Lao People's Democratic Republic
Peace Independence Democracy Unity Prosperity

Ministry of Agriculture and Forestry

No. 1666/MAF
Vientiane, Date 30 Dec.2005

Decision of the Minister of Agriculture and Forestry on Organic Agriculture Standards

- Referred to in Agriculture Law No.1/98 LNA, dated 10 October 1998;
- Referred to in Prime Minister CB (DOA) No.89/PMO, dated 22 June 1999 on the Organization and Role of Ministry of Agriculture and Forestry;
- Referred to in the joint ASEAN AFTA Agreement of Lao PDR;
- Referred to in the joint WTO of Lao PDR.

Group I
General Background

Article 1. Objectives

The Organic Agriculture Standards are designed promote Clean Agriculture within the agriculture and forestry sectors, and to ensure that the management of agriculture production in Lao PDR is in accordance with the Agriculture Law.

Article 2. Organic Agriculture Standards

These Organic Agriculture Standards are based on the International Federation of Organic Agriculture Movements (IFOAM) Basic Standards. These Standards for the certification of Organic products govern the management, harvesting and processing stages.

Article 3. The Benefits of Organic Agriculture to Living Systems

Organic Agriculture benefits living system by:

1. Developing integrated farming production systems that respect the diversity of plants and animals;
2. Increasing the long-term fertility and biological activity of soils by using locally adapted cultural, biological and mechanical methods as opposed to reliance on inputs;
3. Using renewable resources on the farm;

4. Using sustainable production systems which promote agricultural and natural biodiversity, and which protect plant and wildlife habitats;
5. Avoiding practices that will pollute the environment;
6. Providing everyone involved in organic farming with a quality of life that satisfies their Basic needs, with a safe, secure and healthy working environment, and;
7. Ad her in to principles of handling and processing that are natural, that conserve energy and that have a minimum impact on the environment.

Article 4. Scope of Application

These Standards apply to every producer, entrepreneur, or other individual, and to every cooperative, or private enterprise that wants to produce organic agriculture in Lao PDR.

Article 5. Definitions

Organic Agriculture: Organic Agriculture refers to the farming system and products described in the Organic Agriculture Standards and not to ‘‘organic chemistry’’.

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

Conventional: Conventional means any material, production or processing practice that is not certified organic or organic ‘‘in-conversion’’.

Handling: Handling in these Standards refers to the following: wind-drying, sun-drying, cleaning, cutting, sorting, packing, storing, and transporting organic products.

Produce: Crops from cultivation or wild harvesting that have been handled.
Organic product: A product which has been produced, processed, and/or handled in compliance with these Standards.

Producer: A person who is responsible for farming until harvesting and sale.

Operator: An individual or business enterprise responsible for ensuring that products meet the organic certification requirements.

Sub-contractor: A person who is engaged in some aspect of the production, handling, or processing organic products.

Processing: Processing in these Standard includes the boiling, heat-drying, mixing, grinding, pressing, milling, liquefying, fermenting, pickling, syrup-soaking, stiring or frying of organic products.

Annual crop: Crops with short life cycle that are harvested within one cropping season.

Perennial crop: Crops with a life cycle of more than 1 year that are harvested continuously.

Genetic Engineering: Genetic engineering is a set of techniques from molecular biology (such as recombinant DNA) by which the genetic material of plants, animals, micro-organisms, cells and other biological units are altered in ways or with results that could not be obtained by methods of natural mating and reproduction or natural recombination. Techniques of genetic modification include, but are not limited to: recombinant DNA, cell fusion, micro and macro injection, encapsulation, gene deletion and doubling. Genetically engineered organisms do not include organisms resulting from techniques such as conjugation, transduction and natural hybridization.

Input: Products used in organic production and processing, including fertilizers, soil conditioners, plant protect ants, additives and processing.

Commercial input: Products used in agricultural production and processing which have been manufactured for commercial purposes.

Field: A piece of cultivated land with adjoining space, also referred to as a ‘‘plot’’.

Farm: The total area of land under the control of one producer or a collective of producers that encompasses all of the farming activities or enterprises.

Conversion period: The time between the start of the organic management and the certification of crops and animal husbandry as organic.

Raw material: The main ingredient in a processed product which is not additive. **Ingredient:** Any substance, including a food additive, used in the manufacturing or preparation of a food product that is present in the final product, although possibly in a modified form.

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

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

Genetically Modified Organism (GMO): A plant, animal, or microbe that is transformed by genetic engineering.

Group II
Organic Farm Management

Article 6. General Principles

The general principles for organic agriculture are as follows:

1. All synthetic chemical inputs are prohibited, including artificial fertilizers, pesticides, and hormones.

2. All producers shall maintain records indicating the source of any farm input, the quantity used, and records of sale. These documents shall be made available for CB (DOA) inspection.

3. Where a producer does not convert all fields to organic farming, the organic plots and the conventional plots must be clearly separated. These plots shall subject to inspection by the CB (DOA).

4. Production of certified organic agriculture lands shall not be converted back to conventional methods. The CB (DOA) may refuse to certify new lands if organic farming on previously certified lands was ceased without valid reason.

5. Clearing primary forest for organic agricultural production is prohibited.

6. The CB (DOA) may not certify a producer who invades public forest for organic farming. The CB (DOA) reserves the right to consider the use of public forest for organic production on a case by case basis.

7. Producers are required to inform the CB (DOA) immediately of any change in farm production, including an increase or decrease in farmland, and a change of crop type.

Article 7. Ecosystems on Organic Farms

Producers should maintain a significant portion of their farms to facilitate biodiversity and environmental conservation. A farm should place appropriate areas under its management in wildlife refuge habitat. These areas include: extensive grassland, extensive orchards, hedges, hedgerows, edges between agricultural and forest land, groups of trees and/or bushes, forest, woodland integrated orchards, water ways, ditches, natural fish ponds, and follow or arable land.

Article 8. Genetically Modified Organisms (GMOs)

1. The deliberate use or negligent introduction of genetically engineered organisms or their derivatives to organic farming systems or products is prohibited.

2. This shall include animals, seed, propagation material, and farm inputs such as fertilizers, soil conditioners, and crop protection materials. Organic processed products shall not use ingredients, additives or processing aids derived from GMOs.

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

4. Contamination of organic product by GMOs that results from circumstances beyond the control of the operator may alter the organic status of the operation and/or product. On farms with split (including parallel) production the use of genetically engineered organism is not permitted in any production activity on the farm.

Article 9. Organic Crop Production and Conversion period Standards

1. The fields or producers who have applied for organic certification are subject to the conversion period. During this period, producers must follow these Standards. Producers will be subject to inspection by the CB (DOA) during this period. Produce grown during the conversion period cannot be sold as organic.

2. The conversion period shall begin on the first day of conversion to organic farming and producers shall begin following these Standards from that date.

3. The conversion period for annual crops is 12 months. Products grown/harvested after the conversion period will be certified as organic products by the CB (DOA) with a seal, and can be sold as organic products.

4. With the exception of biennial crops (for example, local vegetables, bananas, papayas, etc.), product can be harvested and sold as ‘‘organic product’’ after the conversion period of 12 months has been met.

5. The conversion period for perennial crops is 18 months. Products grown/harvested after the conversion period will be certified as organic products by the CB (DOA) with a seal, and can be sold as such.

6. The CB (DOA) may extend the conversion period after considering the history of chemicals used, contamination problems on the land, and measures taken to manage the contamination and pollution on the farm.

7. The CB (DOA) may grant an exception to the annual or perennial conversion period where producers have historically farmed in accordance with the Organic Agriculture Standards. Exceptions to either conversion period will only be granted on a case by case basis, and where evidence is provided to the CB (DOA) indicating adherence to the Organic Agriculture Standards. Input records, crop production records, statements from non-conflict of interest organizations indicating that no chemicals have been used for a certain period of time and that soil has been improved naturally, and articles in independent publications can be used as evidence of adherence to the Organic Agriculture Standards.

Article 10. Choice of Crops and Varieties

1. Species and varieties cultivated in organic agriculture systems are selected for adaptability to the local soil and climatic conditions, and tolerance to pests and diseases. All seeds and plant material are certified organic.

2. Seed and plant propagation shall be from organic agriculture.

3. In case seed and plant propagation cannot be from organic agriculture, the use of conventional seed is allowed but chemical treatment is prohibited. An exception can be made when organic farming is in the early stages of development or there is an unexpected accident. However, by the year 2010, producers shall develop seed production and plant propagation within the farm or exchange them with other organic producers.

4. The use of chemically treated seed and plant propagation for perennial crops is permitted but the produce of the crop in the first 12 months cannot be sold as organic product with the CB (DOA) seal.

5. Plant varieties from GMOs is not allowed.

Article 11. Diversity of Crops on the Farm

1. Diversity in plant production and activity shall be ensured by minimum crop rotation requirements. Minimum rotation practices for annual crops shall be established unless the producer demonstrates diversity in plant production by other means. Producers are required to manage pressure from insects, weeds, diseases and other pests, while maintaining or increasing soil organic matter, fertility, microbial activity and general soil health.

2. For perennial crops, the CB (DOA) shall set minimum standards for orchard/plantation floor cover and/or diversity of refuge plantings in the orchard.

Article 12. Prevention and Control of Diseases, Insects and Weeds

The following practices are recommended in order to prevent and control diseases, insects and weeds in organic production:

1. The use of beneficial animals such as predators, natural pests such as parasites, and plants such as flowers.
2. The use of insect repellent plants as a mixed crop such as onions with cabbage and citronella with Chinese kale.
3. Rotating crops frequently and avoiding mono crops.
4. Reliance on cultural practices such as plowing and rotation, and the use of mixed crop, mulching crop, and mulching from natural materials.

Article 13. Prohibited and Permitted Practices

1. The use of synthetic chemicals and genetically engineered products are not allowed for plant protection.
2. Only methods and products, including additives used in pest control products, listed in Appendix 1 (Parts 2 and 5) are allowed.
3. Methods and products used for plant protection which are not listed in Appendix 1 (Parts 2 and 5) may be permitted after examination by the CB (DOA) in accordance with the Guidelines for the Evaluation of Additional Inputs listed in **Appendix 3**.
4. The use of ‘‘hang lai’’ (Derris elliptica (Roxb) Benth.) is allowed. When used with leafy vegetables, producers must refrain from using hang lai for 7 days prior to harvest because of its toxicity to cold blooded animals like fish.
5. The use of tobacco tea as a botanical pesticide is allowed, provided that it does not affect other beneficial organisms. The use of pure nicotine is prohibited.
6. The use of detergent and other synthetic sticking agents are prohibited.
7. Physical and biological pest control are allowed, provided that they do not affect the balance of pests and beneficial organisms on the farm.
8. Thermal sterilization to combat pests and diseases in soil is only permitted in a nursery for vulnerable seeds or seedlings.
9. The use of rice straw as mulching to prevent weeds and to maintain soil moisture is permitted. Where available, straw from an organic source is preferred.

10. The use of plastic for mulching, fruit wrapping, and insect netting is allowed. The plastic shall be appropriately disposed of after use.

Article 14. Growth Hormones and Other Synthetics

1. The use of synthetic growth stimulants for plant propagation, such as indole-3 Butyric Acid and N-acytle aspartate, are prohibited.

2. The use of synthetic dyes are prohibited.

3. The use of growth hormones and other substances listed in **Appendix 1 (Parts 2)** are permitted. Substances which are not listed in Appendix 1 (Parts 2) may be allowed after examination by the CB (DOA) according to the Guidelines for the Evaluation of Additional Inputs in Appendix 3.

Article 15. Protection from Contamination

All relevant measures are taken to ensure that organic soil and food is protected from contamination.

1. Where there is the possibility of contamination of an organic field with chemicals from an adjoining conventional field, the producer shall set up a buffer area to prevent such contamination. The buffer area shall be at least 1 meter in width.

1.1. Where there is a possibility of contamination by spray-drift, a buffer crop shall be grown to prevent spray contamination. The buffer crop cannot be sold as organic product and must be easily distinguishable from the certified crops.

1.2. Where there is a possibility of contamination by a water source, earth bund or drain age shall be established to prevent such contamination. If there is a high risk of external contamination, the CB (DOA) may require the producer to expand the buffer area.

2. Where there is a high risk of chemical or heavy metal contamination, from either external factors or historical use of chemicals on the farm, the producer shall permit the CB (DOA) to sample water, soil or products for residual analysis at the expense of the producer.

3. Spray equipment used in conventional farming cannot be used in organic production.

4. Agriculture machines used in conventional farming, such as harvesting machines and threshing machines, may be used in organic production provided that they are cleaned before use in organic production.

Article 16. Wild Products

1. Wild products means Products produced from wild plants or animals without any cultivation.
2. Operators shall only collect or harvest wild products from a clearly defined area where prohibited substances have not been applied.
3. Chemicals prohibited in organic production must not have been used for at least 3 years in the collection or harvesting area.
4. The collection or harvesting area shall be at least 25 meters from conventional farms, and other sources of pollution and contamination.
5. Harvesting of wild products is only permitted when it does not have a negative impact on the environment, and does not endanger plant or animal species.
6. The producer or operator who applies for wild product certification shall be a member of the community who has been approved by the local community as a producer or operator who has the potential to harvest the product in a sustainable manner.

Article 17. Processing and Handling Standards

1. All steps of handling and processing must be inspected and certified by the CB (DOA).
2. In case a producer packs his own organic product and/or processes only his own organic raw materials as a small processor (the product is not less than 95% organic ingredients), this handling and processing shall be simultaneously inspected and certified together with the farm inspection and certification. The producer shall notify the CB (DOA) if he packs or processes his own products.

Group III
Operators and Sub-Contractors

Article 18. Operators

1. An operator who sells packaged organic products without opening and re-packing such products is exempt from CB (DOA) certification.
2. An operator shall inform employees and other responsible individuals of these Standards, and shall provide them with the necessary training to apply these Standards.
3. An operator shall maintain records indicating the source of organic materials, handling/processing documents, the stock of organic materials and finished products, and an account system including the purchase of organic raw materials and the sale of

finished organic products. The records should be clear and available for CB (DOA) inspection.

4. An operator shall retain all documents which indicate that the organic raw materials used in handling/processing have been certified by the CB (DOA).

Article 19. Sub-Contractors

A sub-contractor is not require to apply for CB (DOA) certification, but shall be subject to a contractual agreement with the contracting operator. Sub-contractors shall comply with the CB (DOA) Processing and Handling Standards and allow the CB (DOA) access to inspect their records and facilities. The contracting operator and the owner of the finished product shall apply for certification and be responsible for paying inspection fees and for ensuring that the subcontractor is in compliance with these Standards.

Group IV
Production, Preservation, Packing and Transportation

Article 20. Raw materials, Ingredients, and Additives

1. Raw materials shall be organically certified products.

2. In case organic raw materials are insufficient, the CB (DOA) may allow the use of raw materials from conventional sources as ingredients. The operator shall inform the CB (DOA) of the use of such materials and may be subject to examination.

3. Any individual ingredient in a processed product must be either organic or conventional, and cannot be a mix of the two.

4. Finished organic products which contain non-organic ingredients may be certified as organic where the proportion of organic ingredients:

    a. are not less than 95% by weight, excluding water and salt and other allowed ingredients of not more than 5%;

    b. are not less than 70% by weight, excluding water and salt and other allowed ingredients of not more than 30%.

5. The use of additives and processing aids should be minimized. When necessary, only additives and processing aids listed Appendix 2 are permitted. Additives and processing aids which are not listed in Appendix 1 are permitted if the operator reports to the CB (DOA) for examination and approval according to Guidelines for Evaluation of Additives and Processing Aids in Appendix 4.

6. The following substances are not allowed for food processing: saccharin; borax; monosodium glutamate; synthetic anti-oxidants; synthetic preservatives; synthetic flavours; or bleaching agents (sulfur dioxide).

7. Raw materials from conventional sources, additives, processing aids, micro organisms and enzymes used in the processing of organic products shall not be GMOs. 8. Vitamins and minerals shall not be used in organic processing.

Article 21. Processing Systems

1. The following processes are allowed:

   1.1. Physical processes such as milling, pressing (liquid extraction), and oil extraction;

   1.2. Biological processes such as fermentation;

   1.3. Wind drying, sun drying, drying by heat, frying, stir frying, evaporation, and smoking;

   1.4. Extraction, only by water, ethanol, animal and plant oil, vinegar, carbon dioxide,

   nitrogen or carboxylic acids;

   1.5. Precipitation;

   1.6. Filtration;

2. Filtration substances shall not be made of asbestos, or any other substance that may negatively affect the product.

3. Allow to use Atitlan for increasing physiological maturity products.

4. Radiation of organic produce and products is prohibited.

5. Waste from processing shall be managed appropriately to have minimal impacts on the environment. When appropriate, waste should be reused.

6. All equipment, containers, and processing methods shall be clean and hygienic and there shall be measures in place to prevent contamination from microorganisms, pests, and chemicals.

7. Aluminum containers are not permitted for alkali food processing.

8. If the same processing equipment, machines, and areas are used for the processing of conventional product and organic products, the operator shall:

a. Not process conventional and organic products at the same time;

b. Clean all equipment and machinery before processing organic products; and

9. Only use cleansing agents listed in Appendix 1 (part 4) for cleaning containers, equipment, and processing areas.

Article 22. Storage and conservation of Agriculture

1. Location of storage and conservation of organic products should be revised and inspected by the department of agriculture. In the case that the location of storage and conservation is situated out of the farm or enterprise the owner should inform the department of agriculture.

2. Organic agriculture yield and products and agricultural products under chemical use or general agro-products, those are not certified by standard office should not be mixed together, except the one putting in the case or cover with specific characteristics or with different tags starting from initial transportation to the hands of consumers.

3. The harvest of organic agricultural products using as raw material for processing should attach with tags with written sign: organic products with the exceptive that farms produce only organic products already certified by the department of Agriculture.

4. Permit to store and conserve agricultural products in air conditioned storage room using carbon dioxide, nitrogen and oxygen gases.

5. Permit to use traditional and conventional methods of storage conservation such as using dry leaves of either dry pepper mixed together to store milled rice.

6. Allow to store agriculture products using no air hermetic methods (sucking air out) or hot air dried like carbon dioxide.

7. Allowing to conserve agricultural products using low temperature cooling system (Refrigeration).

8. Control of insects and diseases vector in the storage room of agricultural products with the following principles of management:

   8.1. The entrepreneurs should apply prophylactic measures such as: cleaning of store house, destroy the habitat of storage insects and rodents.

   8.2. Allow to use mechanical, physical, biological control methods and specific products as mentioned in Appendix (part 3).

   8.3. Products not specified in appendix part 3 could be authorized to utilize after inspecting by department of agriculture according to the manual of evaluation of

agricultural inputs in the appendix 4. The entrepreneurs should inform in advance the department of agriculture before using the products.

8.4. In the case that it is necessary to use chemical insecticide to control storage insects in the store house. The using insecticides should have shorter period of residual effect and the entrepreneurs should bring out isolate the organic products out of the store before spraying chemical pesticides and bring it back to the store when assuring that there were no chemical residues, no contamination to the organic products. Every chemical application should be recorded correctly.

In case there is some doubt of contamination, the department of Agriculture determines the inspection of residues in the products and the entrepreneurs will be responsible for the payment incurred the said inspections.

Article 23. Packing Standards

1. Materials used for packing organic produce shall never be used for packing chemicals, fertilizer, or any substance which may harm a consumer's health.
2. Packing materials shall not be treated with chemicals or fungicide.
3. Packing materials for finished products shall be clean, and shall never have been used for packing any other food or materials, with the exception of glass containers.
4. Packaging materials which can be recycled should be chosen over non-recyclables.
5. The use of multi-layer packaging is not recommended.
6. It is prohibited to use Styrofoam for packaging organic products.

Article 24. Transportation Standards

Transportation of organic products with conventional products is permitted, provided that the organic products are clearly labeled and packed in a way which prevents contamination.

Group V
Organic Agriculture Inputs

Article 25. Commercial Inputs

These Standards are applied to input certification only when the input operator applies for CB (DOA) certification directly. The Standards do not apply to farm certification or the consideration of inputs used on the farm by the producer.

1. Commercial inputs may be certified if the composition and processing or collection of the input is in compliance with these Standards or the Guidelines for the Evaluation of

Additional Inputs to Organic Agriculture and Processing Aids for Organic Processing in Appendix 4.

2. In case the input poses a risk of heavy metal contamination, the operator shall provide an analysis of the heavy metals in the input for CB (DOA) consideration. The CB (DOA) may not certify inputs which will cause heavy metal accumulation exceeding acceptable levels, as outlined in Appendix 5.

3. The input operator shall have clear information regarding the advantage and effectiveness of the input for CB (DOA) examination.

4. The composition of CB (DOA) certified inputs shall be clearly marked on the packaging or product recommendation document, including all conditions and restrictions placed on the use of such inputs.

Group VI
Labelling and Sealing

Article 26. Standards

1. Organic products certified by the CB (DOA) can be labeled as ‘‘organic products’’ and use the DOA seal.

2. Only organic products certified by the CB (DOA) can be labeled with the DOA seal.

3. Products grown during the conversion period cannot be labeled with the DOA seal.

4. Using the DOA seal as a product brand name is prohibited. The words specifying the organic certification and the DOA seal together shall not exceed ¾ three quarters of the size of the product brand name.

5. The name and address of the producer and/or operator certified by the CB (DOA) and responsible for final packing should appear on the organic product packaging.

6. Organic products containing not less than 95% of CB (DOA) certified raw materials by weight excluding water and salt can be labeled as ‘‘organic products’’ and use the DOA seal.

7. Organic products containing not less than 70% of CB (DOA) certified raw materials by weight excluding water and salt can be labeled as ‘‘organic products’’, but can be labeled as products made with organic raw materials and use the DOA seal. The percentage of organic ingredients contained in the product shall be listed as close to the DOA seal as possible.

8. If a product contains less than 70% of CB (DOA) certified raw material, it cannot be labeled as ‘‘organic products’’, certified by the CB (DOA) as such, or use the DOA seal. Any CB (DOA) certified organic raw material used in the production of the product can be listed in the ingredients and appear on the packaging of the product with CB (DOA) approval. Such products shall be subject to inspection by the CB (DOA).

9. The packaging of processed organic products shall indicate the production date and/or expiration date, and net weight.

10. The ingredients contained in processed organic products shall be listed in an ingredient list. Product ingredients shall be listed in percentage ascending by weight. Organic ingredients and additives will be identified in the ingredient list.

11. Inputs certified by the CB (DOA) shall use the DOA seal.

12. The DOA seal can only be used to indicate that a product is certified organic, or contains certified organic ingredients. The DOA seal cannot be used to indicate that a product is free from genetically modified ingredients.

13. Prior to printing, a producer and/or operator shall submit the lay-out of a product label to the CB (DOA) for approval.

Group VII
Evaluation, Inspection and Certification of Organic Agriculture

Article 27. Evaluation, Inspection and Certification

The Department of Agriculture, Ministry of Agriculture and Forestry, is responsible for the evaluation, inspection and certification of organic agriculture in Lao PDR.

Group VIII
Policies toward those to have performed well and Measures against violator

Article 28. Policies toward those to have performed well

Individuals or Organizations who have performed well in the area of organic agriculture will receive awards were deemed reasonable by the DOA.

Article 29. Measures against violator

Individuals or Organizations who violate these Organic Agriculture Standards will be punished by way of a warning letter, education, fine or penalty, as provided for by the Lao Agriculture Law.

Group IX
Final Provisions

Article 30. Implementation

The DOA is responsible for the implementation this Decision of the Minister and must report on the results of such implementation to Ministry of Agriculture and Forestry according to the specified time.

Article 31. Effectiveness

This decision of the Minister shall be effective from the date of its signature.

Minister of Agriculture and Forestry
Dr. Siene SAPHANGTHONG

Appendix 1 – List of Approved Inputs Used in Organic Production

- ✓ = Permitted as organic practice and input in organic farming
- ! = Use with caution as specified in this Appendix

Part 1. Inputs used for fertilizers and soil conditioners

Input		Details/Restriction
Bone meal	!	Animal or fish bone meal can be used as a source of phosphorous and nitrogen for soil. Slightly alkaline.
Molasses	✓	Use in composting green fertilizer as microorganisms' food.
Vegetable seed cake	!	Organic waste from oil extraction such as peanut, soybean, neem, custard seed. The seed cake is rich with nitrogen. Best used after composting. Direct soil application could harm crops.
Rice husks	!	Good for mulching. Can be used to improve clay soil but should be mixed with other materials because it is low in nutrients, has poor water retention, and is slow to decompose.
Industrial waste	!	Use in composting but needs to report source.
Wood ash, Rice husk ash	!	Used to raise soil pH and as a source of potassium and phosphorous. Don't use with seedling.

Saw dust	!	Mix with soil to improve aeration and water retention but slow to decompose. Should be composed before using.
Micro organisms	✓	Except GMOs.
Dolomite	✓	Can be used to raise soil pH. If used to correct magnesium deficiencies avoid over application due to toxicity.
Animal dung	!	See animal manure.
Mushroom Manure	✓	Saw dust and other organic waste from mushroom production.
Bio-fertilizer	✓	Substance with micro-organisms helps to breakdown nutrients or makes nutrients available to plants.
Micro nutrients	!	Includes synthetic nutrients such as copper, cobalt, sulphate, selenium, boron, manganese, molybdenum, zinc, iron, iodine. Use when necessary or when there is a clear micro nutrient deficiency. Nitrate and chloride forms are not permitted.
Liquid Bio-fertilizer	✓	Liquid fertilizer from composting organic residue to create natural microorganisms. Apply by spraying or put into soil.
Natural nitrogen fertilizer	!	Sources include blood meal, blue-green algae, vegetable meals, neem cake, green manure, and chicken manure. Use in appropriate amounts by consideration of nutrient balance in the soil.
Green manure	✓	Such as sesbania, sunhemp, legume crops.
Natural potassium fertilizer	!	Such as wood ash, rock dust.
Natural phosphorous fertilizer	!	Such as bone meal, dried sea weed, chicken manure, bat manure, wood ash, vegetable seed meal.
Chicken manure pellet	!	Allow only from free-ranged chicken farm. Check source and nutrient level first.
Bat manure	!	Application of non-aging manure is prohibited, except when the manure is treated with heat and is dried. Do not expose manure to sunlight as nitrogen is lost through volatilization. Store in shade and put dried leaf or straw underneath. Addition of rock phosphate can increase nutrients. Apply to soil when soil has appropriate moisture

		content.
Mineral fertilizer (nature)	!	Allow only natural form. Chemical processing is prohibited. Use as soil supplement only.
Compost	✓	Helps to kill weed seeds in animal manure. Allow only compost with ingredients of organic materials listed in this Appendix. Urban waste compost is prohibited.
Compost from Bio-gas waste	✓	The waste product from bio-gas production has an average nutrient content of N = 0.13%; P2O5 = 0.01%; K2O = 2-3%. If bio-gas compost is used alone, a minimum of 6 ton/ha is recommended.
Compost from mushroom straw	✓	Straw from conventional farm can be used.
Lime stone, marl (CaCO3)	!	Use to correct soil pH. Should use in ground form. Burned lime (CaCO2) is not allowed to use for soil improvement because of its severe activity.
Crop Rotation	✓	Rotations should use different crop types to achieve a balanced nutrient uptake. Crops with low to high nutrient uptake are (1) legumes, (2) roots, (3) leaves, (4) fruit, (5) cereals.
Straw and natural mulching materials	✓	Natural materials such as rice straw, dried leaves and grass can be used. Helps to reduce the impact of rain on soil surface, control weeds, reduce evaporation, control soil erosion, maintain soil temperature, and may add to soil fertility.
Gypsum	✓	Use as soil amendment and cheap supplementary mineral for calcium deficiency. Only natural mineral form is allowed. Chemical processing is prohibited.
Rhizobium	✓	Mix with legume seed before planting. Dissolve in a 30% sugar solution of water or water with milk powder and soak with the seed before planting.
Blood Meal	!	Nutrient value N-P-K = 12-1.5-0.6
Soil improvement materials	✓	Natural materials used to improve physical, chemical or biological characteristics of the soil. Includes rice husk and

		straw, corn stalks, sawdust and bean pod etc. Care should be taken not to create nitrogen competition with crops.
Fish residue	!	Use for composting.
Plant and vegetable residue	✓	Use for composting.
Golden snail		Fermented and used as hormone.
Graphite	!	Source of potassium.
Rock phosphate	!	Phosphate source but difficult to dissolve and slow to release nutrient. Better to grind to 100 meshes and mix well in soil.
Volcanic rock	!	Natural mineral, e.g. pumice diolite, zeolite, perlite, bentonite, etc. Use in ground form as supplementary minerals for soil improvement.
Magnesium rock	!	Use for soil improvement.
Azolla	✓	High in nitrogen and is fast to decompose. 80% of the nutrient is released within 8 weeks after plowing.

Part 2. Products and Methods Used for Pest, Disease, Weed Control and Growth Regulators

Input		Details/Restriction
Sticky insect trap	✓	Should be applied to a yellow material to attract insects (can be 85% effective).
Sulfur	!	Used to control fungus but is acid forming and can burn leaves if applied in hot weather.
Chitin	✓	Must be from natural source such as sea animals, e.g. shrimp and crap shell. Must not contain prohibited substances.
Gibberellic acid	✓	Use as growth regulator. Allow only if made from a fermentation process without using synthetic substances and GMOs.
Micro organisms	✓	Except GMOs.

Copper sulfate	!	Mix 19 gm/18 liter of water to soak seed for fungus control. It must not be stored in metal containers. For rice seed soak for 24 hours and rinse with water before germinating.
Sodium bicarbonate	!	At mixtures between 5-10 gm/l can be used against various fungus and molds.
Potassium permanganate	!	At mixtures of 7 gm/7 liter can be used as a fungicide.
Marigold	✓	Companion crop for nematode control.
Beneficial insect (predator, parasite)	!	Biological control. Use insect to control natural pest.
Coconut preparation	✓	Use as natural hormone.
Vinegar	✓	Use for spraying to control disease and insects. Dilute before using.
Bordeaux mixture	!	Used as a control for fungus and bacteria. Be careful about excessive copper accumulation in the soil. No visible residue is allowed on harvested produce. The ratio of copper sulfate to burnt lime to water varies depending on use; - normal crops 40:40:4 - copper sensitive crops 40:120:4 - short life crops 10:30:4 Once mixed it should be used immediately. It can be toxic to succulent plants.
Bacillus thuringensis (Bt)	✓	Except GMOs.
Plastic	!	Use when necessary such as for wrapping fruits or soil mulching.
Cover crops	✓	Should be a legume crop to control weed and prevent soil erosion, as well as to improve water infiltration and retention.
Crop rotation	✓	Helps prevent insects, disease, and weed

		infestations.
Repellent plants	!	Such as citronella grass.
Pyrethrums	!	Natural pyrethrums used for insect control.
Pheromones	✓	See ‘‘Insect attraction agent’’.
Tobacco	!	Tobacco tea is allowed for insect control and soaking seeds before planting. Pure nicotine is prohibited because nicotine is highly toxic to warm blooded animals (LD50 = 50).
Derris spp.	!	Less toxic than tobacco but can irritate the skin. Controls beetles, worms, and flies. LD 50 = 132. When used with leafy vegetables, there must be at least 7 days withdrawal period before harvest. Must use with caution because is it toxic to cold blooded animal such as fish.
Mulching	✓	Use of natural materials such as rice straw, dried leaves and grass to control weeds.
Viruses	✓	E.g. NPV virus. Use for insect control but must not be GMOs.
Potassium soap Soft soap	✓	For control of sucking insects such as aphids. May cause burning of plants if applied when temperature is high.
Sodium soap Hard soap	!	Less effective than soft soaps. Could have negative effects on the soil.
Sticking Agents	!	Use soft soap or natural soap berry.
Growth stimulant	✓	Only natural source is allowed, e.g. Gibberellic acid, indole acetic acid (IAA) and cytokinin.
Insect attraction agent	✓	Substance used to attract insects into trap, e.g. fruit fly. Use as method to reduce insect population. Must not be combined with chemical pesticide.

Botanical extracts	!	Must use with caution because some botanical extracts may harm beneficial insects.
Neem	!	Use for insect control.
Nematode (for pest control)	✓	For control of pests in orchards such as worms.
Ethyl alcohol	✓	Spray for insect control.
Hormone	✓	See ‘‘growth stimulant’’.

Part 3. Products and Methods Used for Pest Control in Storage

Input		Details/Restriction
Pest traps	✓	Mechanical pest traps. Must properly dispose of the dead bodies.
Light trap	✓	Used to attract insects.
Wood ash	✓	Mix with seeds for insect control.
Motor oil (used)	!	Used as an insect trap with black light.
Vegetable oil	✓	Used in seed storage.
Black light	✓	Used to attract night insects.
Pyrethrin (Extracted from natural pyrethrum)	!	Used for insect control during storage. Must not come into contact with organic products.
Pheromones	✓	Substance used to attract insects into traps.
Ultra sound	✓	Used for insects and animal pests.

Part 4. Products Used as Cleansing Agents and Disinfectants

Input		Details/Restriction
Dish washing detergent	✓	For cleaning of containers and equipment used in food processing.

Detergent	✓	For cleaning equipment and space.
Ethyl alcohol	✓	For cleaning containers.
Hydrogen peroxide	!	For disinfecting processing equipment only. Must wash equipment with hot water before using for processing.

Part 5. Additives Used in Products for Pest Control

Input		Details/Restriction
Citrid acid	✓	Preservative, pH adjustment
Methyl arahydrobezoate	✓	Preservative
Propyl parabezoate	✓	Preservative
Polysorbate	✓	Emulsifier

Appendix 2 – List of Approved Additives and Processing Aids Used in Food Processing

Part 1. List of Products Used as Additives and Carriers

Product	Product group	Detail/Limitation
Calcium carbonate (E170)	Unrestricted	
Sulphur dioxide (E220)	Wine	May not be added to wine at levels greater than 100 ppm. The level of free sulfites may not exceed 35 ppm in final product.
Potassium metabisulphate (E224)	Wine	
Lactic acid (E270)	Fruit/vegetable	Concentrated fruit/vegetable juice & fermented vegetable products.
Carbon dioxide (E290)	Unrestricted	
Ascorbic acid (E300)	Fruit/vegetable	If not available in natural form.

Tocopherols (E306)	Unrestricted	Must be derived from vegetable oils.
Lecithin (E322)	Unrestricted	Obtained without use of bleaches and organic solvents.
Citric acid (E330)	Fruit/vegetable/wine	Used for taste improvement in jam production, fruit juice, vegetable juice and pickles. Not more than 1 gram/liter is permitted. Also used when drying vegetables and fruits to prevent browning at volumes of 0.1-0.5%. Used in wine, not more than 1 gram/liter.
Tartaric acid (E334)	Wine	Allowed only from natural source.
Sodium tartrate (E335)	Cake/biscuit/confectionery	
Potassium tartrate (E336)	Cereal/cake/biscuit/confectionery	
Mono calcium phosphate (E341)	Cereal	Allowed for raising flour only.
Ammonium phosphate (E342)	Wine	Restricted to 0.3 gm/l
Alginic acid (E400)	Unrestricted	
Sodium alginate (E401)	Unrestricted	
Potassium alginate (E402)	Unrestricted	
Agar (E406)	Unrestricted	
Carrageenan (E407)	Unrestricted	
Locust bean gum (E410)	Unrestricted	
Guar gum (E412)	Unrestricted	
Tragacanth gum (E413)	Unrestricted	

Arabic gum (E414)	Unrestricted	
Xanthan gum (E415)	Fruit/vegetable cake/biscuit	
Pectin (E440)	Unrestricted	Use din jam production.
Sodium bicarbonates	Cake/biscuit/confectionery	
Sodium carbonates (E500)	Cake/biscuit/confectionery	
Potassium carbonates (E501)	Cereal/cake/biscuit/ confectionery	
Ammonium carbonates (E503)	Cereal/cake/biscuit/ confectionery	Used as leavening agent
Magnesium carbonates (E504)	Cereal/cake/biscuit/ confectionery	
Potassium chloride (E508)	Fruit/vegetable	Used only in frozen & canned fruit/vegetables, vegetable sauces, ketchup, mustard.
Calcium chloride (E509)	Soybean/fruit/vegetable	
Magnesium chloride (E511)	Soybean	
Calcium sulfate (E516)	Soybean/cake/biscuit	
Ammonium sulfate (E517)	Wine	
Argon (E938)	Unrestricted	
Nitrogen (E938)	Unrestricted	
Oxygen (E941)	Unrestricted	
Corn sugar	Confectionery	Use only when necessary
Honey	Unrestricted	

Natural vinegar	Unrestricted	Must have acetic acid content at least 0.5%. Used as food preservative but product still needs to be pasteurized.
Natural flavour	Unrestricted	Such as shore floribunda
Natural preservative	Unrestricted	Preference to organic sources. Must not be produced by chemical process and using any synthetic solvent and carrier or any synthetic preservatives.
Food coloring (Natural sources)	Unrestricted	Such as green from pun dan leaf, red from hibiscus, yellow from turmeric, pruple/blue from an-chan, orange from kam-sad seed.
Salt	Unrestricted	From uncontaminated source only
Micro-organisms	Unrestricted	Must not be from GMOs.

Part 2. List of Products Used as Processing Aids

Product	Product group	Detail/Limitation
Calcium carbonate/Lime water (E170)	Unrestricted	Stabilizer in fermented/pickled fruit and vegetable. Prepare from 1 teaspoon of calcium carbonate and 1 liter of water, stir and wait until sediment settle. Use only the top part.
Tannin (E181)	Wine	
Tannic acid (E184)	Wine	Used as a filtration aid.
Sulfur dioxide (E220)	Wine	
Carbon dioxide (E290)	Unrestricted	
Lecithin (E322)	Cake/biscuit/confectionery	Used as a greasing agent.
Tartaric acid & salt (E334-7)	Wine	

Sodium carbonate (E500)	Sugar	
Potassium carbonate (E501)	Fruit/vegetable/wine	
Magnesium chloride (E511)	Soybean	
Sulfuric acid (E513)	Sugar	Used to adjust the pH of water
Calcium sulfate (E516)	Unrestricted	Used as a coagulation agent
Sodium hydroxide (E524)	Sugar	
Silicon dioxide (E551)	Fruit/vegetable/wine	
Talc (E553)	Unrestricted	
Beeswax (E901)	Unrestricted	
Carnauba wax (E903)	Unrestricted	
Nitrogen (E941)	Unrestricted	
Asbestos free filter materials	Unrestricted	
Bentonite	Fruit/vegetable/wine	
Casein	Wine	
Diatomaceous earth	Fruit/vegetable/sugar	
Kaolin	Unrestricted	
Perlite	Unrestricted	
Ethanol	Unrestricted	Used as a solvent
Ethylene	Fruit	Used as ripening agent. Only non-synthetic sources are allowed
Gelatin	Fruit/vegetable/wine	Used in jam for texture stability
Isinglass	Wine	
Vegetable oils	Unrestricted	

pH adjusters	Unrestricted	Must be from natural sources such as citric acid, sodium bicarbonate, or vinegar
Enzyme	Unrestricted	Must be from natural sources and not produced from GMOs
Micro-organisms	Unrestricted	Must not be from GMOs.

Appendix 3 – Guidelines for the Evaluation of Additional Inputs to Organic Agriculture

Rationale

Inputs used in organic agriculture shall be clearly checked and evaluated to determine whether they are incompliance with CB (DOA) Standards. Particular attention will be paid to inputs that are not listed in these Standards or in the list of CB (DOA) Approved Inputs prior to use. Only inputs that are in line with this Guideline can be permitted by the CB (DOA).

Definition

Input means a product used in organic production such as a fertilizer, pesticide or other effective substance that is natural in origin.

1. Information or Documentation: Producers shall maintain all documents relating to the components and processing of inputs and any other relevant data relating to inputs used for examination by the CB (DOA). If the documents are not sufficient, the CB (DOA) may not allow the use those inputs.

2. Evaluation of on farm inputs: Inputs produced from the residue of plants, animals and micro-organisms, both on and off the farm, maybe approved if the following criteria are met:

2.1. The use of the input is necessary to protect the quality of produce.

2.2. The materials or ingredients are of natural origin and the process is in compliance with these Standards.

2.3. The input is bio-degradable

2.4. The use of the input does not have negative effects on humans, animals, beneficial insects,

living organisms in the soil, or the environment.

2.5. The use of the input does not affect the quality or safety of organic products. In case the input is complex and difficult, CB (DOA) may apply the IFOAM Criteria to Evaluate Additional Inputs to Organic Agriculture as a guideline for approval.

3. Evaluation of commercial inputs: Commercial inputs may be approved if the following criteria are met:

3.1. The use of the input is necessary for protecting the quality of produce.

3.2. The materials or ingredients are of natural origin. (For example, organic matter that is not genetically engineered and natural minerals).

3.3. The collection and processing of raw materials for input does not affect the sustainability of balance of the ecology.

3.4. The input is bio-degradable.

3.5. The use of the input does not have negative effects on humans, animals, beneficial insects, living organisms in the soil, or the environment.

3.6. The use of the input does not affect the quality or safety of organic products. In case the input is complex and difficult, the CB (DOA) may apply the IFOAM Criteria to Evaluate Additional Inputs to Organic Agriculture as a guideline for approval.

Appendix 4 – Guidelines for the Evaluation of Additives and Processing Aids for Organic Processing

Rational

In organic processing, processing methods that maintain the nutritional value of organic food products without use of additives and processing aids should be used. If producers and/or operators need to use additives or processing aids, the additives or processing aids shall be clearly checked and evaluated to ensure their compliance with these Standards. Particular attention will be paid to additives and processing aids that are not listed in these Standards or the list of CB (DOA) Approved Additives and Processing Aids. Only additives and processing aids that are in line with this Guideline will be permitted by the CB (DOA).

Definition

- **Additive:** means any substance which is added to a product to affect its keeping quality, smell color, taste, consistency or other qualities. Additives may affect a product's inherent qualities and may be part of the final product.

- **Processing aid:** means any substance which is added during processing and the removed from the final product. Processing aids are not consumed as an ingredient and normally are not left as residues in the final products, or are left in very small amounts. Examples include filtration aids.

- **Solvents.**

Method of evaluation

1. Information or Documentation: Producers and/or operators shall maintain documents relating to the source of raw materials, components, processing methods and other information relevant to the production of additives and processing aids for examination by the CB (DOA). If the documentation is insufficient, CB (DOA) may not allow the use of those additives and processing aids.

2. Evaluation: Additives and processing aids may be approved if the following criteria are met:

2.1. The use of the additive and/or processing aids is essential to product. Some products cannot be processed or preserved without the use of additives and processing aids.

2.2. Raw materials or ingredients are of natural origin.

2.3. The processing method in question is in compliance with the CB (DOA) Standards.

2.4. The additive and/or processing aid is not a genetically engineered product.

2.5. The additive and/or processing aid is harmless to consumers.

2.6. The additive and/or processing aid do not reduce the authentic quality of the product.

2.7. The additive and/or processing aid does not have a negative effect on the environment.

In case additives and processing aids are complex and difficult or are not of natural origin, the CB (DOA) may apply the IFOAM Criteria to Evaluate of Additives and Processing Aids for Organic Food Products as a guideline for approval.

Appendix 5 – Guideline for Consideration of Heavy Metal in Organic Fertilizers

Heavy metals may be found in compositions of chemical pesticides and herbicides, fertilizer, including animal manure, compost, natural minerals, animal feeds and medical products used on the farm. The continuous application of such inputs may increase the amount of heavy metals in the soil. The accumulation of heavy metals often occurs on organic farms because of historical use of agro-chemicals, and current application of natural inputs. The excessive and non-precautionary use of inputs may cause heavy metal accumulation that will affect organic products.

Permitted Maximum Levels of Heavy Metals

Heavy Metals	**In manure & fertilizer** (ppm – mg of substance/1 kg of fertilizer)
Arsenic	15

Cadmium	20
Chromium	1000
Copper	400
Lead	250
Mercury	2
Nickel	100
Zinc	1000

Appendix 6 - Procedure for Standards Revision

Rational

The process of revising the Organic Agriculture Standards shall be transparent and open to all relevant persons to make comments. The Standards Committee has established this Procedure for revising the Organic Agriculture Standards.

Scope

1. Call for Comments
2. Comment Summary Round 1
3. SC's Preliminary Consideration to the Comments
4. First Draft of Standard Revision
5. Call for Additional Comments to the First Draft
6. Final Draft of Standard Revision
7. Approval of the New Revised Standards by the General Assembly
8. Time-Frame for Standard Revision

Authority and Distribution

- CB (DOA) Standard Committee has the authority to issue and modify this policy.
- Interpretation is done by the CB (DOA) Manager.
- This policy is an internal document to be distributed to the GB, EB, SC, CC, CB (DOA) staff, producer, operators and prospective inspectors. For the general public, a written letter must be submitted to the Manager before the policy can be disclosed.

Procedure

1. Call for Comments

1.1. Call for comments on the revision of the Organic Agriculture Standards is open to all individuals, regardless whether they are a CB (DOA) member. Comments can also be proposed by CB (DOA) staff, inspectors and the Certification Committee.

1.2. Comments must be submitted in writing to the CB (DOA) office, indicating name and information supporting the comments.

2. Comment Summary Round 1

The CB (DOA) office staff shall compile and summarize comments and submit them to the Standard Committee. Comments can be categorized into 2 groups:

2.1. Comments principally in conflict with organic farming; and

2.2. Comments relevant to the Organic Agriculture Standards.

The summarized comments will be separated into two files and will have a summary sheet as a cover page.

3. SC's Preliminary Decision to the Comments

The Standards Committee shall consider all comments and make a decision. The Standards Committee may:
3.1. Drop comments which are principally in conflict with organic farming or which are impractical to implement;

3.2. Incorporate comments into the revised Organic Agriculture Standards;

3.3. Request additional information, and assign CB (DOA) staff to compile additional information based on the following procedures:

3.3.1 For unclear issues, ask for additional information from the commentators and then follow procedures of 2 and 3.

3.3.2. For issues requiring further consultation, ask for comments from relevant specialists.

4. First Draft of Standard Revision

SC shall draft the first revised Organic Agriculture Standards from all of the comments and additional information.

5. Call for Additional Comments to the First Draft

A call for additional comments on the first draft of the revised standards should be limited to the following groups:

5.1. CB (DOA) members

5.2. Other relevant organizations such as producer groups, operator groups, academics, consumer groups, green shops, government agencies, media etc. There should be around organizations for each group.

5.3. CB (DOA) certified producers and operators.

5.4. Interested persons who contributed comments for the standard revision process described in 1.1.

6. Final Draft of Standard Revision

SC shall consider all additional comments and incorporate relevant comments into the final draft to be submitted to the CB (DOA) General Assembly for approval.

7. Approval of the New Revised Standards by the General Assembly

CB (DOA) members at the General Assembly shall consider the final draft and make an approval before an official adoption. The General Assembly shall impose:

7.1. The date of entry into force of the revised Organic Agriculture Standards.

7.2. In case there is a major change in the revised Organic Agriculture Standards, a time period for adaptation to implement the major change may be granted to producers/operators as follows:

> 7.2.1. The producer/operator may continue to use raw materials produced and certified in accordance with the previous standards for a period not exceeding 1 year after the new standards have entered into force.
>
> 7.2.2. The producer/operator can market processed products certified in accordance with previous standards until their expired date.

7.3. The date of entry into force and the deadline of the time period to implement major change as indicated in 7.2 shall be clearly stated in copies of the Standards for distribution to producers/operators.

8. Time-Frame of Standard Revision

A two year time period will be allowed for the process of revising the Organic Agriculture Standards.

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