the area where the farm is located and which cannot be controlled by management techniques; or
- Vaccines are required for legal use; and
- Vaccines are not prepared by genetic engineering.

5.8 Transportation and slaughter

General principles

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

Standards

5.8.1 Animals shall be handled calmly and gently during transport and slaughter. The transport and slaughter of animals shall comply with all relevant national and regional regulations.

5.8.2 During the process of transportation and slaughter, organic animals shall be provided with conditions that reduce, and minimise the potentially adverse effects, of:

- Stress;
- Loading and unloading;
- Mixing different groups of animals or animals of different sex;
- Temperature and relative humidity; and
- Hunger and thirst.

- 5.8.3** Animals shall not be treated with synthetic tranquilisers or stimulants prior to, or during transport. The use of electric prods and other such instruments is prohibited.
- 5.8.4** Slaughter shall be carried out quickly and without causing undue stress to the animal. Each animal shall be stunned before being bled to death. Slaughter by bleeding, without stunning, is not permitted.
- 5.8.5** Each animal or group of animals shall be identifiable at each step in the transport and slaughter process.
- 5.8.6** Organic and conventional livestock should not be transported together or slaughtered at the same time
- 5.8.7** Slaughterhouse journey times shall not exceed eight hours. In the case of long-distance transportation for more than 8 hours, it must be confirmed by the receiving facility that the overtime is allowed and the animals must rest and drink water before continuing the journey.
- 5.8.8** Each animal shall be stunned before being bled to death.
- 5.8.9** Slaughter of organic animals will be carried out at qualified slaughterhouses and assessed by a quality control unit that was authorized by VOAA. The stages of slaughter must be monitored according to the standards specified by VOAA.
- 5.8.10** Substances used to clean and disinfect transport and slaughter equipment and vehicles must be listed in the approved input list for organic livestock.

6. ORGANIC BEEKEEPING

General principles

Beekeeping is an important activity that contributes to regulating the ecosystem, protecting the environment and promoting agricultural and forestry production through bee pollination. Organic beekeeping creates a favorable living environment to bring bees from existing organic agricultural production facilities.

Recommended methods

- The hives shall be made of the natural material to avoid contamination to the environment and the apiculture products.
- Bee colonies shall only be fed with organic food to make up for temporary food shortages due to weather conditions or other undesirable circumstances.
- When placing bees in wild areas, account should be taken of the bees' adaptability to local conditions, vigor and disease resistance, and their impact on safety and health. integrity of native insect populations and pollination requirements of native plants.

- The treatment and management of the hive must comply with VOAA organic farming standards.
- Honey temperature should be kept as low as possible during extraction and processing of bee products.
- The forage source basically must be an organically produced or a natural plant. The searching food area should be as wide and varied as possible to provide enough food and water for the bees.
- Choosing the right breed, creating a favorable environment and a balanced diet, applying appropriate breeding practices to create a healthy bee swarm with high tolerance.

Standards

6.1. Management of bee swarms

6.1.1 Beekeeping facilities must be located in certified organic fields or wilderness areas that have not been impacted or treated with substances prohibited in organic production for at least 36 months. The location of the hive must ensure that bees have sufficient access to nectar and pollen from plant sources within a radius of 3 km in accordance with this standard. Producers will notify VOAA immediately of any changes to the beekeeping location.

6.1.2 In places where there is a high risk of pollution from conventional agricultural production fields, densely populated urban areas, main roads, landfills or garbage disposal sites, etc., The hive must not be located less than a 5km radius within the foraging distance of the bees.

6.1.3 At the end of the harvesting season, the producer must not exploit all the honey, a quantity of honey and pollen must be left in the hive in sufficient reserve for the swarm to survive during the hibernation period. If bees are short of food during this time, only allow bees to supplement with organic honey, or organic sugar syrup, or organic sugar and clearly record the type, amount, feeding date and number of nests supplemented.

6.1.4 Supplemental feeding to meet unexpected needs is made only between the last honey harvest and the beginning of the next pollen period. In these cases, organic honey or organic sugar will be used.

6.1.5 For cleaning and disinfection of beekeeping materials, utensils or products, substances permitted in the approved entry list for organic farming and beekeeping of this standard may be used. Only natural products such as beeswax and vegetable oils can be used in the hive.

6.1.6 It is forbidden to amputate the queen bee's wings and injure bees in the process of raising and exploiting product

6.2. Transition

6.2.1 Can be converted to organic farming with organic production facilities that have bee swarms available. In the case of bee deaths due to health or adverse external conditions where organic bees are not available, it is possible to bring non-organic bees into farming according to organic standards.

6.2.2 Bee products that are managed according to VOAA organic standards for a period of at least 01 (one) year will be sold as “organic”. Within one year of this transition, all wax in honeycomb must be replaced with organic wax. If the standard cannot be met, VOAA may extend the transition period.

6.2.3 In case before the transition, no banned substances were used in the honeycomb, the replacement of organic wax in the bottom is not necessary.

6.2.4 To rehabilitate the bee swarm, every year 10% of queens and swarms will be replaced by non-organic queens, and bee swarms taken from organic beekeepers are placed in beehives.

6.3. Breed and breeding

6.3.1 Producers must select bee varieties that are adaptable to local conditions and have good disease resistance.

6.3.2 Replacing bees from organic sources or from non-organic sources is permitted, provided that bees from non-organic sources are limited to 25% of the total number of existing organic colonies, and are managed organically at least 60 days before harvested product is organic.

6.4. Health care

6.4.1 The bees health must mainly be managed by methods to prevent and strengthen the resistance of bees to diseases such as: periodically replacing the queen bee, inspecting the entire hive for health abnormalities, control of males in the swarm, regular disinfection of materials and equipment, destruction of hives and contaminated material, replacement of beeswax, adequate stock of pollen and honey in the hive during times of scarcity food.

6.4.2 When preventive measures fail and the bee swarm becomes ill or infected, they must be treated immediately. Treatment must respect the following principles:

- a. Prioritize the use of herbal medicinal products or alternative treatments with effective therapeutic effects.
- b. If necessary, chemically synthetic drugs may be used by the responsible veterinarian. Then bee products will not be sold as organic.
- c. The use of synthetic micro elements for prophylactic treatment is not allowed

6.4.3 All treatments with veterinary drugs must be clearly documented, product name, including active ingredients, diagnosis, dosage and method of administration, duration of treatment and duration of discontinuation.

6.4.4 Treated hives must be placed in quarantine and undergo a transition period of one year, or the swarm and infected equipment must be destroyed if the disease becomes a serious problem that is difficult to control.

6.4.5 For the control of diseases and pests, it is allowed to use:

- Lactic acid, formic acid; oxalic acid, cetic acid;
- Sulfur;
- Natural essential oils (such as peppermint oil, patchouli oil, rosemary oil) Bacillus thuringiensis (BT)
- Steam
- Direct flame
- Caustic soda to disinfect bee hives.

6.5. Harvesting and processing

6.5.1 Killing bees in the bee bridge when exploiting honey or other bee products is strictly forbidden.

6.5.2 Honey exploitation in the bridge decks while there are eggs or young bees is forbidden

6.5.3 The use of synthetic chemical bee repellents in the extraction of honey and bee products is prohibited.

6.5.4 Use of smoke should be kept to a minimum and using only natural materials or conforming to VOAA organic standards.

6.5.5 In handling/processing bee products, operators must not:

- a. Mix honey with water;
- b. Use fine mesh or diatomaceous earth (DE) to filter and extract bile;
- c. Using high pressure filtration system;
- d. Heating or handling bee products with an oil heater or any heating system that produces oil vapor in the room;

6.5.6 Surfaces in direct contact with honey are made of food-grade materials or coated with beeswax.

6.5.7 Operators are responsible for preserving and protecting the quality and organic integrity of honey produced in accordance with this standard.

6.6. Record keeping

6.6.1 Producers should maintain detailed and updated records of production and management from breeding, caring, harvesting,

processing, transportation, including management of residues and by-products after the extraction of bee products.

- 6.6.2** A map depicting all bee colonies locations shall be maintained and updated in the producer's file

7. POST HARVEST HANDLING AND PROCESSING

Standards in this section cover all processing and handling carried out by the primary producer of the produce processed and/or handled and already covered under organic sections: General Management; Crop production and Animal husbandry. Hence, this handling and processing shall be simultaneously inspected and certified with farm inspection and certification.

7.1 General requirements

General principles

Organic processing and handling provide consumers with nutritious, high-quality supplies of organic products, and provide organic farmers with a market that does not compromise the organic integrity of their products.

Standards

- 7.1.1** All steps of the handling and processing must be inspected and certified by the VOAA.
- 7.1.2** An operator shall train and inform all employees (both permanent and occasional) or responsible persons about the requirements of these VOAA Standards.
- 7.1.3** An operator shall maintain documents indicating the source of organic materials, handling/processing records, stock of organic materials and finished products, and an accounting system including the purchase of organic raw materials and sale of finished organic products. Documents and accounts should be clear and available for inspection.
- 7.1.4** All organic products shall be clearly identified as organic throughout the entire process. The same ingredient in a product is not allowed to be of both organic origin and non-organic or in transition origin.
- 7.1.5** When non-certified organic products are stored in the same warehouse, adequate records are kept and good management production (GMP) practices and measures are applied to prevent contamination risks and affect the quality of organic products.
- 7.1.6** In the event of a change in the production site or production process, the producer must notify VOAA in detail and obtain approval before the product can be sold as organic. At any stage of the production, preparation and distribution of organic products, including export and import, should be certified by the VOAA.

If a trader only buys organic products that have been packaged for domestic sale without repacking or re-labelling, there is no need to get the VOAA certification again.

7.2 Ingredients

General principles

Organic processed products are made from organic ingredients only.

Standards

7.2.1 All ingredients used in an organic processed product shall be organically produced except for those additives and processing aids listed on the approved inputs (Appendix – Part 3)

7.2.2 If organic ingredients are not available, then non-organically produced ingredients of agricultural origin may be used, provided that:

- Those components shall be reported, inspected and approved by VOAA;
- They are not genetically engineered;
- They are not known to be carcinogens, mutagens, teratogens or neurotoxins.
- They do not exceed 5% of the content of the agricultural origin component of the product. Water and salt may be used as ingredients in the production of organic products and are not included in the percentage calculations of organic ingredients.

7.2.3 Notwithstanding the acceptance under 7.2.2 of the use of non-organic substances, the use of such substances should be restricted to the need that:

- They are indispensable for ensuring the safety of the food, or
- They are essential to prepare or preserve such food, or
- They are required by law.

7.2.4 Food fortification – minerals (including trace elements), vitamins, amino acids and similar additives shall not be used, unless their use is legally required.

7.3 Processing methods

General principles

Organic processing and handling provide consumers with nutritious, high-quality supplies of organic products, and provide organic farmers with a market that does not compromise the organic integrity of their products.

Standard

7.3.1 Techniques used to process organic food shall be physical (e.g., milling, drying, extracting), biological (e.g., fermenting) and/or mechanical (e.g.,

pressing) in nature. New processing methods need to be carefully considered before applied.

- 7.3.2 Only filtration techniques that have no chemically reacted or modify food on a molecular basis are allowed.
- 7.3.3 Microwaving and ionizing radiation of raw materials, ingredients and additives are not permitted
- 7.3.4 Radiation and nanotechnology of organic produce and products is prohibited.
- 7.3.5 The following substances are not allowed for food processing: saccharin, borax, monosodium glutamate, synthetic antioxidants, synthetic preservatives, synthetic flavours, bleaching agents, vitamins and minerals.
- 7.3.6 Waste from processing shall be managed appropriately to have minimum effect on the environment. When appropriate, waste should be reused.
- 7.3.7 All equipment, containers, and processing methods shall be clean and hygienic and there shall be measures to prevent contamination (e.g. by micro-organisms, pests or chemicals).
- 7.3.8 Organic management employs only those systems for cleaning and disinfecting surfaces, machinery and processing facilities that prevent contamination of organic products.
- 7.3.9 Where conventional products are also processed or handled in the premises concerned, there must be separate areas for storage of conventional and organic products and all equipment and machinery used is cleaned before and after being used for the organic products. Besides, conventional and organic products shall not be processed at the same time.
- 7.3.10 Only water and cleansing agents listed on the VOAA approved inputs register (Appendix -Part 4) are allowed to be used for cleaning containers, equipment, and processing areas.

7.4. Storage, including pest and disease control

General principles

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

Standards

- 7.4.1 All storage facilities of raw and final products shall be inspected by the VOAA.
- 7.4.2 Organic products shall be stored separately from conventional produce/products, except when they are packed in packaging with different

colour or clear labelling. Such separation and identification must also be made during transportation until it reaches consumers.

7.4.3 Cold storage and frozen storage is permitted

7.4.4 Pest control in the storage shall use the following methods according to these priorities:

- Preventative methods such as cleaning the storage, elimination of habitat, access to facilities, etc.;
- Mechanical, physical, biological methods; and
- Use of products listed in the VOAA approved inputs register.

7.4.5 Prohibited pest control practices include, but are not limited to, the following substances and methods:

- Pesticides not contained in the VOAA approved inputs register;
- Fumigation with ethylene oxide, methyl bromide, aluminium phosphide or other substances not listed in in the VOAA approved inputs register (Appendix Part 3);]
- Ionising radiation (x-ray of products is permitted).
- The direct use or application of a prohibited method or material means that the product is no longer organic.

7.5. Packaging and Transportation

General principles

Organic product packaging and transportation must minimize the negative impact on the product and the environment.

Standard

7.5.1 All materials used for packaging must comply with the food packaging materials regulations of the Vietnamese Government and must prevent organic food from being contaminated with substances that are not allowed to be used in accordance with the VOAA standards.

7.5.2 Organic product packaging materials must not be treated with synthetic insecticides or chemicals that are not authorized by VOAA standards.

7.5.3 Packaging materials for finished products must be clean and should never be used to pack any food or other material, except glass containers.

7.5.4 Vacuum packaging and fumigation with carbon dioxide are allowed.

7.5.5 Packaging materials should be selected from sources that are biodegradable, recyclable or renewable.

7.5.6 Styrofoam must not be used for packaging.

7.5.7 Transportation of organic products ensures that they are not contaminated or mixed with conventional products. Under conditions of transportation with other non-organic products, organic products must be

clearly labelled and packaged to prevent contamination or confusion. Producers/operators are responsible for the integrity of organic products during transportation.

8. LABELING & USE MARK OF VOAA

General principles

Labelling must clearly distinguish between recognized, unrecognized VOAA organic products and conventional products.

Standard

8.1The product is recognized as VOAA organic by a VOAA-authorized evaluation agency, labelled as “Organic Product” with a VOAA-administered identification mark.

8.2Before printing the product label with the VOAA quality assurance mark on the packaging, the manufacturer, or operator, must notify VOAA and submit a packaging design with the size and location of the mark administered by VOAA for approval.

8.3Labels of organic products, in addition to the declared ingredients, must be traceable to the unit/manufacturer with identification code and production location. Distributors and authorized VOAA agencies can audit for certification.

8.4Products processed according to VOAA standards are allowed to be announced and labelled by VOAA as follows:

- ✓ Declared as organic if there are organic ingredients accounting for 95-100%
- ✓ Declared as “Produced from organic ingredients” when there are organic ingredients accounting for 70-95%
- ✓ Not allowed to declare as organic if the organic ingredients account for less than 70%

Note: Water and salt are not included in organic ingredients

8.5The VOAA name and logo may not be used as part of the trademark or logo of a business company.

8.6All organic ingredients and ingredients with no specific names will be listed on the label with their weights and proportions.

9. SOCIAL JUSTICE

General principles

Social justice and social rights are an integral part of organic production and processing. The principle of fairness of organic agriculture emphasizes that

the relationships in the organic production process must follow human behavior, ensuring fairness at all levels and for all related parties.

Recommended methods

- Production operators should be active and encourage employees or farmers to join collective organizations and follow the contract.
- Provide them with access to education, transportation and health services.
- Respecting the culture and rights of indigenous peoples, land should not be used or exploited where people have been or are impoverished, expropriated, deported, exiled or killed, or is currently in dispute over legal use or ownership rights.
- Organic activities must contribute positively to society and culture, and exceed legal obligations to enhance rural development.

Standards

- 9.1** Production units must implement social justice policies and labor laws promulgated by the State of Vietnam and comply with all International Labor Organization (ILO) conventions relating to workers' welfare and the International Convention on the Rights of the Child.
- 9.2** The operator may hire labor but prohibits any form of forced labor and child labor. Employees/employees are paid at least the minimum wage as set by the government. No discrimination in employment (eg gender, age, ethnicity, color, religion...).
- 9.3** Production operators are not allowed to hire children. However, children can help their parents or relatives with farm work or in production sites, but only if under the supervision of an adult and the work does not last more than 2 hours in a day. Work must not jeopardize the health of children or harm the children's education, moral, social and physical development.
- 9.4** Employees and employers of the organic system are free to cooperate, have the right to organize and negotiate.
- 9.5** Employees are adequately protected from noise, dust and light. Exposure to hazardous chemicals should be within acceptable limits at all manufacturing and processing operations.
- 9.6** All employees and families have the right to access to clean water, food, housing, education, transportation and healthcare services.
- 9.7** Production operators must not do forced labor. In case it happens, or where there is social or production injustice based on violations of basic human rights, such products will not be accepted as organic under VOAA standards.
- 9.8** Fair trade relations – Operators should create a consensus between producers and buyers, to ensure mutual benefits, and agree to receive a fair

price for products; This agreement should be long term and stable (at least 3 years).

- 9.9** Relations with the community – Producers, product operators or employers should actively participate and contribute to local socio-cultural activities.

10. INPUT MATERIALS

General principles

The inputs for production must ensure compliance with organic principles, use natural, renewable, recyclable, and biological sources.

Standards

- 10.1** The processing of production inputs in organic agriculture must comply with the requirements stated in section 7.1.
- 10.2** The composition of materials constituting materials/inputs for organic production must comply with the instructions in annex 1 of this standard: (*Input assessment guide*).
- 10.3** In the event of heavy metal contamination hazards, the manufacturer of the supplies must provide the product's heavy metal test results for review by the evaluator. VOAA will not accept if the input material accumulates heavy metals in the soil or in the product when using it.
- 10.4** The producer must provide clear, official, and clear test/test results information about the effects and effectiveness of the inputs for review by the evaluator.
- 10.5** The producer must document the entire production, packaging, labeling and traceability of the product as required by section 1.5 of this standard.
- 10.6** Input supplies certified to VOAA standards by an authorized entity must have packaging clearly marked with ingredients, instructions for use, and restrictions on use that should be noted.
- 10.7** When a product is certified, the labeling on the product must comply with the provisions of section 8 of this standard.

APPENDIX 1: GUIDELINES FOR ASSESSMENT OF INVESTMENTS, ADDITIVES AND PROCESSING SUPPORT FOR ORGANIC PRODUCTION

Inputs used in organic agriculture must be clearly audited to ensure compliance with the VOAA Standards. In particular, inputs that are not listed in the standard or in the approval list, before being used by organic producers, must be inspected and approved by VOAA.

General principles when using production inputs

- *Organic production and processing systems using natural, biological, recyclable and renewable sources.*
- *Ensure the maintenance of soil fertility, mainly through the active participation of microorganisms that recycle organic matter to make nutrients available for plants use.*
- *Management of pests, diseases and weeds in organic production relies mainly on good farming practices.*
- *Organically raised animals, which are raised primarily through organically produced feed and forage, are kept in comfortable conditions and allowed to exhibit natural instinctive behavior.*
- *Food and other organic finished products must be made from organically produced ingredients, processed primarily by biological, mechanical and physical methods.*

Approved entry category

This is the input category of raw materials, additives, processing aids and other pesticides allowed to be used in organic production, handling and processing according to this standard.

The category will be revised and updated based on the assessment of the VOAA Standards Council, based on the evaluation criteria guided below. The process of updating, removing, or changing the status of the input in the category will refer to the standards and regulations of VOAA, which can be accessed on the website www.hiephoihuuco.com.vn, or can contact the Standards Council directly (tchc@hiephoihuuco.com.vn).

Assessment method

1. Provide information and related documents

Producers must collect documents related to raw materials, ingredients, production and processing processes and other relevant data of inputs to be examined and evaluated by VOAA. If the documentation is insufficient, VOAA may not allow the use of inputs that have not been reviewed under this standard.

2. Evaluation criteria

Inputs produced from animal and microbial plant waste, both inside and outside the farm, can be approved if the following criteria are met:

1. Necessity of supplies and alternatives
2. Origin and production process
3. Impact on the environment
4. Impact on human health
5. Impact on society, economy and morality

I. Criteria for evaluating inputs for organic farming and livestock

1. Necessity and alternatives:

Principles:

Any input used must consider the need for sustainable production, ensure the quantity and quality of the product is maintained, and have the best current technology.

All records of input to be evaluated must indicate the necessity, the essential nature of the substances to be introduced into the organic production system, the methods, farming practices and available alternative inputs.

- 1.1 Inputs must represent the need for plant and livestock production of sufficient quantity and suitable quality: to circulate nutrients; to enhance biological activity; to provide a balanced diet for animals; to protect plants and animals from pests, parasites and diseases; to regulate growth; and to maintain and improve soil quality.
- 1.2 A substance evaluated for use as a given input must have reference to other available inputs or supplies that could be used instead of the substance.
- 1.3 All inputs must be evaluated in light of the specific circumstances in which the product will be used (e.g. crop species, volume, frequency of use and specific purpose).

2. Origin and production process

Principle: All records must document the origin and manufacturing process to consider the use of natural, biological and renewable resources.

- 2.1 The procedures for breeding, culturing, producing, propagating, extracting, or preparing materials for use must also be verified.
- 2.2 The use of sources from plants, nature, animals, fungi, bacteria and organisms in general is allowed.
- 2.3 Substances that undergo physical transformation, such as mechanical treatment or biological methods (such as composting, fermentation, and enzymatic degradation) are basically allowed.

- 2.4 Chemically modified substances that are considered synthetic may be used but must comply with the provisions of section 2.7 as below.
- 2.5 Limit the use of non-renewable resources. However, they can be used as supplements, as long as they are extracted by physical and mechanical methods and not formed by chemical methods. Non-renewable natural resources (such as apatids) must be described where they were mined, or how they occurred in nature.
- 2.6 Prohibit or restrict the use of inputs with high levels of environmental pollution, such as heavy metals, radioisotopes, or salinity changes.
- 2.7 In general, the use of synthetic substances from non-renewable resources is prohibited. If natural inputs are not sufficient, the use of synthetic, natural-like products may be permitted provided all of the above criteria are met.
- 2.8 The use of inputs extracted, recovered or produced by methods that are destructive to the environment is prohibited

3. *Impact on the environment*

Principle: The input production process must not have a negative impact on the environment.

- 3.1 All environmental impacts of the input material must be documented.
- 3.2 The environmental impact of a substance includes but is not limited to the following: Acute toxicity, persistence, degradability, concentration range; biological, chemical and physical interactions with the environment, including the potential to interact with other inputs when used in organic production.
- 3.3 Consider the effect of the substance on agroecosystems, including soil health; soil organisms; soil fertility and structure; crops and livestock.
- 3.4 Prohibit or restrict the use of substances with a high salt index, high toxicity, or long-lasting adverse effects on non-target organisms.
- 3.5 Inputs used for crop production must be considered for their impact on livestock and wildlife.

4. *Impact on human health:*

Principle: Materials production techniques must ensure human health and food safety. All effects of this substance on human health must be recorded in the registration document.

- 4.1 Human health documentation includes, but is not limited to: acute and chronic toxicity, half-life, decomposers and metabolites. substances reported to have adverse effects may be banned or restricted for use in order to reduce potential risks to human health.

4.2 Records should document all possible exposures to humans by all possible routes, at all stages, e.g. workers and farmers of extraction, production, application or use of this substance; neighbors may be exposed when it is released into the environment; and consumers are exposed to food residues.

5. *Impact on society, economy and ethics:*

Principle: The inputs used in organic production are agreed upon and meet the desires of the consumer. The production process must be sustainable and social justice, respect cultural diversity and protect animal rights. All social, economic and cultural impacts of the product must be documented.

5.1 Impact on social and economic include, but are not limited to:

- Consider the impact of these substances on the communities where they are created and used.
- Consider whether the use of this substance offers any advantages in terms of structure and economies of scale or not.
- A look at the history of using this substance in traditional foods

5.2 The consumer's perception of the inputs under consideration must be taken into account. The inputs used in production are not opposed by consumers of organic products. An input may be considered unsuitable by consumers for organic production in cases where scientific evidence indicates uncertainty about its impact on the environment or human health.

5.3 Inputs used for feed and livestock production must be assessed for their impact on animal health, welfare and behaviour. The drug must reduce or prevent the animal's suffering. Animal inputs that cause distress or have a negative effect on the natural behavior or physical performance of farm animals may be prohibited or restricted.

II. Criteria for assessing input materials in preprocessing and processing

These criteria apply to the evaluation of additives and processing aids. This criterion is also applicable to contractors, carriers and preservatives used in the preparation of additives and processing aids. All of the criteria below must be fully documented and considered for acceptance as inputs in organic processing.

In organic processing, the processing method should be chosen to maintain as much nutritional value as possible in the product without the use of additives, processing aids or only when absolutely necessary. If the processor needs to use additives or enhancers, these substances will be clearly tested and evaluated for compliance with the VOAA Standards, especially if they are not listed in the standards or VOAA approved list of additives. Only additives and processing aids that conform to these guidelines may be authorized by VOAA.

1. *Necessity and alternatives:*

All the need for the additive, processing aid or essential substance in organic processing, its use, availability of inputs and alternatives must be documented. Each substance must be evaluated for specific uses and applications, and will be added when it is proven to be absolutely necessary for the production of a certain organic product, in accordance with the organic principles stated in this standard.

- 1.1 All applications must consider the technical feasibility of the following options:
 - a Entire product or part of product is organically produced according to standards.
 - b Pure product from raw materials of non-agricultural origin, e.g. Salt.
 - c Pure products from raw materials of agricultural origin that have not been organically produced or processed according to standards but are in part 3 of the Appendix to this standard.
- 1.2 A substance is considered essential if the processed product cannot be handled or stored without it to meet the requirements of established standards, or government regulation or broad consumer expectations.
- 1.3 An ingredient required to manufacture a processed product to established minimum specifications, recognized by the consumer, but if an organic substitute is not available, the non-organic ingredient may be considered necessary.

2. Sources and Production Process

All records must document the source and production process of the substance.

- 2.1 Additives and processing aids from biological sources, such as fermentation cultures, enzymes, flavors and gums, must be derived from natural organisms using biological, mechanics and physics methods. Non-organic forms are only allowed in organic products if an organic source is not available.
- 2.2 Non-renewable natural sources - such as salt and mined minerals - must be obtained by physical and mechanical methods, and not synthesized by chemical reaction.
- 2.3 Synthetic products that are close to natural that are not available in sufficient quantity and quality in their natural form may be used, provided that all other criteria are met.
- 2.4 Synthetics from non-renewable resources are prohibited as additives and processing aids.

3. Environment

All records must document the environmental impact of the substance, indicating the release of any hazardous waste streams, or by-products from

production and use during processing. Additives and processing aids that produce toxic by-products or polluting waste may be restricted or prohibited. This includes persistence, degradation, and areas of concentration.

4. Human health

All records must document the effects of this substance on human health.

- 4.1 Human health documentation includes, but is not limited to: acute and chronic toxicity, allergenic potential, half-life, decomposers and metabolites.

Substances reported to have adverse effects may be banned or restricted for use in order to reduce potential risks to human health.

- 4.2 Records must document all possible human exposures by all possible routes, at all stages; e.g. workers and farmers extracting, producing, applying or using the substance; neighbors may be exposed when it is released into the environment; and consumers are exposed to food residues.

- 4.3 **The VOAA Certification Board will only consider processing aids and additives that have been evaluated by the Joint FAO/WHO Expert Committee on Food Additives of Codex Alimentarius. (JECFA).**

✓ Food additives must have an Acceptable Daily Intake (ADI) of "not specified" or "unlimited" to be eligible for use without restrictions.

✓ Food additives with any other condition are prohibited or have specific use restrictions to limit dietary exposure.

✓ Evaluation of food additives must also take into account the potential for allergenicity and immunological responses.

- 4.4 Information on the actual daily intake of certain substances should be taken into account. It should be demonstrated that no group has a higher normal intake than the accepted ADI.

5. Quality (in processed products)

- 5.1 All records must document the effect of the substance on the overall quality of the product, including but not limited to nutrition, taste, aroma, storage, and appearance.

- 5.2 Additives and processing aids must not reduce the nutritional quality of the product.

- 5.3 A substance must not be used solely or principally as a preservative, to induce, reproduce or improve properties such as flavour, color or texture, or to restore or improve the nutritional value of the product nutrients are lost during processing except for the case the replacement of nutrients is required by law.

- 5.4 Non-organic ingredients, additives or processing aids used to make organic products must not compromise the authenticity or overall quality of the product or mislead consumers about the product value.
- 5.5 Each additive must be evaluated for its specific uses and applications without prioritizing any particular technique or device and only added to the list when it is proven to be completely necessary and necessary for the formulation and manufacture of a particular product, in accordance with the organic principles outlined in the VOAA Standard.

6. *Social, Economic and Ethical Considerations*

- 6.1 All records must document the social, economic and cultural impacts of the substance.
 - 6.2 Social and economic impacts, including, but not limited to, negative impacts on communities resulting from the production and use of this substance, whether certain economic structures or scales favor the use of this processing additive or not; and a history of using additives or processing aids in traditional products.
 - 6.3 Consumer perceptions of the compatibility of additives and processing aids must be taken into account. An input can reasonably be considered incompatible with organic production in situations where there is scientific uncertainty about its impact on the environment or human health. Inputs must respect the general opinion of consumers about what is natural and organic
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ANNEX 2: LIST OF APPROVED INPUTS FOR ORGANIC PRODUCTION

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PART 1: INPUT FOR IMPROVEMENT OF SOIL FEATURE		
Inputs	A/R	Details and Terms of Use
Animal manure including chicken; duck; pig; cows and buffalos' manure and bat droppings etc.	R	<p>In principle, all animal manure must be incubated or allowed to dry out before use.</p> <p>Chicken manure and other animal manure obtained from commercial farms are not permitted.</p> <p>Farmers have to collect animal manure they are raising.</p> <p>Natural grazing animal manure from outside the farm can be used (if it's been heated or left to dry).</p>
Wood ash (burned from wood)	R	<p>Only wood ash (not charcoal) should be used as a source of Potassium (K).</p> <p>It is best to use a small amount frequently because K soaks into moist soil very quickly. If storing ash, it must be covered because rain water will make K dissolve very quickly.</p> <p>It is best to mix the ash with the finished compost to avoid raising the soil pH.</p>
Compost	A	<p>Compost inputs must be collected from the farm itself. Do not use municipal waste.</p> <p>Inputs can be obtained from outside such as straw, rice husks, trees, animal manure and coffee bean husks.</p> <p>Hot compost has about 25% manure plus 50% greenery and 25% straw or similar material. The compost pile needs to be heated to over 60°C for 8-15 days and when it begins to cool, it needs to be turned over and then incubated. Compost can be used when worms are found in the compost mix.</p>

		The use of EM (beneficial microorganisms) compost activator is allowed including the <i>bokashi composting</i> method.
Microbial fertilizer	R	Only products approved by PGS may be used. These products include Vietnam “Natural” products and bio-fertilizers. Prohibit the use of bio-fertilizers derived from peat.
Mineral fertilizers To be used as a supplement only.	R	Permitted to use from approved sources – these minerals must be certified organic or approved by the Vietnam National Organic Standard or VOAA. For example, mineral rock phosphate can be used provided that it must be crushed before applying to the soil.
British PolySulphate Mineral Fertilizer (AICL)		Permitted (reviewed by OMRI)
Sedimentary rock (Dolomite)	A	Used as a supplement to the soil as needed.
Van Dien fused apatite stone 15% (Phosphorus Magnesium, Calcium)	A	Use only heat to melt mineral rock.
Limestone	A	Used in addition to the soil when needed.
Rice husks	A	There is no nutritional value but can be used as mulch or compost to retain nutrients.
Straw	A	Can be added for composting or used as mulch. If using straw that has previously been used as a nest for livestock, it must be heated before being used in the field.
EM, Emunive (beneficial microorganisms)	A	Liquid or powder form is permitted and can be purchased at local stores.
Micronutrients	R	Micronutrients include: copper, cobalt, sulphate, selenium, boron, manganese, black linoleum, zinc, iodine, iron. Prioritize the use of natural (mineral) sources. If natural sources of minerals are not available, synthetic nutrients can be

		used when plants and soil show clear signs of deficiencies in these micronutrients. Nitrate and chloride are not allowed.
Plant material (legumes). For example: <i>sesbania</i> , <i>erythrina</i> , <i>wild peanuts</i> (<i>Arachis pintoi</i>), <i>gliricidia</i> , <i>pigeon pea</i>	A	The collected legume material (leaves and branches) can be used as mulch around the base of the crop and for composting.
Mushroom compost	R	Used as long as it has not been treated with a fungicide to kill the spores.
Molasses	A	Used when composting green materials as a microbial feed.
Worm droppings, fecal particles, and fluid excreted by worms	A	Raising worms with plant-based waste is better than feeding with animal manure because animal manure used as compost or direct fertilizer will have higher efficiency. Animal manure that is not allowed to be used in crop production is also not used to feed worms. Use worm manure seeds directly to the soil or use as a water fertilizer by mixing 10-20 liters of water/liter of liquid discharged by the worms to irrigate the plants.
Biogro fertilizer prioritizes original fertilizer	A	Product of the Center for Research and Application of Microbial Fertilizer
Fusa Microbial fertilizer	A	Imported from the US, approved by OMRI
Bio-fertilizer SumaGrow	A	Imported from the US, approved by OMRI
Rice husk charcoal	A	Finished product from anaerobic rice husk burning process
od vinegar	A	Provide minerals and prevent pests.

PART 2: INPUTS FOR MANAGEMENT OF PESTS, DISEASES, AND WEED

Inputs	A/R	Details and Terms of Use
Insect traps	A	There are different types of traps: Sticky traps (with attractant or glue/grease), light traps.

Sulphur	A	Use to control mold but must be used with caution, leaves can burn if used in extreme heat.
Copper	R	Control fungi and bacteria. There are different copper products. Use with caution, avoid over-spray. The mixture of Bordo (consisting of copper sulphate, calcined limestone and water) can be used to treat common plant fungus with a ratio of 40:40:4 and used immediately. May burn leaves.
Microbiology	A	Usable except for genetically modified products (GMO's)
Sodium bicarbonate	R	Control fungi especially late blight. Rate from 5-10g per 1 liter of water
Beneficial insects	A	Use biological countermeasures.
Mineral oil	R	Pest control, often used with water at 1%
Bacillus thuringiensis	R	Except for genetically modified organisms (GMOs).
Trichoderma	OK	Fungal antagonists: control soil fungal diseases such as fusarium/Rhizoctonia
Metarhizium	OK	Use fungi that cause diseases to insects in the soil such as black cutworms, leafhoppers, ants, termites but also kill earthworms.
Beauveria bassiana		Use fungi that cause disease on molluscs and beetles
Herbal drug against plant diseases TP-ZEP	OK	Pesticides using herbal essential oils
Than Dien TP Pesticide	R	Herbal Pesticides
Vironone (Rotenone) Pesticides	R	Eliminate pests, aphids, thrips...
Chrysanthemum flowers	R	The natural pyrethrum found in chrysanthemums can be used to control insects but will also affect predators especially on citrus trees.

Pheromones	A	Used to attract insects, which are usually placed in traps.
Tobacco	R	Tobacco tea is allowed to be used for insect control and to soak the seeds before planting. Pure nicotine is prohibited because of its high toxicity to warm-blooded animals (LD50=55).
Derris	R	Less toxic than tobacco but can burn the skin. Used to control beetles, insects and flying insects. LD50=132. When used for leafy vegetables must be isolated at least 7 days before harvesting. Do not use near water sources because it will be toxic to fish.
Adhesives	A	Use Potassium soap
Plant extracts	R	Use with caution as it may harm beneficial insects. Extracted from many different types of plants that are often steeped in water and used as tea
Neem	R	Insect control (usually available in liquid form) but can be made from local sources.
Viruses, bacteria, fungi	A	Must be non-GMO. Can be used to control pests, etc.
Compost solution		Diluent (1 liter of compost extract diluted with 10-20 liters of clean water), used to control fungal diseases such as fungal purulent disease (Phytophthora).
Weed control	R	The use of all herbicides is prohibited. Use mulch with plant material or plastic sheeting.
Vinegar	A	9.10 Control diseases, weeds and harmful insects. Dilute before spraying.

A= allowed R= restricted (must be approved by VOAA before use)

PART 3: PRODUCTS SUPPORTING PROCESSING		
Inputs		Details and Terms of Use

Salt	R	From a clean, unpolluted source
Microorganisms	R	Must not be genetically modified origins (GMOs)
Potassium chloride	A	Use only for frozen canned juices, vegetable and tomato sauces
Citric acid	A	Used no more than 1 gr/liter to enhance the flavor in jams, juices and pickles Used for 0.1-0.5% rate to dry fruit and prevent browning
Lactic acid	A	To concentrate fruit juices and ferment vegetable products
Ascorbic acid	A	Used to prevent color loss
Food coloring	R	Must come from natural sources
Calcium carbonate/ lime-water	A	Used as a stabilizer in the fermentation of salted vegetables. Mix 1 tablespoon of calcium carbonate with 1 liter of water, salt and wait then only take the top clear water to use.
Natural Flavors	R	Not allowed from synthetics or produced by chemical processes.
Ethylene	R	Used to make fruit ripening. Can only be used from non-synthetic sources.
Gelatine	A	Used as a stabilizer in jam processing.
Enzyme	R	From natural sources, not from GMOs.

PART 4: INPUT PRODUCTS FOR LIVESTOCK AND BEEKEEPERS

Inputs	A/R	Details and Terms of Use
Water and steam	A	
Plant-based preparations	A	Use only natural extraction methods
Lime water (Lime milk)	A	
Lime	A	
Quicklime	A	Including tempered lime, for slaughterhouse use only
Lime chloride	A	Includes calcium oxychloride, calcium chloride and calcium hydroxide

Nitric acid	A	Only for cleaning equipment in milk production
Acid Phosphoric H ₃ PO ₄	A	Only for cleaning equipment in milk production
Acid	A	Citric acid, peracetic acid, formic acid, lactic acid, oxalic acid and acetic acid
Chlorine dioxide	A	Disinfect food contact equipment
Calcium hypochlorite	A	Disinfect food contact equipment
Natri hydroxide (caustic soda)	A	
Sodium hypochlorite (Natri hypochlorite)	A	E.g. bleaching agents; used for disinfecting food contact equipment; Use it carefully.
Sodium carbonate	A	Only for use in slaughterhouses
Sodium soap	A	
Potassium soap	A	

PART 5: CLEANSING AND DISINFECTING INPUT PRODUCTS

Inputs	A/R	Details and Terms of Use
Dishwashing liquid	A	Used to clean containers and equipment used in food processing
Laundry detergent	A	Use to clean equipment and space
Ethyl alcohol	A	Clean the container
Hydrogen peroxide	R	Only for disinfecting processing equipment and must be washed with hot water before starting processing.

PART 6: PRODUCTS AND METHODS OF PEST CONTROL IN STOCK

Inputs	A/R	Details and terms of use
Trapping Pests	A	There are many types of traps such as mechanical traps, sticky traps, and light traps. Careful handling of dead rats after trapping etc

Wood ash	A	Mix with seeds for insect control
Engine oil (used)	R	Used as insect trap (in combination with ultraviolet light)
Dầu thực vật / Vegetable oil	A	Used to preserve seeds when storing
Natural Pyrethrin (extracted from chrysanthemum flower)	R	Only used in storage, not in contact with organic products.
Pheromones	A	Pheromones attract insects to the trap and to reduce the number of insects.
Ultrasonic waves	A	Used to make insects uncomfortable and disoriented.

A= allowed R= restricted (must be approved by VOAA before use)