



Quebec Organic Reference Standards

Part 3: Specifications Regarding Organic Production and Preparation

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1. Principles Regarding Set Up of Organic Production Systems

1.1 The Organic Farming Method

Products known under the "organic" or equivalent terms are the result of "organic farming," a method based on the use of agricultural management practices aimed at creating ecosystems that provides sustained productivity, fortuitous weed and pest control due to diverse interdependent life forms, plant and animal residue recycling, crop selection and rotation, and water management. Through this method soil fertility is maintained and improved within a system that maximizes soil activity, as well as procuring the essential nutrients needed by both plants and animals to assure soil resources conservation. Insect and disease control is achieved through promoting balanced host-predator relationships and increasing the population of beneficial insects, undertaking organic and crop control, and also mechanically eliminating harmful organisms or damaged plant parts.

Through setting up an organic production system based on the application of specific and precise production standards, the goal is to produce the best possible agricultural systems, able to ensure sustainability at the social, environmental and economic levels. This production management system is designed to promote the health of agricultural soil systems comprising biodiversity, organic cycles and soil activity. It is for this reason that agricultural operations manage their resources in a cyclical manner, thus maintaining long-term soil fertility and increased organic activity through enhancing the level of organic matter in the soil. The general objective is to limit external contributions and as such avoid the use of fertilizers and chemical pesticides.

Organic production methods cannot sufficiently ensure however that agricultural products will be totally free of chemical contaminants originating from general environmental pollution. It is thus recognized that an operation cannot prevent pollution originating from air, soil, water and other sources under all circumstances. Pollutants penetrating into the soil such as chlorinated hydrocarbons and certain heavy metals entering soils cannot for example be eliminated using organic farming methods. Through the application of organic production methods however it is possible to greatly reduce potential contamination caused by residues from pesticides, agricultural chemicals and veterinary medicines. Moreover, this method results in less environmental pollution, especially that caused by water resource runoff and soil absorption.

1.2 "Organic" Claims

In the past, the goal of organic agriculture is to encourage closer contact between producers and consumers.

Today, however, except for small production volumes sold directly by producers to consumers, most organic products made available to consumers are designated as organic through the use of labelling.

By those interested in this type of agriculture, the term "organic" is generally well understood. Alternate terms such as "bio" and "ecologic" are however used in an attempt to define the organic system more clearly. Meanwhile the English word "organic" is the term most widely accepted by the community as a whole, and to avoid

confusion among consumers any reference to this term will refer to all the equivalent terms.

Rising demand, major increases in production investments and greater distances between producers and consumers have encouraged those within the organic agricultural environment to develop external controls and certification tools. Certification ensures buyers that products originating from organic farming are authentic and officially recognized.

1.3 Requirements for Certification of Organic Products

The growing interest in organic production has led to the development of product certification systems intended to guarantee that those "organic" products produced and sold do in fact originate from operations in which organic methods have been applied to farming or breeding. This serves to ensure that the integrity of these products was maintained at each link in the supply chain between the producer and the end-buyer.

The specifications in this document are considered as the only ones to which operators need comply in order to obtain and retain organic certification for their products on Quebec territory. Their application ensures the credibility of the organic designation.

The certification of organic products is based on the monitoring of production or preparation processes, rather than on the product itself. As such there are no physical, chemical, organoleptic or practical characteristics that can be used with certainty to distinguish organic products from non-organic products. Thus through production method verification it can be guaranteed that products were obtained using organic methods. This monitoring of production "techniques" requires the responsible participation of all parties concerned. As such, those in charge of inspection services are not the only ones ensuring full compliance with regulations. Even though organic products must be submitted to the same safety criteria and standards as other agricultural and food products, it is through being certified as "organic" that the method used in their production is specified.

Adopting organic farming or breeding methods requires a period of transition. Farm operators thus have time to adjust and refine their methods relative to the environment in which they produce their products. They also need some time to re-establish the production support system, whether the existing soil or livestock. This thus allows optimal organic activity to be established while also eliminating major portions of agricultural chemical residues found in soils, manure piles, etc. It also takes time to allow animals to react to changes in their environment. Although this transition period serves to clean the soil of most contaminants, organic farming will not guarantee a total absence of residues from pesticides and other agricultural chemical remanences resulting from them given the prolonged period during which certain conventional agricultural inputs remain in the soil. This can take up to ten to fifteen years.

The rules that govern the granting of organic certification to operators for their products are based primarily on an annual written presentation made to the certifying body. In this document they describe the operations and production techniques used, or for a processing establishment the processing methods used. The applicant must

prepare the document according to requirements set out by the certifying body or its representative.

After having assessed the compliance of this document, the certifying body shall require an on-site inspection of production techniques or processing used by the firms seeking certification. It is through verifying the production system's compliance with the standards specified in the approved specification manual, and ensuring that only permitted substances are used, that the certifier will decide whether to grant an organic compliance certificate for those products evaluated.

2. Prohibitions Regarding Transgenesis and Products Originating from Genetic Engineering (GMOs)

Transgenesis (modification of a genome through introducing DNA fragments, genetic engineering) is incompatible with the principles of organic production. The long-term implications of introducing genetic segments modified by recent technologies into the food chain are still too little known to be acceptable or even used with restraint in organic production.

2.1 The deliberate use or negligent introduction of genetically modified organisms or their derivatives into agricultural systems or organic products is prohibited. This includes animals, seeds, propagation materials, (plants, crop seeds inoculants), agricultural inputs such as fertilizers, soil conditioners, vaccines and any substances intended to protect harvests.

2.1.1 Operators shall ensure that materials and products used do not come from genetic engineering. A written guarantee from suppliers shall be provided to the certifier whenever there is a variety from genetically modified produce, according to the official list available on Health Canada Website:

<http://www.hc-sc.gc.ca/fn-an/gmf-agm/appro/index-eng.php>

2.1.2 For reasons of prevention, all agricultural firms must specify in the production plans they submit annually for approval by the certifying body, any possible risks associated with the potential presence of GMOs. These plans must include measures to be put into place by the firm to control and overcome them, and must be updated whenever any changes occur regarding external or internal factors that might influence the organic integrity of the firm's products.

In crop production, buffer zones, windbreaks, on farm seed production, varieties at different stages of maturity and agreements targeting safety zones are acceptable ways of reducing contamination risks.

2.1.3 Whenever enterprises are carrying out split crop production, it is also prohibited to use genetically manipulated material in the non-organic production zone.

2.2 In processing organic products, the use of inputs, additives, processing aids and ingredients derived from products originating from genetic engineering (GMOs) is prohibited.

3. Transition Period Leading to Organic Certification

The transition to organic agriculture takes into account all the activities undertaken by the operator of a non-organic production system in order to respect the conditions required by these standards, and as such, applies to the farm or production unit as a whole.

Transition periods are to be stipulated for livestock, crop and maple production.

Note that food preparation enterprises are neither subjected to a transition period. Food preparation systems shall however meet these standards in order to be issued a compliance certificate pertaining to them.

3.1 Transition Period Applicable to Crop Production

3.1.1 Before crop production from any given year can be certified as organic, the certification applicant must be able to demonstrate that the system producing these products satisfies the terms of a transition period with the following conditions:

- a) Prohibited substances were not used for a period of 36 months prior to a crop harvest that was intended for certification.
- b) Specifications were fully met, during the entire transition period, the final year having been monitored by a certification body.
- c) The applicant has been given an attestation of pre-certification by an accredited certifier, following an evaluation visit of the site of operations during the production season immediately preceding the harvest to be certified;
- d) During the certification year but before the harvest, the certification body carried out another inspection of the production system.

3.1.2 The length of the transition period may be extended or reduced by 12 months by the certification body in cases where previous usage justifies it.

3.1.3 When certified operators interrupt agricultural operations for at least a year, the production system they operate shall continue to be monitored by their certification body. Should they fail to maintain active files on the production system with the certification body in charge, operators will have to complete a transition period and be given an attestation of pre-certification by an accredited certifier before the organic products it harvests can be certified again.

3.1.4 Land brought back into cultivation after lying fallow for at least three years, as well as those harvest zones consisting of wild and natural plants are not covered by the requirements mentioned above.

3.2. Transition Period Applicable to Animal Production

Prior to animal products being certified organic, the following conditions shall be fully met by the applicant.

- a) Characteristics relative to their feed containing vegetable matter complying with all of these standards;
- b) Section 6.3 requirements regarding animal feed;
- c) The entire application of all requirements for a minimum period of:
 - One year for dairy animals,
 - One year for breeding stock,
 - One year for apiarian farms,
 - One year or a reproductive cycle life for aquacultural products;
- d) All poultry shall be acquired as day old chicks.

3.3 Transition Period Applicable to Maple Production

Prior to maple products being certified organic, the following conditions shall be fully met by the applicant:

- a) No prohibited substances (fertilizer or synthetic pesticides used in forest management) shall have been used within the three years preceding any sap collection leading to maple syrup production destined for certification;
- b) As the operation site constitutes a managed natural environment, it shall, during the year immediately preceding the production to be certified have undergone an on-site inspection by an accredited certifier who following an evaluation, issues the applying enterprise an attestation of pre-certification;
- c) There should not be any mixed maple production (organic and non-organic) within any area producing for certification.

3.4 Plot Transition within an Operation Site

When the surface of a site operated by an agricultural enterprise is not completely devoted to organic production, transition may be done production unit by production unit (e.g. plot by plot, building by building, pond by pond), provided that the specifications standards are fully met for each converted unit. This same approach applies to livestock and storage facilities.

3.5 Transition Plan Applicable to Crop Production

An enterprise that manages an agricultural operation site, of one or more production units undergoing transition, shall prepare a transition plan that will be evaluated annually when the certification body does its monitoring.

3.5.1 The transition plan shall include:

- a) a history of all plots or fields (detailing crops, fertilization, pest control treatments, etc.) or any other production unit;
- b) the current situation and deviations from the standards;
- c) the progressive steps leading to the transition of all units associated with crop production;
- d) the list of changes to be made during transition (e.g. crop rotation, animal waste management, disease and weed control, etc.);
- e) information on transition time limits and the anticipated time line.

3.5.2 The complete transition of a production unit should be done within a reasonable time limit and be carried out using the technical means permitted by these standards.

3.6 Split Crop Production Management

It may happen that at any given time the same operation site contains plots being used for organic crops while others are either undergoing transition or are being cultivated according to non-organic production modes. In this case, the simultaneous existence of similar crops on these various plots shall be managed in such a way that any mixture and contamination is prevented.

3.6.1 Where an enterprise has plots that it farms organically and, at the same site, it has plots that are in transition that is, cultivated by a method other than organic (split crop production), products from the organic production units and those from the non-organic production units must:

- a) be capable of differentiation and distinguishable from each other (general appearance, colour, variety, types, etc.);
- b) be the object of a specific management method designed to prevent mixing and contamination.

3.6.2 Parallel production (where it is impossible to differentiate between organic products and non-organic products) is prohibited.

3.6.3 It is strictly prohibited to make use of genetically modified organisms in any agricultural production activity happening anywhere within the production unit.

3.6.4 Spraying equipment used to apply unauthorized pesticides on unconverted plots shall be thoroughly cleaned and rinsed with running water before being used on admissible products, surfaces under

transition or already converted. However it is recommended that two easily differentiated types of spraying equipment be used.

3.6.5 Products originating from unconverted plots or plots for which exemptions from the standards specifications have been granted shall not be marketed as organic.

3.6.6 Maintenance of machinery and equipment shall be carried out in a manner that will avoid all soil mixing during farming operations.

3.7 Buffer Zones

3.7.1 No buffer zone is necessary when adequate physical barriers (e.g. ditches, hedges, windbreaks or roads) can ensure there is no risk to organic crops of contamination from neighbouring non-organic cultivation.

3.7.2 When a risk of contamination resulting from the spraying of prohibited inputs does exist, then a buffer zone at least 8 metres wide is required in order to separate organic fields from non-organic fields.

3.7.3 Should there be any doubt regarding possible contamination, inspectors could recommend an expanded buffer zones.

4. Organic Production and Preparation Plan

The use of the designation "organic" refers to agricultural and food products resulting from the application of a set of production techniques or from a procedure. To ensure quality control, enterprises wishing to use this designation for their products shall submit a written plan to the certifier, in which they describe the techniques they intend to use, as well as their production or processing plan. Whenever these enterprises sell both organic products and non-organic products, they shall also demonstrate to the certifier, that they have measures in place to prevent any mixing or commingling.

This type of planning has two specific goals:

- a) To ensure that every operator has outlined the way of managing the transition of the enterprise towards an optimal organic resource use system;
- b) To provide the certification body with the information necessary to evaluate the enterprise's transition activities and to make informed certification decisions.

An organic production plan is a document drafted by the operators themselves, in accordance with a format stipulated by the certification body. It describes how the agricultural enterprise is conducted within the context of respecting the standards. Their annual updates would thus reflect changes and improvements made to the enterprise's management system.

Annual inspection provides, within context of the certification program, a comprehensive picture of the enterprise, making it possible to validate the progress made in realizing the organic production plan.

4.1 Organic Crop Production Plan

An Organic Crop Production Plan shall describe the major components of the enterprise's operations in relation to organic practices: soil management, crop rotation, fertilizing, crop protection, harvests and post-harvest procedures.

Organic agriculture involves much more than a production concept with a list of acceptable inputs and banned materials. It is really a management system, an approach that is based on a long-term natural balance of an agricultural enterprise's resources. The increase in the level of organic material and the improvement of its quality are evidence of fertility and balance which will reflect the enterprise's general state of health. An agricultural production plan should normally tend towards a decrease in agricultural inputs, even those considered as being acceptable in organic agriculture.

4.1.1 Every producer shall submit a crop production plan to the certification body.

4.1.2 This organic production plan shall include the following elements:

- a) A detailed map of the farm including the following:
 - the allotment plan for farm plots showing their relation to each other,
 - a logical plot numbering system that also shows areas (in hectares),
 - wood lots, windbreaks, farm buildings and roads, all watercourses showing water run-off direction and geographical north,
 - location of all production and storage facilities;
- b) A description of both envisaged productions and crop rotation plan;
- c) For crop production, a detailed description of seedling sources and/or seedling production methods, seed sources and production problems;
- d) A description of cultivation techniques and types of machinery used; a profile of erosion risks and proposed corrective measures;
- e) A description of the enterprise's fertilization program, including manure management, quantities used application periods, their sources and origins, and composting methods. A description of other production methods aimed at increasing organic matter, such as green manure crops and harvest residue management. A plan to prevent leaching from liquid and solid manure, and environmental protection measures;
- f) A detailed description of all agricultural inputs (fertilizer and crop protection) permitted by the standards, their sources and a justification for their use;

- g) A description of the enterprise's watershed and pollution control measures; including a description of sources and quality profiles of water used for irrigation;
- h) a description of crop protection issues and insect control strategies, as well as examining problems related to past practices;
- i) A description of potential sources of contamination from prohibited substances, problems from neighbouring areas and buffer zones. In cases where enterprise is not fully converted to organic production, a description of the management system to prevent any contamination or breakdown of organic integrity;
- j) A description of inventory management practices and the risks of commingling of organic with non-organic stocks;
- k) For wild crops, a detailed plan of harvest areas of wild plant species and a three-year history of compliance with the standards including a description of the harvesting methods used and proposed measures for protecting wild plant species.

4.1.3 For wild plant and mushroom crops, the organic production plan shall include the following elements:

- a) A detailed plan of the harvest areas;
- b) The location of neighbouring areas that presents a high risk of contamination for the harvest areas;
- c) A history of ongoing compliance with the standards over the last three years;
- d) A description of the harvest methods used;
- e) A description of the planned measures for protecting species that inhabit or frequent the harvest area;
- f) A description of the measures that will be taken to ensure the sustainability of protected plant species; the measures must be consistent with the other existing requirements;
- g) A list of the measures put in place to ensure compliance of the harvested products, which shall include:
 - standard contract to be signed with the subcontractors who have been retained to carry out harvesting operations; this document shall include the name and other contact information of the person in charge, a description of the harvesting operations carried out, the duration of the contract and the commitment to comply with the present standards signed by the parties concerned;

- registry used to record the harvesters identification and the quantities harvested by each of them;
- harvesting instructions to be distributed;
- applicant's plan for visiting all wild-crop harvest areas in the production plan within a maximum period of (5) years.

4.2 Organic Animal Production Plan

Enterprises having livestock integrated within their operations shall describe their practices within an organic livestock production plan.

4.2.1 This plan shall include the following elements:

- a) A detailed description of the sources of livestock;
- b) A description of production methods;
- c) A description of livestock management plans regarding the feeding, health care, breeding and related problems with production in compliance with these standards.

4.2.2 All livestock shall be identified individually or, in the case of small mammals or poultry, by herd or flock; or for bees by hive. Written and/or documentary accounts shall be kept on livestock husbandry and bee colonies, such that audit trails can be carried out within the production system, for the purpose of verification.

4.2.3 The plan shall specifically include the following elements:

- a) The pedigree and/or origin of the livestock;
- b) The source of acquisition for each animal;
- c) A health plan that will be implemented to prevent and limit disease, injury and reproductive problems;
- d) All treatments and medicines administered for any purpose, including quarantine periods and the identification of animals or herd treated;
- e) A list of the feed provided and the source of feedstuffs given to animals;
- f) Livestock movements, including:
 - Stock within the unit,
 - Beehives and bee movement within designated forage areas (indicated on maps);
- g) The sale of animals;

- h) Transport of livestock outside of a production unit;
- i) Slaughter, including description of pre-slaughter management, including handling methods for livestock taken to slaughterhouse, intended to keep stress levels at a minimum, and to ensure drinking water and feed for those kept for more than 24 hours;
- j) Description related to the extraction, processing and storage of all products obtained from the animals.

4.2.4 The plan shall mention all the suppliers of services such as livestock transport, slaughtering, etc. and demonstrate how the activity of each is capable of maintaining the organic integrity of animal production.

4.2.5 The Operator shall undertake the keeping of detailed and up-to-date records relating to the above-mentioned elements.

4.3 Organic Product Preparation Plan

Enterprises preparing organic products shall include the following items:

- a) A description of all activities for which the enterprise is responsible, including but not limited to harvesting, preparation, packaging, labelling, processing, storage and distribution of products with organic content, along with their transport;
- b) A description of all procedures and instructions pertaining to the these activities as well as control measures used within these various steps in order to maintain organic integrity;
- c) A list of all substances and ingredients used in the processing and handling processes for both organic and non-organic products, including ingredients used for curing and smoking;
- d) A schematic flowchart illustrating the general routing of organic products throughout their processing and handling, including an identification of equipment and facilities used;
- e) A description of the risk management system for the prevention of commingling of organic and non-organic products, specifically during transport and storage, and along with references to containers and packaging used;
- f) A description of procedures aimed at preventing any contamination by substances prohibited by these standards, whether manufacturing aids, enzymes, pest control products, cleaning products, and other chemical substances;
- g) A description of infestation problems encountered and the chemical and non-chemical pest control techniques used;

- h) A description of procedures intended to prevent products from undergoing prohibited procedures, such as fumigation, irradiation, etc.;
- i) An explanation of the reasons for using non-organic agricultural ingredients and also a written description of the efforts undertaken to find an organic substitute for any particular non-organic agricultural ingredient used, and any progress made during previous years to eliminate this non-organic ingredient;
- j) A description of water usage during the handling operation, and also water quality analyses carried out by a recognized laboratory;
- k) A description of the internal record keeping system and accounts pertaining to products for which an application for certification is being made;
- l) A written description of efforts undertaken to reduce solid or liquid wastes, and also air emissions produced during handling and processing, and any efforts devoted to recycling, such as using recycled material and reducing packaging;
- m) A written description of any personnel training efforts relative to product preparation.

4.4 Keeping Accounts and Records

4.4.1 Enterprises submitting an application to have their products certified and even those that have obtained certification, shall maintain accounts and records, and make these documents available to the certification body. Enterprises involved in production shall maintain up-to-date records on substances used and also keep accounts of their operations. For those enterprises carrying out operations related to product preparation, records shall include a list of all known operators who sell, transport or store products, from their reception right through to their packaging. These documents shall include all information that could be used to demonstrate compliance with these standards through meeting the following minimal requirements:

- a) Provide traceability for audit purpose for all product ingredients, from raw materials to finished products;
- b) Contain all information related to processing and handling operations undergone by a product before its final packaging;
- c) Be understandable;
- d) Be accessible to inspectors for verification at any time;
- e) Be kept for a minimum period of five (5) years.

4.4.2 For each enterprise applying for certification or possessing an organic compliance certificate, general accounting practices relative to products with organic content shall permit follow-up on all transformation stages,

from agricultural production to retailing, from transport, warehousing, storage, the processing itself, right up to packaging and labelling operations.

4.4.3 Records pertaining to certified products shall contain the following documents:

- a) A copy of an attestation of certification, a valid certificate¹ or an official document having the same legal equivalence, proving that each organic product acquired was duly certified;
- b) Commercial documents such as purchase orders, delivery and invoice slips pertaining to organic products received, showing the nature, quantity and origin of each lot;
- c) For unpackaged products, transporter's bills of lading along with details on transport and storage methods where applicable, used during various moves (e.g.: from one warehouse to another);
- d) Invoices and delivery documents pertaining to all product lots with organic content that are sold and shipped. Appearing on each document for each product should be the name and brand, quantity, lot number, supplier's name, purchaser's name, as well as the name of the certification body that has monitored the most recent operation producing the certified product;
- e) Sales results, recorded in a continuous and regular manner according to fixed accounting periods;
- f) Regular inventory monitoring or merchandise flowcharts;
- g) Hygiene monitoring program for all facilities, accompanied by the list of the products used;
- h) Whenever fumigation operations are required, details of the operation should include date, kind of product used and address of the pest control service carrying out the operation (see conditions relating to fumigation);
- i) Pest control registries (if applicable);
- j) Complaint registry.

4.5 Analytical Tests

Soil or foliar tests are not regularly required but they are strongly recommended. They will however be obligatory in the event that the producer needs to provide

¹ An attestation of certification or a certificate is generally valid for a year, beginning from date of issue. The date of expiry shall always be shown on the document. Should a certificate be valid for an extended period (e.g. four years), it is advisable to ask the certifier for a Lot Transaction Certificate for lots subject to a commercial transaction and/or make sure that the period between the date of the most recent inspection (appearing on the certificate) and the date of the product's purchase is less than a year.

evidence of nutritional deficiencies in order to justify the use of restricted inputs, or whenever some doubt exists regarding soil fertility maintenance.

4.6 General Information

- 4.6.1 Applying organic methods should in no case break any laws. Operators are responsible for ensuring they possess the required authorization they need to carry out the activities in which they are involved.
- 4.6.2 When applicable, a lot number shall be assigned to each product or to each product lot, thus making them easily identified and traceable.
- 4.6.3 For all inputs not included in these standards, an approval from the certifier shall be obtained by the user, prior to use.

5. Crop Production

5.1 Environmental Factors

The organic agricultural production system has been conceived such that food be produced in an optimum manner without recourse to agrochemical inputs. These methods are aimed at minimizing environmental damage and protecting the natural habitat. To accomplish this, one shall:

- Foster the biological cycles of soil micro-organisms as well as other flora and fauna;
- Maintain existing wild habitats, particularly those serving as refuges for any threatened or endangered species;
- Create an environment favourable to the development of beneficial organisms (insects, birds, reptiles, etc.) and to their wellbeing;
- Minimize pollution;
- Consider the social and ecological impact of the enterprise's operations;
- Respect the principles of resource conservation.

5.1.1 The operator shall take measures to prevent accidental contamination from neighbouring areas (e.g. herbicide spraydrift).

5.1.2 Where the possibility of soil and crop contamination exists (e.g. if the production unit is located near a potential source of pollution, a superhighway, etc.), the certification body shall test for hazardous substances.

5.1.3 The Operator shall employ cultivation practices intended to prevent soil erosion.

5.1.4 Land clearing intended to increase areas under cultivation shall respect current municipal forest management regulations. Before beginning work, the operator shall have obtained a cutting permit for this purpose and

shall have consulted an agricultural land clearing specialist. Organic agriculture standards prohibit any excessive and unjustified clear cutting.

5.2 Cultivation Practices and Variety Selection

- 5.2.1 Plant species and their respective varieties must be adapted to soils and to climate; choosing varieties resistant to disease and pests shall be encouraged.
- 5.2.2 Practices used must allow genetic diversity to be maintained or increased.
- 5.2.3 Annual seedlings shall be produced in accordance with specifications contained in these standards.
- 5.2.4 All types of seeds, bulbs, tubers, cuttings, transplants, rootstocks and other planting stock must come from organic sources.
- 5.2.5 In the event that an operator can demonstrate to the certification body that no crop seeds or other planting stock meeting the above-mentioned (organic) requirements were available, the latter may in exceptional cases approve:
 - a) In the first instance, the use of untreated substances (seeds or planting stock);
 - b) Next, the use of seeds or planting stock treated with products listed in Appendix A, Section A1;
 - c) Lastly, the use of seeds or planting stock treated with products other than those listed in Appendix A, Section A1. The producer shall provide proof that attempts have been made to procure untreated seeds or planting stock.
 - d) Perennial plants propagated from perennial stocks are subject to the same requirements and the crop may not be marketed as organic unless managed for two years in compliance with these standards. For strawberries and culinary herbs, this period is reduced to one year.

Seeds originating from buffer zones and from fields undergoing organic transition are accepted within these standards.

5.3 Rotation

- 5.3.1 Over any given time period, rotation is obligatory except for perennial crops.
- 5.3.2 Rotation shall be as varied as possible and include legumes (or fallow fields under rotation that contain legumes), green manure crops and/or deep-rooted plants.

5.4 Fertilization

- 5.4.1 The objective of any fertilization program shall be to maintain or increase soil fertility and the biological activity of the soil.
- 5.4.2 Contributions from organic matter must be sufficient to maintain or, better yet, increase long-term soil humus levels.
- 5.4.3 Organic matter produced within the agricultural enterprise shall form the basis of its fertilization program. When brought in from off-farm sources, manure and other organic matter, composted or not, must have above all originated from organic operations that comply with these standards.

5.4.4 Importing Manure

With the exception of organic compost or commercial manure, not considered as manure imports according to these standards, off-farm manure must meet the following evolving requirements. They take Quebec's specific agricultural context into account, and in the medium term they are intended to match international directives concerning the use of manure in organic agriculture. Thus their goals are the following:

- Make it a priority to use manure not originating from industrial agriculture;
- Make it a priority to use effluents not sourced from non-organic livestock operations neither cultivating nor using GMOs or their derivatives in animal feeds.

5.4.4.1 Off-farm manure to be used as soil amendment or fertilizer in organic crop production, shall be approved by the certification body upon demonstration that manure or other organic matter satisfying the above-mentioned (organic) specifications are not available;

5.4.4.2 When this is the case, the first solution sought should be the use of manure or other organic matter originating from transition or free range livestock operations;

5.4.4.3 If it can be shown that these are not also available then the certifier may approve by exemption with a maximal duration of one year, manure importation:

- From landless livestock production (as defined in Part 2 of the Québec Organic Reference Standards) ;
- And in last resort, from livestock operations in which caged animals are not able to move 360 degrees

5.4.4.4 The kind of livestock raised (animal species) and the data on quantities and manure sources shall be indicated in the records.

5.4.4.5 Manure spreading shall avoid any form of soil pollution. Whenever they deem it necessary, the certification body shall be able to follow changes in soil composition through testing.

- 5.4.4.6 The enterprise shall be able to show that it complies with requirements of the ministère de l'Environnement du Québec stipulated in the *Règlement sur les exploitations agricoles (REA)*.
- 5.4.5 Mineral fertilization must be a supplemental source of fertilization, not a substitute for nutrient recycling.
- 5.4.6 Non-organic fertilizers shall be used in their initial state and without being rendered more soluble by any type of chemical treatment. Low chlorine potassium salts, magnesium amendments and trace elements may, however, be used under the conditions set out in Appendix A, Sections A1.1. The use of certain products must be justified by soil testing that indicates the need to correct an obvious problem or is done upon recommendation of an agronomist.
- 5.4.7 Use of paper industry sludge, septic tank residues or sewage sludge (bio-solids) from treatment facilities as a soil additive, in any form whatsoever, is not permitted by these standards.
- 5.4.8 When using fertilizers presenting a risk of relatively high level of heavy metals or other undesirable substances, levels of heavy metals in the soil shall not increase over time.
- 5.4.9 The pH level corresponding to the type of soil and suited to crops involved shall be maintained by using, if necessary, calcareous amendments (limestone) in acidic soils and powdered sulphur in alkaline soils.
- 5.4.10 Any added nitrogen shall be in organic form. Chilean nitrate and all synthetic nitrogen fertilizers, including urea, are prohibited.
- 5.4.11 All organic and mineral fertilizers, particularly those rich in nitrogen (bloodmeal, etc.) shall be applied in a manner to avoid any negative effects on the quality of the crop being grown (nutritional quality, nitrate levels, taste, preservation, disease resistance) or on the environment.
- 5.4.12 A list of authorized organic or mineral fertilizers is provided in Appendix, Section A1.1.
- 5.4.13 The total quantity of off-farm or off-production unit manure, calculated over the entire rotation, may not exceed the quantity of manure produced on the farm or production unit if the latter already has the number of animals properly balanced with the surface area in production. An exception may be made for agricultural enterprises and isolated intensive farming operations when a need for fertilizers and additional organic matter can be proven.
- 5.4.14 Manure processing and composting techniques must reduce any nutrient losses.
- 5.4.15 Any application of fresh organic matter shall be carried out during the growing season. The amounts used must be environmentally acceptable.

The application of fresh manure, including solid and liquid manure, is allowed providing that:

- a) It is incorporated into the soil at least three months (90 days) before harvest, for crops intended for human consumption, and that the edible part does not come in contact with the soil;
- b) It be incorporated into the soil at least four months (120 days) before harvest, for those crops whose edible portions are in direct contact with the soil surface or soil particles;
- c) In all cases the soil must be warm (i.e. thawed) and moist enough to ensure proper organic oxidation;
- d) It be applied to inedible crops (i.e.: textile fibres) or those intended for animal consumption.

5.4.16 Processed manure that meets the conditions enumerated in Section 5.5 may be applied to all crops without a waiting period.

5.4.17 The use of ash obtained from burning vegetable or animal matter is allowed, under conditions described in Section 5.8.2 provided that burned materials have not been processed or combined with any substances prohibited for use in organic crop production.

5.4.18 The use of plant or animal matter that has been chemically modified by an industrial process is allowed provided the procedures used are authorized within these standards.

5.5 Manure Processing

5.5.1 Techniques for processing animal manure must minimize the loss of nutritional elements. Composting and physical treatment (including dehydration) are acceptable in organic agriculture.

5.5.2 Given the nature of composting, a process based on bio-oxidation of solid heterogeneous organic substrates that includes a thermophilic phase, operators shall demonstrate to the certifier that their composts include one of the following conditions:

- Salmonella level less than 3 NPP/4g (dry base)
- Temperature achieved of 55°C or higher.

5.5.3 In cases where manure was altered mechanically (including dehydration), the certification body may require standard tests (C/N, N, P, K) in order to ensure that application rates meet crop requirements.

5.5.4 The use of animal manure having undergone biological or chemical treatment (liquid waste processing system for breeding operations) is only allowed when the products used form part of the authorized substances list found in these standards.

5.6 Irrigation Water

- 5.6.1 Irrigation water should not carry any risk of crop contamination and its origins shall be documented. Should there be any doubt concerning water quality, the operator is responsible for supplying the results of a bacteriological and/or chemical test.

5.7 Transplant and Potting Media

- 5.7.1 Transplant and potting media (Greenhouse Soil) shall be in compliance with these standards (free from synthetic products for 36 months). This also applies to topsoil or any other compost component originating from outside the enterprise.

5.8 Phytosanitary Protection (Pest Management)

- 5.8.1 Organic production techniques must target at minimizing losses caused by diseases and pests. To do so, disease and pest prevention methods shall include one or more of the following:
- a) Resistant species and varieties that are and well adapted to the environment;
 - b) Balanced fertilization and rotation;
 - c) Soils having good organic activity levels;
 - d) Green manure and/or companion planting (e.g.: crop alternation, agro-forestry)
 - e) Organic controls
 - f) Mechanical methods (e.g.: traps, barriers, lights, noises, etc.)
 - g) Preventive and sanitary measures that ensure the elimination of disease vectors, weed seeds and pest habitat.
- 5.8.2 The burning of vegetable or animal matter is allowed, except for crop residues produced by agricultural operations. However, such residues may be burned to stop the spread of disease, to control pests remaining in crops or to stimulate sprouting. Since burning may increase the risk of air pollution, it should be used only as a last resort. Burning meat shall be done so that it complies with the *Environment Quality Act* and the regulations pertaining to it.
- 5.8.3 Natural predators of pests shall be protected and encouraged by establishing conditions conducive to their development; for example: hedges, nests or ecological buffer zones where original vegetation shall be preserved to shelter predators of harmful species.

5.8.4 All synthetic pesticides are prohibited. If the measures identified in 5.8.1 are not, or would not be effective, the products appearing in Appendix A, Sections A1.3, A1.4 and A1.5 may be used if necessary.

5.8.5 Heat sterilization of soil and compost is allowed for the control of pests and diseases only if appropriate rotation or renewal of the soil is not feasible.

5.9 Weed Control

5.9.1 Weed propagation shall be kept within tolerable limits by using various crop management techniques (balanced rotation and fertilization, green manure crops, stale seedbeds, mulching, etc.) and by mechanical cultivation.

5.9.2 All physical weeding methods (mulching, mowing, pasturing, etc.), including weed torching, are permitted. All synthetic herbicides are prohibited. If it is necessary, the products appearing in Appendix A, Section A1.2 can be used.

5.10 Plant Regulators

5.10.1 All synthetic chemicals (such as synthetic hormone-based growth regulators) are prohibited. Substances listed in Appendix A, Section A1.6 are allowed.

5.11 Materials Related to Agricultural Activities

5.11.1 Only polyethylene, polypropylene and other polycarbonate-based products are authorized for the manufacture of protective films, plastic mulches, insect nets or silage bags and tarpaulins. Except for mulch that is entirely biodegradable and compliant with the standard, these products shall not be left lying on the ground after use and shall not be burned on the farm. PVCs are not permitted for the above uses. Plastic materials shall be reused or recycled wherever possible. Recourse to the Crops Production Aids listed in Appendix A, Section A1.7 is allowed.

5.11.2 The use of treated wood is prohibited in any new or replacement construction, that comes into contact with the soil or with livestock, unless substances used in treatment are listed in the Appendix A. For pre-existing construction, a waterproof covering that avoids direct contact with the ground or with animals should be used.

5.12 Wild Crops

For the purposes of this section, the term “plants” shall include mushrooms.

5.12.1 For the purposes of these standards, wild crops may be certified only where the plants are from a harvest area deemed to be a natural and stable environment and where proof is provided that the crops have not been treated with products other than those listed in Appendix A, Sections A1.1 to A1.7 for at least three years prior to harvest.

- 5.12.2 The harvest area shall be clearly delineated and sufficiently isolated to reduce the risk of contamination by synthetic pesticides or genetically modified organisms from nearby non-organic crop areas. Consequently, the harvest sites shall be located more than (1) kilometre away from potential contamination sources, such as areas in which non-organic farming is carried out, as well as from areas such as golf courses, dumps, sanitary landfill sites and industrial complexes which could be a source of environmental pollution.
- 5.12.3 In order for plant products from areas meeting the conditions set out in article 5.12.2 to be deemed compliant, the harvesting activities carried out in those areas must comply with the production plan that has been drawn up in accordance with the requirements of article 4.1.3. and approved by the certification body.
- 5.12.4 Activities related to the harvesting of such plant products shall not have harmful effects on the biodiversity of the ecosystem.
- 5.12.5 The applicant for certification shall maintain an audit trail making it possible to trace the plant products according to type, origin and quantities harvested; the applicant must therefore keep up-to-date and auditable records and be able to provide supporting documents concerning the organic integrity of the products.
- 5.12.6 All harvesters must be registered and all subcontractors must work under contract. The enterprise managing the wild crops must give the harvesters and subcontractors instructions enabling them to perform their work in an appropriate manner, which shall include the following information:
- a) The boundaries of the harvest area;
 - b) The standards and other requirements that must be met in order for the product to be in compliance.
- 5.12.7 Wild crops that are in compliance with these standards may be combined with other organic products for processing purposes. The resulting processed products may be identified and labelled as organic, provided that all the requirements pertaining to organic processing have been met.

5.13 Greenhouse Crops

Operators producing greenhouse crops, either for providing seedlings or growing vegetables, shall meet these standards.

- 5.13.1 Coverings used in the construction or operation of greenhouses shall be made of glass, polycarbonates or polyethylene greenhouse film. Bleaching with lime and the use of shade cloth or shuttering are authorized. Biodegradable plastics produced from GMOs and wood treated with arsenates and used for new or replacement construction having come into contact with the ground are prohibited.

5.13.2 Heating systems shall be well ventilated in order to avoid the contamination of crops from any possible exhaust. In case of emergency (e.g.: power failure), portable propane, kerosene, oil or wood alcohol heaters may be used.

5.13.3 Artificial light is allowed.

5.13.4 Within the framework of these practices, the operator shall:

- a) Ensure that the crop environment will provide plants with constant nutrient flow;
- b) Totally abstain from using any form of hydroponics and aeroponics growing techniques;
- c) Use recyclable pots and flats as much as possible;
- d) Be sure to use wetting agents and growing media selected from substances listed in Appendix A, Section A1.1;
- e) Disinfect facilities and handling or storage materials by using only those substances authorized in Appendix A, Sections A4.1 to A4.2.

5.13.5 When producing organic greenhouse crops, the operator may use the following methods or practices:

- Open flames, fermentation, composting, compressed gas (CO₂) to enrich carbon dioxide levels;
- Steam heat sterilization or substances listed in Appendix A, Sections A4.1 to A4.2 for disinfecting containers, pots and flats;
- Plant and animal-based regulators for stimulating growth and development;
- Hot water and steam treatment, and low temperature baking to prevent damping off;
- Thermal sterilization.

5.13.6 For the prevention and control of disease, insects or other parasites, the operator shall use:

- Methods mentioned in Section 5.8.1 and substances listed in Appendix A, Sections A1.2 to A1.5 and A4.1 to A4.2;
- Plant pruning and vacuum cleaning.

5.13.7 Filters, screens or other physical devices are recommended to prevent insects and other parasites from entering the greenhouse.

5.14 Mushroom Cultivation

5.14.1 Growing mediums allowed include logs, sawdust or other organic substrates meeting these reference standards.

5.14.2 Spawn (seeds) shall be registered with and inspected by a seed certification body that can guarantee that the spores are fertile and free from prohibited substances or other contaminants.

5.14.3 Cultivation sites shall be free of debris from under-story and diseased trees.

5.14.4 Contaminated logs shall be either burned or moved at least 50 metres from the production site or moved to an appropriate disposal site.

5.15 Sprouts

5.15.1 Seeds used must be certified organic.

5.15.2 Water used shall meet or be superior in quality to the provincial drinking water standards (Q-2.4.4.1) regarding the microbial or chemical contaminants contained in it.

5.15.3 If chlorinated water is used for the final rinsing, to eliminate the chlorine, it shall be put through an activated carbon filter or be left standing in a stainless steel container covered with a nylon mesh before being used.

5.15.4 Water shall be analyzed twice a year, at the rate of once per semester.

5.15.5 No soluble fertilizers may be added to spray water.

5.15.6 Growing media shall comply with these standards (be free from synthetic products for a period of 36 months).

5.15.7 Antibacterial products listed in Appendix A, Section A4.1 are permitted for disinfecting equipment (vats, trays, etc.).

5.16 Harvesting

5.16.1 All harvesting equipment used by a certified enterprise, be it borrowed, rented, leased or owned by it, plus any vehicles used to transport harvests, shall be clean and free from any non-organic product residues.

a) It is the producer who is responsible for ensuring that equipment is checked and cleaned before its use, if necessary, particularly when it has been rented or leased.

b) Pest control shall be based on preventive methods backed by the use of adequate hygiene practices and through organizing the premises in such way that any potential pest habitats are eliminated.

6. Livestock Production

Standards 6.1 to 6.7 apply to all livestock production.

6.1 Production Conditions

6.1.1 Production methods shall target the maintenance of animal health not only by taking their physiological needs into account but also by considering their behavioural needs as well through adopting efficient management methods including:

- A proper understanding of the animals' physiological and behavioural needs;
- The kind treatment of animals to minimize sources of stress;
- Husbandry conditions fulfilling the inherent needs of each species and ensuring their comfort;
- Appropriate feed;
- The choice of robust breeds or strains well-adapted to local conditions;
- The selection of animals in order to eliminate those that are dependent on synthetic drugs.

Since the use of cages in production is prohibited, it shall be ensured in the application of these standards that:

- Animals may act according to their own specific behavioural requirements;
- Production techniques foster animal health and longevity, especially in cases where they are required to sustain high levels of production or growth.

6.1.2 The livestock environment shall be designed according to the animals' needs and insure:

- a) Enough room to move around;
- b) Adequate fresh air and daylight;
- c) Access to the outside for as long as weather conditions permit. In Eastern Canada, below the 50th parallel, prevailing conditions in the spring, summer and fall are considered appropriate for being outside. Upon submitting a request to the certification body, temporary confinement is allowed between May 1st and November 1st during intemperate weather periods when the animals' health, security and wellbeing are threatened, or when necessary for the protection of crops, soil or water quality. Upon submitting a request to the certifier, temporary confinement is also allowed for

breeding males or during the final finishing stage. In the latter case a request shall be made to the certification body before proceeding. Exclusive winter production is prohibited;

- d) A protection from extreme sun, temperature, precipitation and wind;
- e) Enough room to stand up naturally, to lie down, rest, turn around, clean themselves or undertake any natural position or movement such as stretching or beating their wings and having access to bedding;
- f) Access to feed on demand and a constant supply of good quality fresh water. Bacteriological tests may be required. The parameters for analysis are: total fecal and coliform content and atypical colonies;
- g) A healthy environment that avoids life threatening conditions for the final product (e.g. toxic effects of building materials, poor ventilation, etc.);
- h) The company of other animals, especially their own species;
- i) Access to shelter when being raised outside;
- j) An action plan for such emergency situations as fire, equipment breakdowns or supply problems. Production enterprises dependent on electricity supply shall have a plan for emergencies and the necessary equipment in case of power interruptions such as an auxiliary generator.

6.1.3 If day length is artificially prolonged, the total duration of the light period shall not exceed 16 hours and shall be terminated through gradual reduction of light intensity.

6.1.4 In order to prevent cross-contamination and the spreading of disease, livestock buildings and equipment shall be cleaned and disinfected regularly after livestock and manure have been removed.

6.1.5 Buildings shall be clean, well ventilated and insulated. Temperatures shall correspond to comfort zones corresponding to animal age. Livestock shall also be protected against the cold and air currents.

6.1.6 Moisture and dust content (%) should not prejudice the wellbeing of the herd.

For pig, poultry and rabbit husbandry, the following concentrations should not be exceeded:

- Ammonia: 20 ppm
- Hydrogen sulfide: 5 ppm

- Carbon dioxide: 50 ppm

Readings for temperature, moisture and air quality shall be made as required, and entered in records.

6.1.7 Livestock pasture density shall be low enough to prevent soil deterioration and overgrazing.

6.1.8 Animal densities should take environmental constraints and regulations into account, as well as soil and climatic conditions.

6.1.9 Conditions for species-appropriate housing shall be respected:

- For cattle, the floor shall be smooth but not slippery. It should not be made entirely of slats or metal grating. Livestock shall have access to rest areas with adequate bedding. Calves may be raised in isolated stalls or tethered only with the approval of the certification body. For the final finishing phase, there shall be at least 23 m² per animal;
- For pigs, sows shall be raised in groups except during the latter stages of gestation and during the suckling of piglets. Piglets shall not be kept in cages. Exercise areas shall allow dunging and rooting.
- For rabbits, production in cages is prohibited.
- For poultry, production in cages is prohibited. Poultry shall be reared in open range conditions and have free run access to the open air when weather permits. Buildings shall provide a space covered with bedding straw, wood shavings or sand. For laying hens, there shall be enough floor space reserved for manure collection. The birds shall have access to perches or rest areas as well as openings to outside runs in proportion to their species and flock size. Buildings shall be emptied and exercise runs left to rest to ensure the renewal of plant life between flocks.
- Ducks and geese shall have access to a swimming area created for their use, when weather conditions permit.

6.1.10 All livestock in the same production facility shall be raised according to these standards. Livestock not raised according to these standards may however be present within the production site, as long as they are clearly separated from livestock under organic management such that:

- Species under organic management be different from those under non-organic management or originate from distinct production facilities;
- Feed analysis tests may be required at any time;
- Organic pastures used for livestock under non-organic management is authorized as long as they have not received any

non-compliant treatments during the previous three years and that it is possible to differentiate between animals.

Note: Replacement animals are also subject to these standards.

6.2 Physical Alteration

6.2.1 Physical alteration is generally not authorized in organic breeding. However, for reasons of security or for improvements to the animals' health and wellbeing, provided the operation is carried out at a suitable age and under anesthetics, the following exceptions are tolerated, when necessary:

- Castration of piglets and bullocks;
- Trimming of needle teeth in piglets;
- Docking of lambs' tails;
- Dehorning;
- Beak trimming.

However, when they are practiced on young animals, operations such as the burning of the horns and castration by using rubber band can be done without anesthesia.

6.3 Livestock Feed

Livestock feed shall be constituted to ensure that it contains 100% certified organic ingredients.

6.3.1 Feed rations shall be balanced to meet the nutritional needs of livestock (reasonable levels of production and growth), and contain good quality feedstuffs.

6.3.2 All feed shall be produced or processed in accordance with Section 5 in these standards.

a) In certain exceptional circumstances (in the event of a natural disaster or any other unforeseeable major event such as flood, drought, extreme weather, etc.) when it might be impossible to secure certain feed ration elements from an organic source, the certification body may, for a limited period of time, allow a certain percentage of livestock feed rations to come from non-organic sources. To begin with this request shall be submitted for evaluation. Note that the non-organic feedstuffs used shall be demonstrably GMO free. In these exceptional cases, the minimum percentage of organic feed (calculated on the basis of dry matter) required is:

- Meat Animals: At least 90%, calculated on a daily basis

- Dairy animals: At least 80%, calculated on a daily basis
 - Non ruminants: At least 70%, calculated on a daily basis.
- b) Pre-certification crop harvests may be accepted as feed replacements in the event of shortages, with the approval of the certification body on a case by case basis. Feed considered to be free of prohibited substances but not monitored by a certification body cannot be regarded as organic but in the event of shortages, may be accepted on a case by case basis as a replacement feed, by the certification body.
- c) Feed ration calculations should be available at the time of inspection. The daily feed ration for ruminants and horses shall contain at least 60% forage, calculated using dry matter. Of this 60% forage, 25% shall be made up of dry hay during periods when livestock are not pastured. Baled hay that is not very damp (less than 40% moisture) may be considered dry forage.
- 6.3.3 The ingredients listed in Appendix A, Sections A2.1 and A2.2 are authorized in feed rations. Natural sources for emulsifiers, binding and thickening agents, antioxidants, dyes, etc. are allowed in milled feeds and rations. Probiotics, enzymes and micro-organisms are allowed in feed rations. The following products shall under no circumstances be included or added to livestock feed:
- Synthetic preservation and colouring agents;
 - Urea or other sources of non-protein based nitrogen;
 - Mammalian or avian by-products such as slaughterhouse waste, dung, droppings or other animal waste;
 - Defatted animal feeds using solvents (hexane, etc.), chemically extracted feeds (soy or canola meal) or the addition of other chemical agents;
 - Antibiotics, drugs, growth regulators, synthetic appetite enhancers or any other pharmaceutical veterinary product intended to stimulate growth or production;
 - Plastic pellets, used as a fibre substitute;
 - Any substance that contains or originates from products derived from genetic engineering.
- 6.3.4 Forage may consist of any fresh or ensilaged vegetable matter, dry hay, root vegetables (beets, turnips, etc.), leaves, fruit and plant residues as well as straw. It shall not contain any additives. The following silage conservation products are permitted: bacterial or enzymatic additives, molasses, sugar, honey, salt, whey. Upon approval by the certification

body, lactic, propionic and formic acids may be used if weather conditions do not favour fermentation.

6.3.5 The feeding of young mammals shall be based on the use of organic milk. However, milk originating from breeding stock undergoing transition and being fed 100% organic feed is authorized.

6.3.6 Feed for herbivores shall contain forage. Ruminant herbivore feed shall not consist exclusively of silage. Starting June 1st, 2011, the consumption of grazed forage during the grazing season of the region calculated on the basis of dry matter intake shall represent a minimum of 30% of the total forage intake during this period for ruminant herbivores. On all farms a minimum of 0.13 ha (1/3 acre) per animal unit must be devoted to grazing. (One animal unit = one cow or one bull or two calves (each 225 to 500 kg) or five calves (each less than 225 kg) or four ewes and their lambs or six does and their kids).

Poultry and pigs shall have access to forage.

6.3.7 Milk and dairy products, fish, marine animals and their derivative products are authorized in feed rations. Other ingredients of animal origin are prohibited in feed. In all cases it is forbidden to feed a ruminant with any substances originating from mammals than milk and its derivative products.

6.3.8 Fields in the last year of transition may be used as pasture for replacement animals.

6.3.9 Any substances likely to be consumed by animals (bedding, wood, etc.) shall not be treated with synthetic products. A document signed by the supplier attesting compliance to standards shall be attached to the applicant's records.

6.3.10 Supplements

6.3.10.1 Minerals, vitamins, plant extracts, salt and other products from natural sources may be used as desired. If it proves necessary to use other products, they shall be monitored and correspond to the specific needs of the livestock. Particular attention shall however be given to the ingredients in these products and to the possibility that they contain genetically modified organisms. In all cases a list of ingredients shall be available during inspection visits. The following are acceptable:

- a) Synthetic minerals, only when proven that the supply of natural minerals is insufficient;
- b) Synthetic vitamins, only when proven that the supply of natural vitamins is insufficient;

- c) Sources of calcium carbonate (lime, dolomite lime, Lithothamnium Calcareum, [Mearl Red Marine Algae] etc.);
- d) Trace minerals and amino acids obtained by natural processes. Synthetic methionine is permitted for poultry feed if no alternative is possible.

6.3.11 Force-feeding or gavage is prohibited. We means by force-feeding the administration of food by force to geese or ducks.

6.4 Origin of Livestock

6.4.1 For animal products (meat, eggs, milk) to be considered "organic", they must come from animals born or hatched in a production unit whose breeding system was certified according to these standards or were engendered from livestock raised according to conditions set out in these standards. Thus they must have passed their entire lives in an organic production system.

6.4.2 In cases of start-up organic livestock production enterprises or existing ones having undergone expansion, and if operators can demonstrate to the certification body that the animals having met the above-mentioned (organic) conditions are not available, for animal products (meat, eggs, milk) to be considered "organic", the following conditions apply:

- a) For animals intended for meat production:
 - Calves, lambs, kids, and other young ruminants must originate from females under organic management at least from the final third of their gestation period;
 - day-old chicks of any species, provided they have not been treated with antibiotics or other prohibited substances;
 - For others species please refer to sections 6.8; 6.10; 6.11; 6.12 and 6.14.
- b) Animals intended for dairy production yet coming from non-organic operations, as long as they are not the product of genetic modification techniques. Milk coming from these animals may only be sold as organic when they have been raised in full compliance with specifications, for the required minimal period of 12 months (one year). During the year preceding certification, these animals shall be fed with feed composed of at least 80% organic ingredients during the first 9 months, and 100% during the following months. Crops originating from this enterprise's plots during their final year of transition may be considered as 80% organic food during the first 9 months of the year preceding certification.
- c) Livestock intended for breeding and coming from non-organic operations, as long as they are not the result of genetic

modification techniques. The animals may be resold as organic only for breeding when raised in total compliance with specifications for the required minimal period of 12 months (one year) during which they were given feed composed of at least 80% organic ingredients during the first 9 months of the year preceding certification, and 100% during the following months. However, crops originating from this enterprise's plots during their final year of transition may be considered as 80% organic food during the first 9 months of the year preceding certification.

- d) Males of any species bought for breeding purposes do not have to undergo a transition period and upon their arrival on the farm shall be raised in compliance with these standards.

6.4.3 In the event of a natural disaster or any other major unforeseeable event, and if the operator can demonstrate to the certification body that organically produced livestock are not available, the certification body can make an exception and decide on a transitional period, depending upon the particular circumstances of the acquired livestock.

6.4.4 Livestock may not be transferred from organic production to non-organic production without losing their organic status.

6.5 Livestock Health Care

6.5.1 Every step shall be taken to ensure maximum resistance to disease and thus prevent any risk of infection: breeds suitable to production conditions, proper management, healthy feed, regular exercise, access to outside, appropriate production density.

In the event of illness, it is essential to determine the exact causes and if necessary, change production methods accordingly.

6.5.2 Substances used in veterinary treatment shall be exclusively limited to those authorized in Appendix A, Sections A2.3 and A2.4.

When an animal's life is threatened, the first priority is to save it even if the treatment used leads to the loss of organic status. For this reason, when approved organic production methods prove insufficient, all appropriate medications shall be used to restore livestock to health. Chemical allopathic veterinary drugs (including any restricted use substances as mentioned in Appendix A, Sections A2.3 and A2.4) should only be used as a last resort and with the intent of preventing needless suffering. The use of such drugs for preventive treatments is prohibited.

6.5.3 Slaughter animals shall not be treated with any synthetic antibiotics.

Organic livestock operations shall have a comprehensive plan to minimize internal parasite problems in livestock. The plan must include preventive measures such as pasture management and fecal monitoring, as well as emergency measures in the event of a parasite outbreak.

By way of derogation, when preventive measures fail (because of climatic conditions or other uncontrollable factors) or a dam in gestation is concerned, the operator may use anthelmintics (parasiticides) not listed in Section A2.3 of Part 3 of the *Quebec Organic Reference Standards* in provided that :

- a) fecal samples indicate the livestock is infected with parasites;
- b) the operator has received written instructions from a veterinarian indicating the product and method for parasite control that shall be used;

The conditions required for the administration of these products are the following :

- i. withdrawal times shall be twice the legal requirement;
- ii. there shall be only one treatment for slaughter animals under a year old and a maximum of two treatments per year for older slaughter animals.
- iii. Slaughter animals that require further treatment will lose organic status. Dairy animals requiring more than two treatments per year (of combined antibiotics and parasiticides) will lose organic status and shall go through a 12-month transition. These dairy animals shall never be organic for slaughter purposes;
- iv. the operator shall provide a written action plan (including timing), describing how they will amend their parasite control plan, to avoid similar emergencies.

- 6.5.4 Withdrawal periods are prescribed for animals receiving certain veterinary treatments. In the event of treatment with local anaesthetics, withdrawal periods are at least 90 days for slaughter animals and 7 days for breeding stock and dairy animals.

Where a vaccine containing an antibiotic used as a preservative has been administered to animals destined for slaughter, a withdrawal period that is double the prescribed period must be applied prior to the slaughter of the animals. No withdrawal period is required for animals raised for milk production.

Animals dependent on repeated courses of treatment must be withdrawn definitely from the herd.

- 6.5.5 Although natural reproduction is preferred artificial insemination methods are permitted in organic production. However, the producer shall take into account the risks resulting from the long-term, negative impact of dependence on a limited genetic stock implicit in artificial insemination. Embryo transfer and genetic engineering techniques are prohibited.
- 6.5.6 It is prohibited to stimulate or retard growth or production using any synthetic product of any kind. The use of hormones in order to trigger or synchronize estrus is prohibited. Animals treated in this manner shall be subjected to a transition period as defined by these standards. Vitamins,

hormones (oxytocins and cortisones) and salicylic acid are restricted use substances not subject to the above-mentioned requirements.

6.5.7 Vaccines are to be used only when it has been established that targeted diseases do exist within the production environment and cannot be combated by other means. However, vaccinations required by law are permitted.

6.5.8 Any treatment of sick livestock shall be clearly recorded and the animal clearly identified. This record shall contain all details concerning the treatment, its duration and trade names of the drugs used; the operator shall also note the method of disposal of animal products from treated livestock.

6.6 Traceability/Audit Trails

6.6.1 All livestock shall be identified individually, or by flock or herd for poultry or small mammals.

6.6.2 Herd records shall be maintained so animals may be located within the system, thus ensuring adequate traceability for audit purposes.

These records shall include:

- Breeding, birthing or origins of livestock;
- Registration of purchases (if applicable);
- All treatments and medicines administered for any purpose, including quarantine periods, as well as identification of treated animals;
- Feed provided and its origin;
- Stock movements within the enterprise;
- Documents relating to transport, slaughter and sales.

6.7 Manure Management

6.7.1 Management practices relative to manure shall minimize soil and water deterioration, so that water will not be contaminated with nitrates and pathogenic bacteria, nutrient cycling is optimized and does not include burning or anything else not in conformity with organic practices.

6.7.2 Storage facilities or composting areas shall be designed, built and operated so as to prevent soil and water contamination.

6.7.3 Manure application rates should not lead to water contamination. The method and timing of manure application shall not increase the potential for runoffs into ponds, rivers or streams.

The following sections apply specifically to the production type concerned.

6.8 Pork Production

6.8.1 General

- The following standards also apply to the breeding of wild pigs (see also Section 6.10).
- The essential needs of pigs such as comfort, company of other animals, minimal stress and quality human contact shall be respected.
- The size of individual livestock operations is limited to 1,500 feeder hogs per year (either 80 breeding sows for farrow-to-finish operators; or 200 sows for farrowing operators). This limit can be exceeded only if the totality (100%) of the feed or its equivalent is produced by the livestock enterprise itself.
- All hogs shall be identified individually through tattooing or ear tags.

6.8.2 Feed

- a) It shall completely meet nutritional requirements.
- b) When plant waste is being used, it must be certified organic.
- c) Forage intake is obligatory.

6.8.3 Husbandry and Housing conditions

- a) Individual stalls for pigs are not allowed. Pigs shall be raised in stable groups of an acceptable size. For sows, breeding shall be done in groups. Isolation is only allowed during the final gestation stages and during piglet suckling. Boars may be raised in individual enclosures.
- b) Dimensions of temporary holding units, such as convalescent huts shall allow pigs to stand upright, to move around and to lie down easily without touching the sides of the hut.
- c) Lighting shall be available for a minimum period of 8 hours a day, and shall permit the stockbreeder to inspect animals in any time.
- d) There shall be abundant bedding at all times.
- e) Safe objects to chew on shall be available in the enclosures.

6.8.3.1 Access to the Outdoors

- a) The Systematic use of nose rings is prohibited.
- b) Shade and also means of cooling (sprinkler systems, water holes, etc.) shall be available in summer.
- c) Exercise areas shall allow dunging and rooting.

6.8.3.2 Minimum indoor and outdoor space requirements for barns, pens, runs and exercise areas

Enclosures size shall avoid overcrowding and allow all animals to rest at the same time. Indoor space as well outdoor runs and pens shall at least meet the following minimal sizes:

Livestock Stage of Development	Indoor Space (m²/head)	Outdoor Runs and Pens (m²/head)
Breeders		
Boars	9	9
Sows	3	3
Sows and piglets up to 40 days' old	7,5	2,5
Growing pigs		
Up to 30kg	0,6	0,4
30 to 50kg	0,8	0,6
50 to 85kg	1,1	0,8
85kg and more	1,3	1,0
Farrowing area surface	9 m ² (3mx3m) including 0,8 m ² protected and heated	-

6.8.4 Farrowing and piglets raising

- a) Farrowing cages will be tolerated for short periods only (maximum of 5 days).
- b) Both the raising of piglets until weaning and the final finishing stage for meat production may take place inside providing the following important considerations:
 - Piglets aged 6 weeks and older must have access to the exterior;
 - The maximum duration of the interior fattening stage should be equivalent to 1/5 of the animal's lifespan.
- c) The trimming of piglet needle teeth should not exceed 1/4 of the tooth.
- d) Castration shall be done before the age of 7 days, by qualified personnel and using clean, disinfected and well-designed instruments.
- e) Complete weaning shall not be done before the age of 4 weeks.

6.8.5 Health

- a) The “completely-full completely-empty” principle of batch rearing shall be applied as a preventive measure. A facility cleanout and rest period is thus required.
- b) Castration of cull boars is prohibited.

6.8.6 Source/Origin of Livestock

When a herd is being built for the first time, and in the absence of a sufficient number of organically produced hogs:

- a) In order for piglets to be considered certified organic, pregnant sows originating from non-organic breeding shall be raised in accordance with these standards during the last 5 weeks of gestation.
- b) Piglets originating from non-organic breeding must weigh less than 15 kg and undergo a transition period of 3 months

During future purchases and when there are insufficient quantities of hogs raised using organic methods:

- a) Replacement sows and gilts should not exceed 10% of the herd and shall be raised in accordance with these standards during the last 5 weeks of gestation. Note that only the piglets may then be marketed as "certified organic meat."

6.9. Dairy Production

6.9.1 General

Dairy herds shall be raised in compliance with these standards at all times. This means that replacement animals will also be subject to these standards.

6.9.2 Production conditions and housing

- a) Animals may be tethered for a limited period (winter season). At this time they should have access to at least one interior or external exercise area at least twice a week.
- b) In stall housing, it is not permitted to tie tails or use electric device to limit animal movement.
- c) Pasture is compulsory and shall be large enough to meet at least part of the feed requirements. Calves over six months of age shall have access to the outdoors and to pasture whenever weather conditions permit.

6.9.3 Calving / Lambing/ Kidding

Calves, lambs and kids may be taken from their mothers at the age of one (1) day provided they receive colostrum before separation.

- a) Until the age of three (3) months, calves shall receive fresh whole organic milk or reconstituted organic milk.

- b) Lambs and kids shall be given fresh whole organic milk or reconstituted organic milk until they have reached 2 months of age or a weight of 18 kg

6.9.4 Health

- a) Somatic cell counts should not exceed a yearly average of 400,000 for cow's milk and 1.5 million for goat's milk.
- b) Dairy animals treated with veterinary medicine must undergo a 14 day withdrawal period or twice the period prescribed on the label, whichever is longer, before their milk may be sold as being "certified organic". This milk may not be fed to young livestock.

6.9.5 Dairy Equipment Maintenance

The ingredients in cleaning agents used on milking machinery shall comply with these standards and be from natural sources. It is the responsibility of dairy operators to find natural alternatives to non-compliant commercial products. Please see Appendix A, Section A4.1 for a list of authorized cleaning products.

Whenever governmental health standards require the use of unauthorized cleaning products, double rinsing of closed circulation equipment is obligatory. When cleaning is done on open circulation equipment, one generous rinsing is sufficient.

6.10 Meat Production

6.10.1 General

This section refers to deer, bison, wapiti, roe deer, fallow deer, horses, sheep, goat, beef, fowl and wild pig production.

6.10.2 Feed

Livestock shall have access to forage.

6.10.3 Access to the Outside

Animals classified as wild (e.g. buffalo, cervidae) shall be raised in the open.

- a) Access to the outside is obligatory for all animals, be it pasture for ruminants or runways for other species.
- b) Exercise runs shall be allowed to rest between livestock production periods to allow vegetation regeneration.

- c) Livestock densities for pastures shall be low enough to prevent soil degradation and overgrazing.
- d) For sheep and cattle production, the final finishing or fattening stage may take place inside.
- e) Water birds shall have access to a swimming area created for their use, when weather conditions permits.

6.10.4 Calving / Birthing

- a) Young mammals may be removed from their mothers at the age of one (1) day provided they receive colostrum before separation.
- b) Young mammals shall receive fresh whole organic or reconstituted milk until the age of three (3) months.
- c) Complete weaning of lambs and kids may not be done before the age of 2 months or until they weigh 18 kg.

6. 10.5 Slaughtering

The slaughtering of animals must take place in an establishment which holds a service approval certificate regarding slaughtering of organic animals, issued by an accredited certifier. However, if the operator cannot have access to an establishment offering slaughtering services approved by an accredited certifier, he may nevertheless obtain this service from any slaughterhouse under the control of a governmental authority, provided that the following requirements are satisfied:

- a) An agreement regarding slaughtering services must be signed between the client and the service supplier;
- b) The implementation of the aforementioned agreement shall be authorized by the certifying body responsible for certifying the applicant's product;
- c) The agreement must include the following:
 - Slaughtering procedure (methods and techniques);
 - Cleaning protocol (methods, frequency, list of cleaning products);
 - Pest control (plan, methods, techniques and product list);
 - Pre-slaughter management (food, water, resting, etc.)
 - Traceability methods at all stages of operation;
 - Class of slaughterhouse.

6.11 Rabbit Production

6.11.1 General

Essential rabbit needs, such as comfort, company of other animals, minimal stress and respectful human contact shall be met.

6.11.2 Feed

- a) Shall completely meet nutritional requirements.
- b) When plant scraps are served they must originate from certified organic produce.
- c) A forage component is obligatory.

6.11.3 Livestock Breeding Conditions and Housing

- a) Rabbits shall be raised in stable groups of limited size.
- b) Raising in cages is not authorized.
- c) Enclosure dimensions shall allow all animals to rest at the same time. As an indication, the following minimum size limits are suggested:
 - Young growing rabbits: 0.3 square metres of floor space/rabbit;
 - Doe and offspring: 0.7 square metres of floor space. Rabbits should have additional nesting space not accessed by others;
 - Birthing area: wood or aluminium nest in a protected and heated area, with separate waterier for bunnies;
 - Buck: 0.3 square metres of floor space;
 - Pregnant doe: 0.5 square metres of floor space.
- d) Dimensions for temporary confinement areas such as convalescence huts shall allow rabbits to stand upright, to move around and to lie down easily without touching the sides of the hut.
- e) Lighting shall be available for a minimum period of 8 hours a day, and shall permit animals to be inspected at all times.
- f) There shall be abundant bedding at all times.
- g) Safe objects for chewing shall be available in the enclosures.

6.11.4 Access to the Outside

- a) Both the raising of rabbits until weaned and the final fattening phase for meat production may take place inside.
- b) Outside enclosure dimensions shall be sufficient to avoid overpopulation. As an indication, in outdoor vegetation covered rabbit runs, each rabbit shall have 5 square metres. In this type of production, a metal grid may be placed on the ground to prevent the animals from escaping. On concrete outside exercise surfaces, each rabbit shall have 2 square metres.
- c) For breeding in mobile field huts, each doe and her litter shall have at least 0.4 square metres in the sheltered area and 2.4 square metres in the grazing area of the enclosure. The rabbit production area shall provide 0.4 square metres per animal. Enclosures are to be moved at least once a day.

6.11.5 Breeding

- a) The minimum age for the first litter is 16 weeks. The number of litters per female should not exceed 6 per year.
- b) The lack of outside access for rabbits is allowed from the 19th day until the 28th day of pregnancy, and also from the birthing day until the 21st day of weaning.
- c) Full weaning shall not take place before the age of 35 days.

6.11.6 Health

- a) Health care must be managed in conformity with 6.5.4. Young rabbits should not be treated less than 30 days before they are slaughtered.
- b) If young rabbits intended for consumption receive more than one parasiticides treatment, they shall be downgraded and removed from the organic agriculture circuit.

6.11.7 Transition

When a colony is being established for the first time and in the absence of a sufficient number of organically produced rabbits:

- a) The bucks and does bought shall be 4 months of age or younger.
- b) Rabbits marketed for their meat shall have been born and raised on the farm complying with organic standards.

During later purchasing and in the absence of sufficient quantities of livestock raised according to organic standards:

- a) Replacement rabbits shall not exceed 10% of livestock and shall be raised in compliance with organic standards for a period of 2

months. Note that only resultant litters may be marketed as "organic certified meat."

6.12 Egg Production

6.12.1 General

It is the livestock operators' responsibility for complying with regulations currently in effect regarding production rights, grading stations and also marketing.

6.12.2 Feed

- a) Feeds shall be stored such in a manner that it is kept safe from contamination by birds, rodents and insects.
- b) Water shall be analyzed at least once a year. Sampling and treatment protocols shall be made available during inspections.

6.12.3 Livestock Living Conditions

- a) Natural light is required and it may be supplemented by artificial lighting.
- b) Lighting periods should not exceed 16 hours a day and lighting shall be shut down gradually.
- c) Poultry shall have access to nests as well as perches.
- d) Floor surfaces: maximum of 6 hens per square metre.
- e) Surface required for perches: 20 cm/hen.
- f) Number of nests: one for each 5 layers.
- g) A sufficient number of appropriately sized openings to the outside shall be provided.
- h) Poultry shall have access to fresh water at all times.
- i) The enterprise shall have organic crop production areas that produce 40% of the feed required.

6.12.4 Chick Production

- a) The use of artificial lighting is authorized.
- b) The lack of outside access is allowed during the first weeks, for as long as a constant temperature is required.

6.12.5 Outdoor Access

Poultry shall have access to pasture when weather permits.

- a) The use of grassy runs is possible as long as sufficient space is allocated to each chicken.
- b) The maximum density for outside spaces is 4 chickens per square metre.
- c) Pasture shall have a shaded area, protection against inclement weather as well as a source of fresh water.

6.12.6 Health

The adoption of resistant breeds and varieties is encouraged.

- a) The “completely-full completely-empty” principle of batch rearing shall be applied as a preventive measure. A 7-day facility cleanout and rest period is thus required.
- b) Health records shall be kept, indicating any health problems and use of pharmaceutical products and also daily mortality rate records shall be accessible during inspections. A death rate of more than 0.5% per month shall require documented veterinary monitoring.

6.12.7 Acquisition

All poultry shall be acquired as one (1) day old chicks.

6.12.8 Collected or stored eggs

- a) Eggs shall be stored at temperatures ranging from 10 to 13°C and humidity levels must be kept between 70 and 85%. For flocks of more than 100 layers, daily records shall be kept.
- b) Eggs shall be collected at least twice a day, and a record of eggs gathered shall be kept.
- c) Cracked, damaged and very dirty eggs shall be separated from undamaged eggs.
- d) Packaging shall be new, recyclable and protected from contaminants.
- e) Washing of eggs is permitted. See Appendix A, Section A4.1 for the list of authorized cleaning products.

6.12.9 Maintenance

- a) The areas surrounding hen houses shall be regularly maintained. A gravel apron around buildings is recommended.
- b) Waterers shall be regularly cleaned and disinfected with authorized products. Adequate rinsing is obligatory.

6.13 Apiculture

6.13.1 Foraging Areas

Hives shall be:

- a) Placed in zones where cultivated or natural plants meet these standards and shall be located so as to provide access to forage in fields having organically cultivated nectar and pollen bearing plants, zones in a wild state, or fields that have not been treated with any synthetic pesticides for a minimum period of two (2) years.
- b) Separated by a distance of at least three kilometres from possible contamination sources such as: nectar bearing plants treated with the synthetic pesticides, golf courses, garbage dumps or landfill sites, large urban concentrations, industrial complexes, very busy roads, or flowering agricultural crops being treated with prohibited pesticides or those resulting from genetically modified organisms (GMOs) or their products.

Depending on the case, an analysis of honey or pollen collected will be required so as to determine whether there is any risk of contamination.

6.13.2 Feed

- a) Feeding of colonies is allowed during wintering and shall be done between the last honey flow and the time when the winter rest begins. Bees should preferably receive organic honey and pollen, or organic sugar syrup.
- b) If the latter are not available, or in the event of extreme weather conditions or any other extenuating circumstances, other (non-organic) food may be used.
- c) The fall feeding of bees with a mixture of organic honey and non-organic white sugar is allowed until such time that an acceptable and healthy alternative becomes available for the colonies.
- d) When some other type of food is needed, the hive involved shall be withdrawn from organic production for twelve (12) months.

6.13.3 Bee Colony Health

Bee colonies should be kept healthy through maintaining proper husbandry practices, using breeds well adapted to local conditions, regular replacement of queens, regular cleaning and disinfecting of equipment, destruction of contaminated materials, regular beeswax replacement, a sufficient supply of pollen and honey in the hives. Treatments relying on alternative medicine such as homeopathy, aromatherapy etc., as well as trapping and products of natural origin are authorized. The use of the following methods is restricted:

- a) Formic acid and oxalic acid for controlling varroa.
- b) *Bacillus thuringiensis* and sulphur are allowed for controlling wax moth.
- c) Any use of active drugs such as antibiotics is prohibited, except when there is a threat to colony health. In the latter case, only one application may be carried out following honey flow in the fall. In this particular case however it is prohibited to extract honey from the brood chamber.
- d) Treatments carried out at any other time will compromise the hive's certification for the current year and the one following.

6.13.4 Beeswax

Only pure and untreated beeswax, preferably of organic origin, is accepted.

6.13.5 Honey Extraction

Honey extraction from hives is to be carried out in a manner that will not disturb the bees. Should be necessary, a bee escape, a bee blower or smoker using plant fuels could be used. With regards to extraction methods and equipment, the following are required:

- a) When extracting honey it shall not be heated above 35° C.
- b) Honey de-crystallization temperatures shall not exceed 55° C.
- c) All equipment used shall be made out of stainless steel or food quality plastic or food quality paint with a beeswax coating.
- d) Extraction facilities shall be clean and well maintained, preventing any possible robbery by bees, other insects or rodents.

6.13.6 Storage

Beekeepers shall engage in taking every measure necessary in order to preserve the quality of their products. To this end:

- a) A code making it possible to retrace the extraction year shall be printed on all packaging.
- b) An inventory of annual production shall be sent to the offices of the certification bodies within a month following the last extraction.

6.13.7 Other Specifications

The following rules also apply:

- a) No synthetic products may be used for storage of apicultural products.
- b) Packaged bees may be purchased.
- c) It is prohibited to eliminate bee colonies in the fall.
- d) Beekeepers shall assure their compliance with government laws and regulations regarding beekeeping and food inspection that are currently in effect.

6.14 Aquaculture

The Organic Aquaculture are intended to be evolving are technical in nature and provide general guidelines in the organic management of fish farms with regards to the transition, cultivation, harvesting, transport, storage and processing of fish and other aquatic products from organic aquaculture in fresh or salt water and intended for human consumption. These standards do not cover the fishing or harvesting of wild aquatic produce (fish, seaweed, algae, etc.)

Aquaculture is a generic term covering all activities linked to animal or vegetable production in an aquatic environment. It is divided into several groups, the major ones being:

- Pisciculture (fish farming), best known as the production of salmon and trout
- Mollusk Farming, including Oyster Farming and Mussel Farming.
- Crustacean Farming, (particularly shrimp).

Note: These standards do not apply to the production or harvesting of aquatic plants.

General principles applying to pisciculture

Aquaculture includes a large variety of production systems that can be set up in either salt or fresh water, or a mixture of the two (brackish water). An aquaculture farm may thus produce aquatic plants and animals either in enclosed areas such as fishponds, tanks or tubs, or in open areas such as fish farms that have recourse to nets and lines or any other material needed to operate them. In accordance with the principles of organic aquaculture, the following guidelines outline the general operation of aquaculture production systems:

Create a favourable environment for a sustainable aquaculture that minimizes environmental impact;

- Provide growing conditions that respect natural species behaviour;
- Use cultivation methods free from hormones and antibiotics.
- Use natural reproduction methods;

- Promote greater species diversity;
- Focus on the integration of natural plant varieties in aquaculture management;
- Use organically certified feed (No GMOs);
- Avoid pesticides and synthetic herbicides;
- Limit fish stock densities;
- Minimize energy consumption;
- Minimize reliance on synthetic medication;
- Carry out production on premises licensed by an accredited certification body.

These standards apply without overriding provisions contained elsewhere in Quebec's organic reference standards relative to the production, preparation, marketing, labelling and inspection of organic products. Therefore, the general provisions described in Section 6.3: Animal Feed also applies to aquaculture.

Species found living freely in open waters or that cannot be inspected according to organic production procedures are not included in these standards.

6.14.1 Site Selection and Interaction with Neighbouring Ecosystems

- | | |
|----------|---|
| 6.14.1.1 | The choice of site and farm management practices shall not compromise surrounding ecosystems and, shall respect the natural environment's carrying capacity. Above all, any negative impact caused by effluents or by escaping fish stocks shall be kept to a minimum through the adoption of appropriate preventive measures. When new premises are being used or already existing farms are being expanded, this shall not result in any permanent damage to naturally growing vegetation. Particular care must be taken in this respect when this vegetation has been classified regionally or internationally as a rare or endangered ecosystem (e.g.: Alworth regions, tropical and mangrove forests). |
| 6.14.1.2 | Appropriate management methods must be used for fish farming areas and in basin design in order to ensure that the water will maintain its ecological capacity, according to geographic conditions (e.g.: amphibian and aquatic insect reproduction zones, migratory bird resting places, fish migration routes, etc.). For this reason the operator must protect or replant large areas covered in natural vegetation (e.g.: aquatic reeds or higher-level marsh plants). |
| 6.14.1.3 | When making sure fish farm areas are protected against predatory birds and other animal species, preference shall |

be given to measures that do not cause physical harm to aquatic animals (e.g.: nets or scarecrows).

6.14.2 Transition to Organic Aquaculture

During the transition period, the operations manager shall make it a priority to introduce procedures throughout the whole operations site that are consistent with organic aquaculture.

Transition periods determined by certification bodies must be adapted to each situation, given the fact that aquaculture production characteristics may vary enormously from one operation to another, depending on the biology of various organisms, the management methods used, the geographical conditions, and how operations are structured.

6.14.2.1 Transition Plan

The overall production of the operations site must be converted in a manner consistent with organic standards currently in effect and according to the timeline established by the certification body concerned. Whenever production units within the same operations site cannot be converted simultaneously, they must remain independent of each other and each unit shall be converted in a way that meets the standards currently in effect. To be labelled as organic, aquaculture products must originate from entities produced in accordance with these standards, for a period of at least one year or the equivalent of at least one reproduction cycle.

The person in charge of production shall develop a transition plan made up of the following elements:

- The farm's history (before transition) and the current situation;
- A timeline for the various transition stages;
- A list of elements that must be changed during transition process;
- An organic production plan to be followed;
- A water management plan including water use and quality control measures;
- Transition plan for land adjacent to a fish farm site in fresh water (pisciculture).

The duration of transition period shall be one year or the equivalent of at least one reproduction cycle for the species or living organisms involved.

6.14.2.2 Requirements

During a transition period, the principal requirements are as follows:

When only part of an aquaculture operation is converted according to organic production principles, then the following requirements apply:

- Physically mark out the non-organic production units targeted for organic production. When cultivating in open areas, the production site involved must be located at least 300 m from any potential pollution sources or non-organic production units that might be located nearby. When production is land based, a distance of at least 30 m from non-organic production units is required. The basin or basins undergoing organic transition must always be upstream from the non-organic basins.
- Make sure production units can be inspected at any time (monitoring of water quality, sanitation measures, plant health products, inputs and any other factors, elements or substances to be considered relative to these standards).
- Make sure that the system, and the procedures and various logs are identified and can be easily verified.
- Verify that the operation has provided a written list of procedures carried out when undertaking production unit transition and that there has been no possible commingling with non-organic units.
- Make sure that feed and health care comply with these standards.

6.14.2.3 Duration of Transition Period

Aquaculture products being sold may be referred to as organic produce when these standards have been fully applied for at least one year or one reproduction cycle, for the species involved. The certification body may shorten or lengthen the duration of this transition period depending on the species' reproduction cycle and specific site factors; for example environmental conditions such as former site usage in regard to metabolic waste, sediments and water quality. The Certification body must carry out at least one inspection visit during the transition period in order to verify compliance with these standards.

6.14.3 Aquatic Animal Species and Origins

- 6.14.3.1 Fish species intended for organic aquaculture shall ideally be taken from indigenous varieties or adapted to regional or local natural conditions, and have been raised under constant organic management methods. Aquatic animals produced in an organic manner must be cultivated within a defined population, similar to a herd of cattle or a poultry flock. When appropriate, precedence must be given to a polyculture of different fish species. Every effort must be made to avoid any risk of escape or infiltration of cultivated species into natural environments.
- 6.14.3.2 The certification body may authorize the introduction of entities of non-organic origin, provided they are no more than two days old and are not the product of genetic engineering (gynogenesis) or were not obtained by polyploidization. Eggs of non-organic origin may be introduced before hatching, i.e. when they are still embryos and are transportable.
- 6.14.3.3 Fingerlings and young hatchlings must not have been treated with antibiotics, growth stimulants or hormones.
- 6.14.3.4 With the exception of mollusks, aquatic animals captured in the wild may not be certified as organic. However, their offspring may be if they have been raised according to these standards.

6.14.4 Reproduction

- 6.14.4.1 Cultivation methods must generally allow natural methods of birthing, hatching or spawning. For fish however, the use of artificial methods involving human intervention to extract sexual substances and fertilize eggs is authorized. The use of hormones, even those from the same species, is prohibited.

6.14.5 Aquatic Animal Feed

- 6.14.5.1 Feed rations supplied to aquatic animals must be compatible with diets occurring in the natural environment and be designed according to the specific nutritional needs of each species. However, a part of feed rations for carnivorous species may be substituted with feed originating from plants. Feeding methods used for cultivation stock must comply with the regulations prescribed by the CARTV.
- 6.14.5.2 Aquatic animals raised organically must be fed with a feed ration wholly constituted from ingredients originating from organic products or based on wild fish coming from sites

with little or no pollution, or from any other substance included on the list of the products authorized as food supplements and additives by the CARTV.

6.14.5.3 When required and in unusual circumstances, the certification body may grant temporary exemption to a fish farm, allowing extended use of non-organic feed. The calculated average for a year or a life cycle may not constitute more than 30% of a feed formula if the ingredients come from cultivation during the transition period or more than 20% of the feed formula if the ingredients come from a non-organic cultivation.

6.14.5.4 Certification bodies may require documented evidence showing that feed intended for organic fish cultivation does not contain residues originating from heavy metals, pesticides or other substances and chemicals prohibited by CARTV standards and the Livestock and Livestock Products Act.

6.14.5.5 In order to meet the specific needs of certain species, minerals and vitamins of natural origin may be added in the form of food supplements.

Under exceptional circumstances, ingredients obtained through synthetic or non-organic procedures may be authorized if they meet conditions established by the certification body. These conditions must fall into one or other of the following categories:

- a) deficiencies specific to a given operation or feedstock;
- b) particular types of animals at a certain stage of development;
- c) unique and abnormal circumstances beyond the operator's control.

6.14.5.6 Upon approval from the certification body, preservatives may be used in feed when derived from bacteria, mushrooms, moulds or plant-based products such as enzymes, providing they do not stem from GMOs.

6.14.5.7 Carnivorous species may be fed fish scraps and meal and oils from aquatic animals. These must come from production that meet the requirements listed in paragraph 6.14.5.2.

6.14.5.8 Scraps or waste coming from cultivated species shall not be re-used to feed this same species.

- 6.14.5.9 Antibiotics and synthetic growth agents, antioxidants and appetite stimulants, as well as pure amino acids and synthetic dyestuffs are prohibited in feed diets. However, certain natural colouring additives are allowed.
- 6.14.5.10 Except for insects, it is strictly forbidden to use meal derived from land animals in the diet of organically cultivated fish.

6.14.6 Sanitary Measures and Precautions

- 6.14.6.1 Precautionary health measures must be established and maintained. Special attention should be given to the physiochemical quality of water. Other obligatory practices include appropriate species selection, provision of suitable feed rations, living conditions established in a manner that takes natural behaviour and stress reduction into account.

In the event of disease, precedence must be given to a curative approach that uses natural methods and products. Veterinary care products and techniques (phytotherapy, homeopathy, etc.) along with authorized restricted substances may be found in Appendix A, Section A2.3 and A2.4, and include:

- Natural physical methods (such as drying and freezing);
- Non-toxic inorganic compounds (H_2O_2 , NaCl, $CaCO_3$, CaO, NaOCl);
- Non-toxic natural organic compounds (peracetic acid, citric acid, formic acid, ethanol);
- Vegetable substances (i.e. aromatic species Labiatae (Mint Family) and Allium (Garlic Family) Ryana speciosa, Derris eloptica, Neem/Azadirachta indica;
- Oil emulsions based on paraffin and/or vegetable oil;
- Bacillus thuringensis;
- Permission to use Rotenone (extract of Derris eliptica or other plants) must be sought from the certification body;
- Homeopathic products.

- 6.14.6.2 Restricted use substances as listed in Appendix A, Sections A2.3 and A2.4, or any other synthetic substance, may only be used on vertebrate organisms and only when there is no other alternative and if a federal or provincial law requires it. To maintain their organic status, fishes shall not be treated with any synthetic antibiotics. When the reproductive or life cycle is less than one year, animals must not be treated more than once with restricted substances listed in Appendix A, Sections A2.3 or any other synthetic substance.

If such products are used, animals treated must undergo a withdrawal period equal to twice the prescribed period or two weeks, whichever is the longer. If the number of treatments is greater than the established limit, the animal will lose its organic status.

In the event of treatment with the restricted use substances listed in Appendix A, Sections A2.3 and A2.4 during hatching, broods may not be granted organic status until a two-week period or the twice the withdrawal period prescribed, whichever is longer.

- 6.14.6.3 Aquaculture produce treated more than twice with synthetic veterinary medicines or any other chemical must neither be sold nor labelled as being organic. The use of veterinary medicines on invertebrate organisms (mollusks and crustaceans) is prohibited.
- 6.14.6.4 Advanced harvesting or fishing may be considered as an alternative measure in the event that threats to the animals' survival could lead to the use of prohibited substances.
- 6.14.6.5 Relying on prophylactic treatments using synthetic veterinary medicines or chemical products in a routine way is prohibited.
- 6.14.6.6 Vaccination is authorized if there is an obvious disease present in the region that cannot be fought using other natural techniques. In this event authorization must still be obtained from the certification body. However obligatory vaccinations required by law are authorized. The use of genetically modified vaccines is prohibited.
- 6.14.6.7 The addition of water and feed made from substances intended to stimulate growth or production (including antibiotics, coccidiostats and other artificial growth stimulating additives), as well as the use of hormones or other substances to control reproduction (for example, inducing or synchronizing fertility periods, bringing into heat) or other reasons, are prohibited. Hormones may however be administered to particular animals within the

framework of veterinary treatment. In this case the animal must follow the rules prescribed in 6.14.6.2.

- 6.14.6.8 Refusal to administer an appropriate treatment for a disease in order to maintain organic status is prohibited.

6.14.7 Cultivation Conditions

- 6.14.7.1 Aquatic cultivation using organic methods must occur within a secure and well-managed production system adapted to encourage the animal's natural health and behaviour, and where risk of escape has been reduced to a minimum. Fish ponds, cages or basins must be large enough to allow fish to adopt behaviours that are identical or similar to the conditions they would have in the wild, adapted to allow them to form shoals.

Water must be taken from natural sources, be they wells, lakes, rivers or marine areas where a minimal risk of pollution is present. When water is scarce in any given environment, then it must be recycled. In order to conserve water resources and to avoid too much pumping, recirculation as well as bio-filtration are allowed.

Water quality (temperature, pH, salinity, and oxygen, ammonium, nitrate and phosphate content) must comply with the natural requirements of each species. Oxygenation or permanent artificial ventilation is permitted for improving water quality. Priority should be given to mechanical means requiring minimal amounts of energy.

- 6.14.7.2 Producers must not induce triploid in animals, regardless of the artificial means selected.
- 6.14.7.3 Open water production systems must be located and managed such that they minimize any risk of contact with prohibited substances, including environmental pollution.
- 6.14.7.4 Fish must be given exposure to natural light for the greater part of their life. If artificial light is used, the total exposure period must not exceed sixteen (16) hours per day.
- 6.14.7.5 Construction materials and equipment used for production must in no way be composed of materials that cause harm to the environment or contaminate aquatic organisms. Construction materials must comply with federal and provincial regulations in effect and meet CARTV requirements. In this sense, construction materials and production equipment containing paints and using raw materials treated with toxic chemical agents (e.g.: paint, varnish or other materials containing synthetic agents, etc.) are prohibited. These include anti-clogging agents such as

copper-based paints used to reduce the build-up of deposits on nets.

- 6.14.7.6 The size of enclosures must be appropriately matched to the specific needs and characteristics of each species. When cultivating at sea, the smallest marine cage authorized is 100 m³.
- a) In the organic production of carp and other species associated with polyculture (mixed species) ponds, earth ponds and basins must have a minimal average water depth of 0.7 metres. For any given pond, the maximum authorized population density is 4,000 per hectare, and total fish species production is limited to 500 kg per year and per pond hectare (average water surface).
 - b) For the organic production of salmonids in fresh or lake water, maximum cultivation density is 30 kg/m³.
 - c) For the organic production of salmonids in seawater, the maximum cultivation density is 20 kg/m³.
 - d) For the organic production of species such as Sea-Perch, Bream, Croaker and Turbot, the maximal cultivation density at sea is 25 kg/m³, and in terrestrial zones it is 35 kg/m³.
- 6.14.7.7 The production of organic fish and non-organic fish of the same species (parallel production) is prohibited, except where the operator can demonstrate that the system is managed in a way that prevents mixing between organic and non-organic production.
- 6.14.7.8 In an open water operation, organic and non-organic production units must be separated by a distance of at least 300 m. In such cases, organic production basins must always be located upstream.
- 6.14.7.9 In land based facilities, a physical barrier must be put in place to prevent water from circulating between non-organic and organic units. Water recycled from non-organic cultivating basins may not be used to feed organic basins.
- 6.14.7.10 With the exception of open water operations, producers must make it a priority to recycle any residual nutritive substances produced by an operation. Waste (feed remains and feces) resulting from aquaculture operations shall be used as fertilizer in organic agriculture or in other suitable applications.

Wastewater must meet standards from the *Environment Quality Act, R.S.Q. c. Q-2* or its equivalent outside of Quebec.

- 6.14.7.11 Production and work equipment must be maintained using mechanical and/or organic methods.

6.14.8 Stock Identification

For each aquatic animal group, producers shall maintain records sufficiently detailed so as to document group origins, feed rations, living conditions and, when necessary, applicable health practices pertaining to each group. Identification techniques must be such that fish production locations and/or living conditions may be traced. Each vat or crate ultimately going to consumers or to undergo secondary processing must bear markings or tags such that the each producer and batch can be traced back to their origins. In order to ensure batch tracebacks for larger fish, they must have individual tags attached to them. Larger species must have a sealed tag affixed to the fish's mouth or gill. Identification tags must be preserved until the last stage of production.

6.14.9 Harvesting, Transport, Slaughtering, Storage and Processing

6.14.9.1 Harvesting

- 6.14.9.1.1 Techniques used to capture and handle fish or mollusks and crustaceans must be selected such that they cause minimal physiological stress or injury, and that natural habitats are preserved in the best way possible. In order to keep stress levels to a minimum, only essential handling shall take place.

- 6.14.9.1.2 As much as possible, catching and harvesting methods must be either physical or mechanical. The use of tranquilizing chemicals or strong doses of CO₂ is prohibited. Also prohibited is the use of explosives or paralyzing toxins (even those of vegetable origin).

- 6.14.9.1.3 The quality of fish, mollusks and crustaceans shall be preserved by maintaining the cold chain from the point of harvest to the point of sale. If ice is used for refrigeration, it must be made from potable water or clean seawater.

6.14.9.2 Transporting Live Fish

- 6.14.9.2.1 In order to minimize stress or suffering, fish should be transported as quickly as possible.

Vehicles used must be adapted to the types of live organisms being transported. For this reason certification bodies must ensure that water quality requirements are met (including temperature, oxygen, etc), water quantity, population density, and they must check precautions taken to prevent leakage, the distance to be traveled and the time it takes.

With the exception of invertebrates', (mollusks, shellfish and Echinodermata such sea urchins which, are transported dry), travel time should not exceed 10 hours.

6.14.9.2.2 In order to adequately preserve live mollusks following purchase or harvesting, they must immediately be placed in a container and covered with a wet cloth. To be able to breathe they must not be immersed in water, or stored in a hermetically sealed container. Mollusks must be kept at temperatures between 0° to 4° C.

6.14.9.3 Slaughtering

6.14.9.3.1 Slaughtering must take into account the physiology and natural behaviour of the organisms involved, and be carried out according to acceptable codes of ethics. In order to avoid any form of suffering, fish must be slaughtered in a way that minimizes pre-slaughter stress levels. Fish should not be slaughtered in fishponds, cages or vats where other fish are living.

6.14.9.3.2 Slaughtering techniques must be approved by the certification body in accordance with the following:

- Post-transport period;
- Type of slaughtering premises, as well as its setup;
- Type and quality of the equipment to be used;
- Zones and contact conditions between living and dead organisms.

6.14.9.4 Storage

6.14.9.4.1 Refrigerated Storage

- Storage must meet provincial and federal regulations currently in effect.
- Organic fish must be stored in separate rooms or compartments identified for this purpose.
- Systematic rotation and management plans for organic stock must be developed in order to avoid any contact with non-organic products.

6.14.9.4.2 Freezer Storage

- Freezing and the deep freezing of organic fish are authorized. Freezing techniques used should not contaminate produce through contact with prohibited substances found in the cooling liquid. For this reason techniques using forced air are allowed, but those using sprinkling are only acceptable insofar as they do not involve substances prohibited by current standards. Equipment used must meet present government regulations.
- Organic fish must be stored in separated rooms or compartments that have been identified for this purpose.
- Systematic rotation and management plans for organic stock must be developed so that any contact with non-organic products is avoided.

6.14.9.5 Processing

6.14.9.5.1 Processing techniques must comply with regulations laid down in Section 8 of the Quebec Organic Reference Standards. The only ingredients of non-agricultural origin and authorized processing agents allowed are those indicated in Appendix A, Sections A3.1 and A3.2.

6.14.9.5.2 Washing techniques must be such that processing facilities and equipment are kept

in clean and healthy condition. Surfaces and equipment coming into contact with food must be fully rinsed with potable water in order to eliminate any residues from the cleaning and disinfecting products used during washing operations. Products authorized for use during washing and disinfecting are listed in Appendix A, Section A4.

7. Maple Production

In the production of maple syrup or its by-products, care shall be taken to ensure that the characteristic maple flavour predominates. Organic standards shall be respected during all stages of maple syrup production, from the maintenance and development of the sugar bush, through the collection and storing of the maple sap, to the processing of the sap into syrup and derived products. This includes the washing and the sterilization of equipment and the storage of finished products.

It is for this reason that general organic production standards are fully applicable to maple production. This includes keeping of records, preparing detailed maple growing operation plans including the following elements: sugar shacks, pumping stations, location of pipe lines, the number of taps per pipe line and cardinal points, the history of each maple operation, a comprehensive area plan, etc.

Producers must be committed to respecting governmental regulations currently in effect with regards to maple products (LRQ, p. 29, a 40, Chap. 8). These regulations refer to the product's composition and quality, cleanliness of premises, classification, inspection, containers and packaging, product identification, fuels, etc.

7.1 Sugar Bush Development and Maintenance

7.1.1 General Principles

Organic maple syrup production should involve management practices respectful of sugar bushes and their ecosystems. Development and maintenance shall focus on preserving the sugar bush ecosystem and improving tree population vitality over the long term.

7.1.2 Plant Diversity

Producers should encourage species diversity in the sugar bush, in particular companion species to the sugar maple. Companion species should represent a minimum of 15% of the tree population within the sugar bush. The growth of these companion species shall be encouraged if they represent less than 15% of the tree population.

It is prohibited to systematically clear undergrowth and brush, even when they are very abundant. This vegetation may however be cut in order to clear paths and to facilitate movement.

7.1.3 Thinning

When necessary, or when requested by the forest manager, tree thinning shall be reduced to a strict minimum and also be well distributed throughout the sugar bush. For clearings larger than those prescribed in these standards, the operator shall make use of professional services that will respect sugar bush standards, such as those applied to land on public property.

7.1.4 Tree Protection

In order to preserve plant diversity and the growth of young trees, access to the sugar bush by farm animals (e.g., beef or dairy cattle, pigs, or domestic deer) is forbidden at all times. The pipeline network shall be installed so as not to damage trees or stunt their growth.

7.1.5 Fertilization

Authorized soil amendments for sugar bushes include wood ash, agricultural lime and natural fertilizers without synthetic additives (or any other product appearing in Appendix A, Section A1.1).

7.1.6 Pest Control

Understanding the habits of the pests, that may attack the sugar bush or production equipment, and the search for balanced solutions to these attacks, are the best ways of combating them. For squirrels and other destructive pests, substances listed in Appendix A, Sections A1.4 and A1.5, as well mechanical and glue traps are permitted, as are natural repellents, such as cayenne and mustard pastes. When their populations are too high, animals may be hunted. Poisons of any kind are prohibited. Only products appearing in Appendix A, Section A1.3 and A1.4 can be used to control diseases or insects within the sugar bush.

7.2 Tapping

7.2.1 General Principles

Tapping practices shall be those intended to minimize risks to the health and longevity of the trees.

7.2.2 Tree Diametre and Number of Taps

The following table indicates the maximum number of taps that a healthy maple can support, based on its CHD (chest height). CHD is the tree's diametre measured at a height of 1,3 metres (4,265 feet) above the soil surface. No maple may have more than 3 tapholes.

Diametre Measured at a Height of 1.4 Metres (4.5 feet) Above of the Soil Surface	Equivalent Circumference	Maximum Number of Tapholes

Less than 20 cm	Less than 63 cm	0
From 20 to 40 cm	From 63 to 125 cm	1
From 40 to 60 cm	From 126 to 188cm	2
Up to 60 cm	Up to 189 cm	3

7.2.3 Depth and Diametre of Tapholes

The depth of tapholes shall be no more than 4 cm, not counting the bark, or 6 cm, if the measurement is made from the surface of the bark. Taphole diametres shall not be greater than 11 mm.

When a tree is sick, has been attacked, is decaying or when its tapholes are healing badly, taphole standards shall then be stricter. The number of taps per tree should then be reduced to 2 when standards allow 3, and to 1 when they allow 2. It is thus prohibited to make tapholes when the C.H.D. is less than 25 cm (~97/8"). If the trees in the sugar bush are largely affected, then these regular standards apply but with using spouts of a reduced diametre or by not tapping entirely.

7.2.4 Disinfection of Tapholes and Tapping Equipment

The use of any type of germicide in tapholes, and on tapping equipment including paraformaldehyde pellets or denatured alcohol (a mixture of ethanol and ethyl acetate), is prohibited. If it is absolutely necessary to use a disinfectant during tapping, only food grade ethyl alcohol, applied by sprinkling it on spouts and in tapholes, may be authorized.

7.2.5 Over- and Under-Tapping

Double tapping – the practice of retapping a previously tapped tree during the same season – is prohibited. Spouts shall be removed from the trees no later than 60 days following the year's final sap flow in order to allow the trees to heal.

Renewing the tap, i.e. retapping the same hole during the production season is allowed if the taphole diametre is not changed.

The tapping of maple trees at any other time than the sugar bush operation period (maple syrup season) is forbidden.

7.3 Collection and Storage of Maple Sap

7.3.1 General Principles

The equipment and techniques permitted by these standards are intended to provide processed products of the highest quality possible. Equipment shall be in good condition and be used according to manufacturer's instructions. Standards that apply to storage tanks also apply to tanks used to transport collected sap all the way to the evaporator.

7.3.2 Spouts (Spiles)

Only the use of spouts made from food-grade materials is permitted.

7.3.3 Vacuum Collection Systems

All parts of the collection system that might come in contact with the sap shall be made with materials suitable for use in the manufacture of a food product. Pumps shall be well maintained and their used oil shall be disposed of in a manner that causes no danger to the environment.

7.3.4 Storage Tanks

All equipment that comes in contact with sap or its concentrates and filtrates, such as storage tanks, connections, and transfer systems, shall be made with food grade materials. This also applies to paint used to cover them, if applicable.

All tanks shall be made of food grade fibreglass or plastic, and metal covered with food grade coating or with stainless steel. They shall be either TIG welded (metal on metal) or soldered using tin-silver solder. Stainless steel tanks with welds made of tin-lead are tolerated until they are replaced.

7.3.5 Bucket Collection Systems

Pails or buckets may be made of aluminium or plastic, but not galvanized steel. A lid shall be used to cover buckets. The same standards applying to storage tanks apply to reservoirs used to transport the collected sap all the way to the evaporator.

7.4 Conversion of Sap to Syrup

7.4.1 General Principles

Sap tends to take on the odors of anything it comes into contact with during its conversion to syrup. Therefore, care should be taken to avoid denaturing the product at any point in the operation. For this reason the use of any technology likely to alter the intrinsic qualities of the product is prohibited.

7.4.2 Sap Filtration

Sap shall be filtered prior to conversion to syrup. This filtration shall not take away the sap's inherent qualities.

7.4.3 Sap Sterilization

Sterilization of sap prior to its conversion to syrup is prohibited, whether treating it with ultra-violet radiation or adding any type of product.

7.4.4 Reverse Osmosis Extraction and Membranes

The reverse osmosis technique of sap concentration is acceptable. Only membranes of the reverse osmosis and nano-filtration (ultra-osmosis)

types are allowed. The technical specifications of membranes shall be available for inspection. In the off-season, osmosis membranes shall be stored in filtrate in a hermetically sealed container kept in a frost-free location. SMBS (sodium metabisulfite) may be added to the filtrate to prevent mould growth. In that case, the membrane shall be rinsed prior to its use the next spring, with a volume of water equal to the hourly capacity of the membrane (e.g.: 600 gallons of water for a 600 gallon/hour membrane). Off-site washing and storage of the membrane (e.g.: by the membrane supplier) shall be documented and this requires a personalized compliance guarantee in the name of the maple producer, signed by an outside party that provides this service, indicating the products used to wash and store membranes.

7.4.5 Evaporators

Evaporator pans shall be made of stainless steel. They shall be either TIG welded or soldered using tin-silver solder.

Pans made of galvanized steel, copper, or aluminium and tin-plated steel (English tin) and those made of stainless steel with tin-lead welds are not allowed.

Fuels allowed include wood and heating oil. Used oil may be used as a principal or auxiliary fuel for the evaporator if the enterprise has the necessary permits for this type of use. The environment and air quality in the evaporation room shall be monitored. Also the use of forced draft systems (aerators) is prohibited.

7.4.6 Defoaming Agents

The only defoaming agents or (foaming inhibitors) permitted are Pennsylvania maple wood (*Acer pennsylvanicum*, also known as striped maple or moosewood) and all certified organic vegetable oil except those made from soy, peanuts, sesame seeds or nuts because they can cause an allergic reaction.

7.4.7 Syrup Filtration

Silica powder, clay dust and diatomaceous earth are acceptable for use in the filter presses used to filter the finished syrup.

7.4.8 Temporary Containers

The maple syrup not intended for immediate consumption shall be stored in containers made of food grade materials that do not alter the chemical composition or quality of the syrup. Authorized containers are barrels made of stainless steel, fibreglass, food-grade plastic, or metal with a food grade coating inside.

Each barrel shall carry a unique identification number, with a corresponding entry appearing in the record book of the producer. The filling date shall also be recorded.

7.4.9 Stock Inventory Status

Within a few months following the latest harvest, the operator must transmit data to the certifying body's office pertaining to syrup amounts:

- Produced during the current year,
- Originating from former years and in storage,
- Sold directly to customers.

If any syrup stock is still unsold once the annual operations have ended, the operator must ensure that all necessary steps have been made to preserve the quality of its product during the storage period.

7.5 Cleaning of Syrup Production Equipment

Equipment used within the syrup making system shall be washed with potable water, during both cleaning and rinsing.

If a cleaning product must be employed, the operator shall always follow the manufacturer's instructions regarding the concentrations to be used for cleaning or disinfecting.

Although certain cleaners do not require a rinsing stage, surfaces and pipelines shall *always* be rinsed thoroughly following the cleaning operation, thus avoiding the presence of any residues in food products.

7.5.1 Maple Sap Collection System, Pipelines and Tanks

Cleaning of the collection system, pipelines and tanks shall take place before and after each production run. When operators need to carry out cleansing or disinfecting operations in addition to washing, the products authorized include:

- In season: sodium hypochlorite followed by rinsing with potable water or filtrate for all equipment except the pipelines;
- Out of season: sodium hypochlorite, isopropyl alcohol (for tubing only) or fermented sap for all equipment followed by rinsing with potable water, filtrate or fermented sap.

All other products are prohibited, including those with a phosphoric acid base.

7.5.2 Reverse Osmosis Unit Membrane

The reverse osmosis unit and membranes shall be cleaned using filtrate, according to the time and temperature recommended by the unit's manufacturer. If a Pure Water Permeability "PWP" test taken at end of season indicates that the membrane's controlled efficiency is less than 85% of the controlled efficiency at the end of the season, caustic soda

(NaOH) may be used to clean it. Following washing with NaOH, the volume of clean water used to rinse the unit shall be greater than or equal to 40 times the dead (residual) volume of the unit, meaning the total volume of the unit and its components once drained. The daily efficiency readings and calculations shall be recorded in a logbook. The membrane flushing water should be disposed of in a manner that causes no harm to the environment. Off-season treatment of membranes with citric acid is permitted.

7.5.3 Evaporators

May be washed, with potable water, at any time. Vinegar (acetic acid) or fermented sap may be used at the end of the season.

8. Food Products Preparation

8.1 General Information

8.1.1 The integrity of organic products shall be maintained throughout processing procedures. To do so, it is advisable to use techniques appropriate to the kinds of ingredients used.

8.1.2 Preparation methods require the observance of a strict set of rules.

8.1.3 Irradiation (ionizing rays) and the use of microwaves on organic ingredients or products are prohibited.

8.1.4 Handling of organic food in preparation facilities shall be done using procedures intended to avoid any contact with substances prohibited in these standards.

8.1.5 The main ingredients in organic products shall be produced according to organic standards. A product may not contain both an organic and a non-organic version of the same ingredient.

8.1.6 Any organic ingredients, entering in a product composition whose contents are partially or completely organic, must be certified by an accredited organization or whose certification program is recognized by CARTV.

Note: as of the date when the *Canadian Organic Products Regulation* will come into effect, certifying bodies will be required to be designated by the Canadian Food Inspection Agency (CFIA).

8.1.7 Agriculturally produced ingredients and certain food additives not available in certified organic format are regarded as secondary ingredients that must be replaced by organic equivalents as soon as they become available.

Secondary ingredients include the following:

- Agricultural produce not available in organic form as long as they do not originate from genetically modified organisms;
- Non-Agricultural Ingredients mentioned in Appendix A, Sections A3.1 and A3.2;
- Thickening agents, dyes and flavours derived exclusively from vegetable or animal sources;
- Untreated aromatics, spices and condiments;
- Fermentation organisms (yeasts).

8.2 Facilities and Equipment

- 8.2.1 Facilities and equipment in processing establishments shall comply with all regulations and hygiene measures intended to guarantee food safety. Procedures shall be established to prevent contamination or deterioration of food throughout its preparation. Enterprises shall implement building and equipment sanitation programs in compliance with government requirements.
- 8.2.2 Equipment and surfaces coming into contact with food shall be made of inert materials that have been approved for use with food.
- 8.2.3 Lubricants used in equipment maintenance shall be approved for use in food preparation.
- 8.2.4 Washing and disinfecting operations for equipment and surfaces coming into contact with food shall be followed by double rinsing with potable water, to insure that they are free from cleaning product residues.
- 8.2.5 Enterprises using the same premises to handle both organic and non-organic agricultural products shall demonstrate that they have the physical and administrative capability to ensure adequate segregation of these products. With regards to the physical segregation of products:
- a) Processing, transporting and storage equipment shall be cleaned whenever there is a changeover between non-organic and organic products;
 - b) Equipment and storage locations reserved for organic products shall be clearly identified.

8.3 Processing Procedures

- 8.3.1 Processing methods should be mechanical, physical or organic (e.g.: fermentation, smoking) and as much as possible reduce the use of non agricultural ingredients and additives (Appendix A, Section A3.1). Additives and processing aids may not be added to a product except for the following reasons:

- a) To maintain its nutritional value;
- b) To enhance its natural preservative capacity or stability;
- c) To provide it with a composition, consistency and appearance which will not mislead the consumer as to its nature, substance and quality, provided that:
 - There is no possibility of obtaining a similar product without the use of such an additive or processing aid;
 - It contains no other substance prohibited by these standards.

8.3.2 Transformation of maple syrup into derivative products (maple butter, sugar, taffy, etc.) shall respect the current organic processing standards. No other product may be added to syrup or other maple products during their production, whether to improve the taste, texture or appearance. Cones may be used if they constitute less than 5% of the weight of the final product and are guaranteed to be GMO free.

8.3.3 In the particular case of fruit and vegetables, any methods used to ensure a product's improved visual presentation (e.g. waxing, misting, etc.) shall be compatible with these standards and there shall not be any use of prohibited substances.

8.3.4 It is forbidden to add sulfites or nitrites and nitrates during the various steps in the preparation to certain organic foods, except in the following cases, where specific labelling requirements apply (see Section 9.3.2):

- In the fabrication of wine and alcoholic beverages, where a reliance on sulfites is permitted;
- Certain butchery products where, a reliance on nitrites and nitrates becomes imperative.

A detailed list of authorized additives and processing aids, and also authorized procedures are provided in Appendix A, Sections A3.1 and A3.2.

8.4 Pest Control

8.4.1 Pest avoidance is possible through the adoption of good production practices. Pest control should be primarily preventive, using methods such as disruption, removal and elimination of habitat and blocking entry points. Extermination treatments using pest control products shall only be considered as a last resort.

8.4.2 Recommended solutions for problems caused by insect and rodent pests include installing physical barriers and treatments like ultrasound, sound, light or ultraviolet light. Authorized solutions include static bait and pheromone traps, controlled temperature controlled atmosphere (carbon dioxide, oxygen, nitrogen) and the use of diatomaceous earth. In

addition, the other substances listed in Appendix A, Section A4.2 may be used in handling, storing, transport or processing equipment and facilities and provided that contact with organic products and packaging materials is avoided.

8.4.3 The fumigating of storage facilities and premises is a regulated procedure requiring authorization from the certification body. No organic foods or raw ingredients shall be on the premises or in storage facilities during fumigation. The certification body shall be informed in writing of each fumigation, far enough in advance to be able to send an inspector to supervise it, if it deems it necessary. Food products shall be removed from the premises for at least 72 hours (three (3) days) during fumigation. In order to minimize errors, the fumigation shall be undertaken by a trained professional. Details of the operation, including date, kind of products used and the address of the pest control service shall appear in the records. A test for residues may be ordered before organic products are reintroduced following fumigation. A plan of action shall be developed with the purpose of eliminating or at least reducing the reliance on such procedures.

8.4.4 Banned treatments include irradiation, fumigation of food or raw ingredients, and fumigation of production and storage facilities with ethylene oxide or Lindane (DDT).

Fumigation with the carbon dioxide (CO₂) in presence or not of food is authorized.

8.5 Packaging Material

8.5.1 Packaging materials shall be of food grade quality, clean, appropriate for their intended use and shall not contaminate the food. As much as possible, packaging materials shall be recyclable or returnable. Over-packaging shall be avoided.

Generally speaking, banned materials include lead, PVCs and other chlorinated plastic materials.

8.6 Personnel Training

8.6.1 Employees directly involved in the preparation of organic food shall be provided with appropriate training, relative to the tasks they perform within the system put into place by the enterprise.

8.6.2 Employee categories and positions subject to training shall be designated and shall include all personnel in a position to affect the organic integrity of products, within the framework of carrying out their tasks.

8.6.3 Training sessions shall meet the following minimal requirements:

- a) Training sessions shall be given by personnel qualified in this field.
- b) The participation of personnel taking part in these sessions shall be recorded.

- c) Program content shall allow participants to improve their skills and shall be kept updated from one year to another.

9. Labelling, Advertising, Display Materials and Commercial Documents

The following rules must be followed by all enterprises producing and/or preparing organic agricultural food and products for the purpose of selling them on their behalf and under their own trademark.

9.1 Information Regarding Organic Production Methods

9.1.1 Products shall be considered as bearing information referring to organic production methods when these products or their ingredients are identified using the following terms (or their abbreviations) on labels and in advertising or commercial documents:

- "Organic";
- "Biological";
- "Ecological";
- "Biodynamic";
- Any similar term intended to lead retailers and consumers to understand by this reference that these product results from organic agriculture.

9.1.2 Section 9.1.1 shall not apply when these terms clearly have no connection with the production method (e.g.: ecological house).

9.2 Required Information and Prohibited References on Labels

9.2.1 All certified products having labels that mention the term organic must be properly identified before being placed on sale. The following data elements must appear both on the product label affixed to packaging and on all transaction documents referring to the product (in addition to those required by the Canadian Food Inspection Agency):

- a) The company's identification (name or identifying code) to which an accredited body has issued an organic compliance certificate for the production or the most recent processing operation (depending on which one applies), resulting in the certified product;
- b) The trade name (either full name or acronym) of the certifier to which the operator is subject, inscribed in a clear and readable manner;
- c) The batch number, if applicable;

- d) The name of the country or territory from which all products originate, if neither produced nor processed in Québec, even though packaged and labelled in that province.

Explanatory note:

The identification of the country of origin applies to all single-ingredient products having been repackaged (e.g. raisins from Greece) or rebottled (e.g. olive oil from Spain), without the Québec operator having modified or mixed them with other ingredients (according to a recipe). When any multi-ingredient products were mixed abroad before simply being repackaged by the Québec operator, the name of the country in which the original mix was carried out must appear on the product's label.

- 9.2.2 Any mention of the following items is prohibited, both on the label attached to the product's packaging and on all transaction certificates referring to them:

- a) Any information claiming that a food product contains no ingredients resulting from genetic engineering (GMOs), unless proven by independent tests and that this product contains one or more ingredients whose equivalent version can be produced in the form of genetically modified crops included in the official list found at the Health Canada Internet site:

http://www.hc-sc.gc.ca/fn-an/gmf-agm/appro/index_e.html

- b) The term "organic" or one of its synonyms as mentioned in 9.1.1 has been affixed to the main panel of the packaging, when the product contains less than 95% organic ingredients originating from organic agriculture.
- c) Any mention added to the label (other than the list of ingredients) which leads to the belief that the product contains organic ingredients when the product contains less than 70% organic ingredients originating from organic agriculture.
- d) The corporate logo of the certifying body that verified the product when the product contains less than 70% organic ingredients.
- a) Notations such as product produced during a period of transition to organic production or any other similar wording referring to transition or conversion.

9.3 Labelling of Products Containing Ingredients of Organic Origin

- 9.3.1 In order for a product to bear an "organic" label, at least 95% of its ingredients must originate from agricultural and aquacultural enterprises or production units holding an organic compliance certificate conferred by a certifier approved (accredited or recognized) by the CARTV.

9.3.2 When certified products have less than 100% ingredients of organic origin, persons marketing them shall abide by the follow labelling rules, listed in Appendix B:

- a) Any mention on the label that a product is "organic" is only allowed on certified products where at least 95% (by weight or volume, excluding salt and water) of their ingredients originate from organic agriculture or aquaculture. Exceptions to this rule include:
 - Wine and alcoholic drinks whose processing operations (wine making, etc.) were monitored by an accredited certifier, and to which sulphites have been added: the label affixed to product packaging must mention "wine made from organic grapes" when used for wine, or an equivalent mention when used for other alcoholic drinks (effective January 1, 2006).
 - Any foodstuffs wherein the processing requires the obligatory addition of sulfites, nitrates or nitrites: must bear the description "... made from such organic ingredient or such organic food group(s)".
- b) The mention "contains X% of ingredients certified as organic" on the packaging is obligatory for those certified products where between 70% and 95% (by weight or volume, excluding salt and water) of their ingredients originate from organic agriculture or aquaculture.
- c) Information on the list of ingredients pertaining to the organic nature of certain product ingredients is authorized in so far as any ingredient contained in the product is not in both an organic and non-organic format.
- d) When a product's contents are not 100% organic, the list of ingredients must make a clear distinction between those ingredients that are organic and those that are not. However, the organic ingredients on this list shall be mentioned using a format, colour and font style similar to those used to list ingredients not of organic origins. Finally, all additives and processing aids that remain in the products shall appear in the list of ingredients.
- e) The list of ingredients shall itemize all ingredients, ordered according to their weight. All additives and processing aids that remain in the products shall also be listed next to the ingredients. Non-organic ingredients of agricultural or aquacultural origin shall be indicated as such. It is unacceptable to dissimulate unauthorized ingredients through an overly general statement of ingredients.
- f) If herbs and spices constitute less than 2% of the total weight of the product and are not individually listed in the ingredients statement, they shall be listed as "herbs" or "spices." In such

cases, the complete mix used shall be made available to the certification body's inspector.

- 9.3.3 All finished products having information on their labels referring to the term “organic” or one of its derivatives on one of their panels must also have clearly displayed on their packaging the name (company name) of the body that certified the product. This refers to the organization that issued the compliance certificate (for products containing more than 70% organic ingredients) or the verification certificate (for cosmetics and personal care products) to the operator that has carried out the most recent operation resulting in this product.

The presence on the finished product's label of any seal of conformity to the standards, of the certifying body's logo and of the certifying body's address is optional for any product containing 70% of organic ingredients or more. The presence of any seal of conformity to the standards or, of the certifying body's logo, is prohibited for products that are not admissible for organic certification. When an attestation of verification has been issued by a certifying body for a cosmetic and a personal care product or a product containing less than 70% of organic ingredients, the presence of the certifying body's address is optional.

9.4 Labelling of Fruit and Vegetables by Operators

- 9.4.1 Perishable foods, such as certified fruit and vegetables, shipped and intended for sale, shall be individually labelled (using stickers or others methods) by the operator holding an organic compliance certificate for these products.
- 9.4.2 When, due to their specific nature, products cannot be labelled individually (e.g. grapes), then it is the unit of sale (grape or broccoli bunch, parsley bundle, etc.) that shall be affixed with a label.
- 9.4.3 The operator that holds the certificate shall print its name (or identification codes allotted by the certification body) along with the name of the certifier on all labels attached directly to fruit, vegetables and other food products in bulk.
- 9.4.4 In exceptional cases, when no labels can be affixed to each fruit or vegetable, their packaging must be done under the responsibility of the certificate holder and in a container upon which the label is affixed. This label must include all information required by Article 9.2.1.

9.5 Indications Relative to Inputs and Services Approved by an Accredited Certifier

- 9.5.1 When an input (as described in Part 1, Section 3.3.1 of these standards) has been approved by an accredited certifier, the only reference authorized in related advertising, labelling, commercial packaging or documentation is the following: “approved for organic agriculture or organic processing,” followed by the certification body's name. When the certifying body authorizes the use of a logo or seal to vouch input compliance, it must include the mention “input approved for organic agriculture” or “input approved for organic processing”.

- 9.5.2 When a service (as described in Part 1, Sections 3.3.2 and 3.3.3 of these standards) has been approved by an accredited certification body, the only reference authorized in related publicity, labelling, commercial packaging or documentation is the following: "approved for organic (identification of the type of service)" followed by the certification body's name. When the certifying body authorizes the use of a logo or seal to vouch service compliance, it must include the mention "service approved for organic production".
- 9.5.3 Logos must be different enough of those used for product conformity to be not mixed up by the public. The fonts used for these seals must not emphasize one term more than another.
- 9.6 Advertising, Display Materials and Commercial Documents
 - 9.6.1 Mandatory information or claims that are allowed on a food label may also be used to advertise that food. Information generally deemed as unacceptable is not allowed in advertising.
 - 9.6.2 The use of the term "organic" or the expression "certified organic", as well as any other derivative terms used to identify the type of operation (i.e.: bio, organic culture, organic breeding, organic cooking, etc.) practiced by a company are only allowed in advertising and on display material when all products resulting from this operation are certified as conforming to the reference manual applying to products within this category.

10. Storage, Preservation, Transport and Handling

So as to maintain their integrity, products originating from organic cultivation shall continue to respect organic standards throughout the entire transit, from the point of harvest right up to their sale to consumers. For this reason certification bodies shall make sure that transport, storage and preservation operations meet the following requirements.

10.1 Bulk Organic Products

- 10.1.1 It shall be assured that bulk organic products are not commingled with non-organic products. For this reason they shall neither be transported nor stored together. If this cannot be done, an adequate physical separation of organic and non-organic harvests is required.
- 10.1.2 Facilities used to store bulk organic products shall be distinct from those used for non-organic products, be reserved for storing organic products only, and with clear indications to this effect. Premises and equipment (elevators, feeders, etc.) shall be clean and appropriate for storing foodstuffs, and free of residues from non-organic products. Before storing products in storage units, it should be ensured they are free from any traces left from pesticides used during previous processing.
- 10.1.3 Storage facilities should be free from pests (insects, rodents, moulds, etc.) and shall be fit for the food products being stored. They shall be carefully cleaned using methods appropriate to the stored food products

and compliant with these standards. Pest control must be carried out in accordance with section 8.4 of these reference standards.

10.1.4 All bulk product transporters shall be approved by the certification body, based on transport methods and equipment used. Whenever a transporter does not already hold a valid approval certificate issued by an accredited certifier, it is the responsibility of the operator who dispatches the bulk organic products to declare to the certifier in a timely fashion, every transporter hired, and to make sure that this transporter respects the conditions mentioned in Section 10.1.5.

10.1.5 The transport vehicle shall be appropriate to the transported product. All equipment, vehicles, and containers *shall be inspected* before loading in order to make sure they are clean, that they have not undergone fumigation and are free of any non-organic residues or any other matter likely to contaminate the product. Surfaces of the storage containers coming into contact with foodstuffs or livestock feed should be covered only with approved food grade coatings or paints.

10.1.6 The enterprise taking delivery of the bulk food products shall obtain a bill of lading from the transporter who delivered them to the enterprise's facilities. This document shall be kept on file for the period specified for this purpose.

10.2 Organic Products Packaged on a Temporary Basis

10.2.1 The containers being used for storage and/or transportation of organic products not yet processed and not yet in their final packing shall list the following information:

- The name and address of those responsible for producing or preparing the product;
- The product name;
- The product lot number;
- A mention of the product's organic status;
- The name of the certification body for the product.

The documents accompanying them shall include this information along with a proof of certification issued by the certification body (certificate or transaction voucher).

10.2.2 Once organic products have been packed in sealed containers and clearly labeled they can then be transported and stored with non-organic products.

10.2.3 Packaging used for transport shall be in compliance with reference standards for packaging, and clearly marked.

10.3 Livestock

10.3.1 Transport of livestock shall be carried out calmly and in a non-violent manner, so as to avoid any stress, injury and suffering.

10.3.2 The use of electric prods or tranquilizers is prohibited in the transport of livestock.

10.3.3 The certification body may determine specific conditions including maximum duration of transportation.

10.4 Preservation

10.4.1 In addition to conventional room-temperature storage, the following refrigeration methods are generally acceptable: refrigerated containers equipped with thermostats; ice made from potable water; controlled or modified atmospheres (CO₂, O₂ and N₂).

10.4.2 Freezing is allowed as a food preservation method.

11. Criteria for Inclusion on the List of Permitted Substances

A list of permitted substances in organic agriculture can never be complete. In accordance with technological developments in both agricultural production and agri-food product processing, the will regularly revise this list and add new items if needed as recommended by the Standard Organic Committee. The following criteria are proposed as an analysis checklist which the Board might use to assess the pertinence of a new inclusion.

11.1 Is the Product Necessary?

The inclusion of any new product on the list shall be dictated by need. It will therefore be necessary to determine whether alternatives already recognized in routine organic agricultural practices have proven ineffective. Reference points to be used in verifying genuine need would be based upon improved yield, quality, increased protection of natural environments and ecosystems, and potential impact on human and animal health.

The use of a production input may therefore be restricted, based on:

- a) Specific types of production;
- b) Specific regions;
- c) Specific crop conditions (i.e. the number of kg per hectare);
- d) Specific methods of product application (e.g. use on foliage).

11.2 Origin and Method of Substance Production

Products shall originate from:

- a) Natural and renewable sources (plant or animal);

- b) Mineral sources;
- c) Products not considered of natural origin because they were chemically synthesized, but which have the same molecular structure as a natural product may be accepted (e.g. acetic acid, alcohol, vitamin A, pheromones).

The gathering or mining of substances from natural sources shall not compromise the natural balance of the species in the harvest regions.

When several product sources are available, priority shall be given to products obtained from renewable resources, rather than those from mineral sources, and lastly those synthesized products with the same molecular structure.

Substances from natural or mineral sources may be transformed using the following processes:

- a) Mechanical;
- b) Physical;
- c) Enzymatic;
- d) Micro-organic (e.g. fermentation, composting);
- e) Chemical processing is acceptable only in special situations.

11.3 Environment

The use of acceptable inputs shall not be harmful to the environment (plants, animals and micro-organisms). As well, an acceptable input shall not pose any risk to groundwater, air or soil contamination. The environmental assessment shall study input production phases, its use as well as the length of the degradation period. The product will therefore have to possess the following characteristics:

- a) Biodegradability

Acceptable inputs shall be capable of biodegrading into CO₂ or H₂O or returning to their initial mineral form. Non-natural inputs that are highly toxic to non-targeted organisms shall have a half-life of less than five days.

- b) Toxicity of non-targeted organisms

Acceptable inputs that demonstrate a risk of toxicity for non-targeted organisms shall have restrictions placed on their use (e.g. rate of use, distance from surface water, type of application, spreading etc.).

- c) Long-term toxicity

Any input having a risk of accumulation within organisms or tissues, or any input having mutagenic or carcinogenic characteristics cannot be acceptable.

11.4 Health Effects

Acceptable inputs shall pose no risk to human health at any stage of production or use.

11.5 Effects on Agricultural Product Quality

Acceptable inputs shall have no negative impact on the taste, appearance or shelf life of agricultural products.

11.6 Socio-Economic Impacts

The inclusion of inputs in acceptable product lists shall take into account any impact on consumers' perception of what an organic product is.

11.7 Equivalency and Harmonization

Inclusion in the list of the acceptable inputs shall take into account the potential of equivalency refusal of the Quebec Organic Reference Standards by other jurisdictions such as, the United States, European Union, Japan, etc. In view of this major constraint, it will no doubt be easier to consider inclusion of input types of production for which Quebec has special expertise (e.g. maple products or wild blueberries). For other types of production, it will be in Quebec's interest to attempt to influence the process in Canada or even as it relates to the Codex Alimentarius.

APPENDIX A: Quebec Permitted Substances List for Organic Production Methods

GENERAL

The generic substances listed below may be used in the production, processing and packaging of organic upon the approval of their source and use by a certification body in accordance with these standards and provincial and federal regulations pertinent to particular situations as they arise. The use of genetically engineered products (GMOs) is prohibited.

Generic substances have two possible statuses regarding their approval by certification bodies:

- P Permitted: The substance's use may be approved in accordance with applicable criteria within different sections of the standards and accompanying annotations (if appropriate).
- R Restricted: The substance's use must be approved by the certifier in accordance with applicable criteria within different sections of the standards and accompanying annotations if no substance or permitted practice is available, feasible or effective.

Any substances or materials that do not appear on this list shall be a priori considered as prohibited (or banned).

A1 List of Substances Authorized for Crop Production

A.1.1 Soil Amendment and Fertilization

The use of the following generic substances is permitted for soil amendments or fertilizers in accordance with their compliance, as to their source, their use according to section 5 of the standards and their adherence to applicable provincial and federal regulations.

Note to the user

No proof of usefulness is required as a prerequisite for the substance's acceptance. The CARTV assumes no liability in relation to the use of the substances included in this list.

Common Name(s)	Status	Origin and usage annotation
Agar	R	Only authorized for initial mushroom spawn production
Alfalfa meal and pellets	P	See "Plant by-products"
Algae and algae products	P	See "Plant extracts".
Animal products and by-products from slaughterhouses	P	Meat blood and feather meal. Hoof, horn and bone powders and emulsions. Such products may not be contaminated by any prohibited substances. Substances shall comply with criteria laid out in section 5.5.2 or applied according to conditions required in section 5.4.15.
Ash	P	From plant and animal sources. The burned materials shall not have been treated or combined with substances prohibited by the standards nor originate from agricultural residues.
Basalt	P	

Biotite	P	
Bone Meal	P	
Boron mineral products	R	See "Trace element chelate". When organic inputs are insufficient in meeting crop needs, sodium pentaborate and sodium tetraborate (borax) may be used for reasons outlined in section 5.4.6.
Calcium chloride	R	Mined source, to remedy calcium deficiency
Charcoal	P	
Clay (eg. Perlite, Zeolite, Bentonite)	P	Test for possible contaminants (e.g.: heavy metals)
Copper mineral products	R	See "Trace element chelate". When organic inputs are insufficient in meeting crop needs, forms of copper sulfate may be used for reasons outlined in section 5.4.6.
Earthworms	P	Shall not be genetically modified.
Epsom salts (magnesium sulfate)	P	Mined sources, may be used for reasons outlined in section 5.4.6.
Feldspar (KAlSi ₃ O ₈)	P	
Fish products	P	Waste products shall comply with criteria laid out in section 5.5.2 or applied according to conditions required in section 5.4.15.
Glauconite	P	
Granite dust	P	
Guano bat or bird	P	Shall comply with criteria laid out in section 5.5.2 or applied according to conditions required in section 5.4.15.
Gypsum (calcium sulfate: CaSO ₄ ·2H ₂ O)	P	Mined sources, with reasons as outlined in section 5.4.6.
Humus from worms and insects (vermi-compost)	P	Shall demonstrate that worms and insects have not been fed with prohibited substances.
Iron-aluminium rock phosphates (Phospal)	P	Mined sources, with reasons as outlined in section 5.4.6.
Iron mineral products	R	See "Trace element chelate". When organic inputs are insufficient in meeting crop needs, forms of iron sulfate may be used for reasons outlined in section 5.4.6.
Kelp meal and extracts	P	See "Plant extracts"
Langbeinite (potassium or magnesium triple sulfate K ₂ Mg ₂ (SO ₄) ₃)	P	See "Potassium and magnesium sulfate."
Lime (e.g. chalk, marl, limestone, phosphate chalk)	P	Mined sources, or from oystershells or eggshells, with reasons as outlined in section 5.4.6.
Magnesite, dolomite CaMg(CO ₃) ₂	P	Mined sources, with reasons as outlined in section 5.4.6.
Manganese mineral products	R	See "Trace element chelate". When organic inputs are insufficient in meeting crop needs, forms of manganese sulfate may be used for reasons outlined in section 5.4.6.
Manure, (solid and liquid) and compost	P	Shall meet requirements as defined in 5.4
Marine animal waste	P	Shall meet requirements as defined in 5.5.2 et 5.4.15.

Microbial products (Except those resulting from genetic engineering)	P	These include rhizobium bacteria, mycorrhizal fungi, yeast and other micro-organisms to be used on or in compost, plants, seeds and soils.
Molasses	P	See "Plant by-products"
Molybdenum mineral products	R	See "Trace element chelate". When organic inputs are insufficient in meeting crop needs, forms of sodium molybdate may be used for reasons outlined in section 5.4.6.
Mushroom compost	P	Shall not contain substances prohibited by the standards.
Organic food by-products and textile industry by-products	R	By-products shall not be treated with prohibited substances. Test for the presence of contaminants (heavy metals).
Peat moss	P	Shall not contain prohibited substances (e.g.: wetting agents).
Phosphate rock	P	Mined sources, with reasons as outlined in section 5.4.6.
Plant by-products	P	From wild and cultivated plants in accordance with the standards or without adding or using prohibited substances.
Plant extracts	P	Plant extracts obtained by using water, alcohol or a diluted solution of potassium hydroxide. Uncontaminated by prohibited substances.
Plant residues	P	From wild and cultivated plants in accordance with the standards or without adding or using prohibited substances.
Potassium and magnesium sulfate	R	When organic inputs are insufficient in meeting crop needs, mined sources (e.g. langbeinite), may be used for reasons outlined in section 5.4.6. They shall be obtained by mechanical processes, and not modified by chemical means.
Potassium rock powders, potassium salts extracted from mines (e.g. kainite, sylvinite)	R	Mined sources untainted by prohibited substances, may be used for reasons outlined in section 5.4.6. Cement powders are not permitted.
Potassium sulfate	R	Mined sources to remedy potassium deficiencies.
Pumice	P	Mined sources, with reasons as outlined in section 5.4.6.
Rock powder	P	
Sawdust and wood chips	P	Uncontaminated by prohibited substances.
Shell (e.g. egg and oystershells)	P	See "Lime".
Straw	P	See "Plant residues".
Sulphur	P	Used to acidify soil.
Trace elements chelate (e.g. boron, copper, iron, manganese, molybdenum, zinc)	R	When organic inputs are insufficient in meeting crop needs, trace elements in chelate form may be used for reasons outlined in section 5.4.6. However only sulphonate, lignin or amino acid based chelates are permitted.
Vermiculite	P	
Zinc mineral products	R	See "Trace element chelate". When organic inputs are

		insufficient in meeting crop needs, forms of zinc sulfate may be used for reasons outlined in section 5.4.6.
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A1.2 Weed Control

The use of the following generic substances is permitted for weed control in accordance with their compliance, as to their source, their use according to section 5 of the standards and their adherence to applicable laws and regulations. This list may contain products before they are officially approved by the PMRA, as well as products obviously not needing approval.

Common Name(s)	Status	Origin and usage annotation
Herbicide soap (fatty acid salts)	P	
Plant extracts	P	Plant extracts obtained by using water, alcohol or a diluted solution of potassium hydroxide. Uncontaminated by prohibited substances.
Plastic mulch	P	Plastic mulch must not be incorporated into the soil or left in the field to decompose. It shall be removed at the end of the growing season except for perennial crops where it may be left for more than one season. The use of light-degradable or polyvinyl chloride (PVC) as a plastic mulch is prohibited.
Vegetable oils	P	See also "Plant extracts".
Vinegar (acetic acid)	P	

A1.3 Plant Disease Control

The use of the following generic substances is permitted for plant disease control in accordance with their compliance, as to their source and their use according to section 5 of the standards. This list may contain phytosanitary products before they are officially approved by the PMRA, as well as products obviously not needing approval.

Common Name(s)	Status	Origin and usage annotation
Biodynamic preparations	P	
Bordeaux Mixture (Mixture of copper sulfate and hydrated lime)	P	Foliar application. In the absence of other effective methods. Copper buildup in the soil must be monitored.
Calcium Chloride	R	Mined sources.
Calcium polysulphide (Lime sulphur)	P	Foliar application. In the absence of other effective methods.
Clay and bentonite	P	
Copper hydroxide and other copper compounds (e.g. oxychloride)	P	Copper buildup in the soil must be monitored.

Copper sulfate	P	Mined sources. Foliar application. In the absence of other effective methods. Copper buildup in the soil must be monitored.
Elementary Sulphur	P	Foliar application. Soil reaction (pH) must be monitored.
Ethyl alcohol (food grade) (ethanol)	P	Tool disinfectant.
Homeopathic Preparations	P	
Hydrogen peroxide	P	
Lectin	R	
Mineral oils	P	Only for use on woody plants during periods of dormancy.
Mineral powders (Silica rock powders)	P	
Mustard powder	P	Treating seeds
Plant extracts (Including vegetable and essential oils)	P	Plant extracts obtained by using water, alcohol or a diluted solution of potassium hydroxide. Uncontaminated by prohibited substances.
Potassium permanganate	R	
Propolis	R	
Seaweed (algae) and salt water	P	
Silicic acid, mineral clay, sticking agent	P	For the closing of wounds in woody plants
Slaked lime (Calcium hydroxide)	P	Foliar application. See Bordeaux Mixture. Permitted in growing media.
Sodium or potassium bicarbonate and Burgundy mixture	P	
Sodium silicates	P	
Vegetable oils (e.g. essential oils of mint, pine, caraway or cumin)	P	

A1.4 Pest Control

The use of the following generic substances is permitted for pest control in accordance with their compliance, as to their source and their use according to section 5 of the standards. Pests include mollusks, arthropods and nematodes. This list may contain products before they are officially approved by the PMRA.

Common Name(s)	Status	Origin and usage annotation
Ammonium carbonate	P	For use as bait in insect traps, for monitoring purposes only. May not come in contact with crops or the soil.
Bacillus thuringiensis	P	
Calcium polysulphide (Lime sulphur)	P	Foliar application in the absence of other effective means.
Carbon dioxide	P	For fumigation.
Chitin	P	Derived from marine animal waste. (e.g. crab and shrimp)

		shells), uncontaminated by prohibited substances, except for potassium or sodium hydroxide used to extract the chitin.
Coloured sticky traps	P	May not contain pesticides or prohibited substances or come in contact with soil or plants.
Diatomaceous earth	P	
Elementary Sulphur	P	Acaricide (Mite control)
Entomovirus	P	Only Granulosis virus
Garlic	P	
Granulosis virus-based Preparation	P	
Insect-specific-virus	P	Granulosis virus only
Iron orthophosphate	P	For slug control (mollusks). May not come in contact with crops.
Kaolin (clay)	P	
Neem oil	P	Insect repellant
Pheromones	P	Synthetic pheromones are approved for the trapping and the sexual confusion of insects.
Physical barriers	P	
Plant extracts	P	Plant extracts obtained by using water, alcohol or a diluted solution of potassium hydroxide. Uncontaminated by prohibited substances.
Predators and parasitoids	P	Biological insect control. May not be genetically modified.
Pyrethrum	R	Natural substances only, uncontaminated by prohibited substances. See also "plant extracts".
Rotenone	R	Insecticide and acaricide. Only when other products are ineffective against insects. Natural sources only, e.g. Derris elliptica, Lonchocarpus, Thephrosia; Uncontaminated by prohibited substances. See also "Plant extracts".
Shell	P	
Silicon Dioxide	P	
Soaps	P	"Insecticidal" soaps made of fatty acids obtained from animal or vegetable oils.
Spinosad, Beauveria bassiana, virus	P	Protects crops from insects. Microorganisms or their derivatives. May not be genetically modified.
Sticky traps	P	May not contain pesticides or prohibited substances or come in contact with soil or plants.
Vegetable oils (colza, sesame.)	P	Including "essential" and "dormant" oils. See also "Plant extracts"

A1.5 Vertebrate Animal Control

The following substances are approved for vertebrate animal control. (e.g. rodents and birds) in accordance with their compliance, as to their source and their use according to section 5 of the standards.

Common Name(s)	Status	Origin and usage annotation
Sulphur anhydride	P	"Smoke bombs", for the control of burrowing rodents.

Garlic-based repellents	P	Repels geese, rabbits, deer, etc.
Chili pepper based repellents	P	Repels dogs, cats, raccoons, groundhogs, etc.
Ammonium soaps	P	As an animal repellent, no contact with soil or plants.
Vitamin D-3	R	As a last resort against rodents.

A1.6 Plant Growth Regulators

The following substances are approved for regulating plant growth in accordance with their compliance, as to their source and their use according to section 5 of the standards.

Common Name(s)	Status	Origin and usage annotation
Carbon dioxide	P	Growth stimulator. For use in greenhouses.
Cytokinins	R	Algae extracts for root growth stimulation.
Gibberellic acid	R	Produced through fermentation and not enriched by synthetic substances.
Indol-acetic acid	R	Root growth stimulator.
Plant extracts	P	

A1.7 Crops Production Aids

The following substances are approved for enabling the application of permitted or restricted substances on crops and soil in accordance with their compliance, as to their source and their use according to section 5 of the standards.

Common Name(s)	Status	Origin and usage annotation
Bentonite	P	
Citric acid	P	pH regulator
Copper sulphate	R	Wood preservative.
Lignin Sulphonates	R	Chelating agents.
Plant extracts	P	As a dispersant, surfactant.
Soaps	P	As wetting agents and adjuvants consisting of fatty acids derived from animal or vegetable oils.
Sodium or potassium bicarbonate	P	pH regulator
Vinegar (Acetic acid)	P	Adjuvant and pH regulator.

A2 List of Substances Authorized Livestock Production

A2.1 Primary Ingredients for Livestock Feed

The following substances are approved as primary ingredients animal feed in accordance with their compliance, as to their source and their use according to section 5 of the standards.

Common Name(s)	Status	Origin and usage annotation
1. Primary plant ingredients		

1.1. Cereals (oats, barley, corn etc.), their products and by-products (Flour, bran, flakes, distillers' soluble, etc.).	P	Products from non-organic sources may not be used except in accordance with conditions set forth in the standards.
1.2. Seeds (sunflower, colza, flax, etc.) or oily fruits, their products and by-products (oil cake,...).	P	Organic or wild produce preferred. Products from non-organic sources may not be used except in accordance with conditions set forth in the standards.
1.3. Legume seeds (peas, soy beans, green beans and field beans).	P	Products from non-organic sources may not be used except in accordance with conditions set forth in the standards. Heat treatments such as roasting or micronization are authorized
1.4. Tubers (potatoes, beats, Jerusalem artichoke, etc.), roots, their products and by-products (pulp, starches, etc.).	P	Products from non-organic sources may not be used except in accordance with conditions set forth in the standards.
1.5. Other seeds and fruits (apples, citrus, pears, peaches, figs, grapes) their products and by-products (pulp, flours).	P	Products from non-organic sources may not be used except in accordance with conditions set forth in the standards.
1.6. Fodder (hay, straw, ensilage, etc.)	P	Products from non-organic sources may not be used except in accordance with conditions set forth in the standards. The following processes are authorized: drying, ensilaging, chopping and dicing. Prohibited substances by these standards must not be used for these processes.
1.7. Other plants, their products and by-products. The following products are included in this category: Seaweeds, powders and plant extracts, plant protein extracts, spices and aromatic plants, peat moss.	P	Products from non-organic sources may not be used except in accordance with conditions set forth in the standards.
2. Primary animal ingredients		
2.1. Milk and milk products (fresh or powdered milk, whey, buttermilk, powdered whey and buttermilk, etc.).	P	Products from non-organic sources may not be used except in accordance with conditions set forth in the standards. See sections 6.3 and 6.4.
2.2. Fish and other aquatic animals, crustaceans, mollusks, their products and by-products (flours, oils, etc.).	P	Shall come from organically produced aquatic animals. Or from lightly or unpolluted environments. In all cases there shall be documented proof that concentrations of heavy metals, dioxins, furans, polychlorinated biphenyls (PCBs) and DDT in these products are lower than half the maximum limit

		established by the Canadian Guidelines For Chemical Contaminants And Toxins In Fish And Fish Products. May not be used except in accordance with conditions set forth in the standards.
3. Primary mineral ingredients		
Minerals from rocks and ores (essential elements)	P	Mined or natural sources of sodium, calcium, phosphorus, magnesium, iron, iodine, cobalt, copper, manganese, zinc, molybdenum, and selenium; synthetic sources may be used only when mined or natural sources are commercially unavailable.
Sodium sources: Salt, Unrefined sea salt, fossil salt natural mined sodium chloride trace element complement and salt (saltlick blocks)	P	Natural sources preferred. Whenever mined or natural sources of sodium are commercially unavailable, the following synthetic substances may be used: sodium sulfate, sodium carbonate, and sodium bicarbonate.
potassium sources: Calcium chloride potassium chloride potassium iodide	P	
Calcium sources: Calcium carbonate lithothamne and marl, aquatic animal shells	P	Natural sources preferred. Whenever mined or natural sources of calcium are commercially unavailable, the following synthetic substances may be used: calcium lactate, calcium gluconate; for remedying calcium deficiencies which must be justified by the testing of feed or animals.
Phosphorus sources: Deflourinated dicalcium phosphate Deflourinated mono calcium phosphate	P	Natural sources preferred. Whenever mined or natural sources of phosphorus are commercially unavailable, the following synthetic substances may be used: monosodium phosphate, calcium and magnesium phosphate and sodium and calcium phosphate.
Magnesium sources: Magnesium oxide (anhydrous) Magnesium carbonate Magnesium sulphate Magnesium chloride	P	Natural sources preferred. Whenever mined or natural sources of magnesium are commercially unavailable, the following synthetic substances may be used: magnesium chloride and magnesium phosphate.
Sulphur source: Sodium sluphate	P	
Copper source: Copper oxide (cuprite)	P	Natural sources preferred. Whenever mined or natural sources of copper are commercially unavailable, the following synthetic substances may be used: copper sulphate (pentahydrate), cupric chloride $\text{CuCl}_2 \cdot 2 \text{H}_2\text{O}$
Chelated minerals	P	Certain chelated forms are authorized. Only non GMO protein based chelates are authorized.
Cobalt sources	P	Whenever mined or natural sources of cobalt are commercially unavailable, the following synthetic substances may be used for remedying cobalt deficiencies of cobalt sulphate monohydrate, and/or cobalt sulphate heptahydrate, cobalt carbonate

		monohydrate in feed and/or animals.
Copper sources	P	Whenever mined or natural sources of copper are commercially unavailable, the following synthetic substances may be used for remedying copper deficiencies of copper oxide, copper carbonate monohydrate and copper sulphate pentahydrate in feed and/or animals.
Iodine sources	P	Whenever mined or natural sources of iodine are commercially unavailable, the following synthetic substances may be used for remedying iodine deficiencies of calcium iodate anhydrous, calcium iodate hexahydrate and potassium iodide in feed and/or animals.
Iron sources	P	Whenever mined or natural sources of iron are commercially unavailable, the following synthetic substances may be used for remedying iron deficiencies of iron carbonate ferrous sulphate monohydrate and iron dioxide in feed and/or animals.
Molybdenum sources	P	Whenever mined or natural sources of molybdenum are commercially unavailable, the following synthetic substances may be used for remedying molybdenum deficiencies of ammonium molybdate, sodium molybdate in feed and/or animals.
Selenium sources	P	Whenever mined or natural sources of selenium are commercially unavailable, the following synthetic substances may be used for remedying selenium deficiencies of sodium selenite in feed and/or animals.
Zinc sources	P	Whenever mined or natural sources of zinc are commercially unavailable, the following synthetic substances may be used for remedying zinc deficiencies of zinc carbonate, zinc oxide, mono or heptahydrate zinc sulphate in feed and/or animals.

A2.2 Food Additives and Protein Supplements

The following substances are approved for inclusion in livestock feed in accordance with their compliance, as to their source and their use according to section 6 of the standards.

Common Name(s)	Status	Origin and usage annotation
Amino acids	R	Preferably, sourced from primary materials naturally present in animal feed, or synthetic amino acids identical to natural amino acids only if the naturally sourced ones are commercially unavailable.
Antioxidants.	P	Natural source extracts.
Binders, anti-clumping agents and coagulants	R	Natural source calcium stearate, colloidal silica, purified diatomaceous earth, bentonite, kaolinite, natural mixtures of stearites and chlorite, vermiculite, sepiolite (meerscham) and perlite.
Conservation agents: Acetic, sorbic, lactic, formic et propionic acids	R	The use of lactic, formic, propionic et acetic acids for ensilage production is only authorized if weather conditions do not allow for adequate fermentation.
Enzymes	P	Shall not be sourced from genetically modified

Version 6.0 (standards in force January 1st, 2009)
Last version of the requirements: December 30, 2008
Last editorial update June 30, 2009

		organisms.
Honey	P	Products from non-organic sources may not be used except in accordance with conditions set forth in the standards.
Micro-organisms: yeasts and bacteria	P	Shall not have been genetically modified nor produced from a GMO substrate.
Milk and milk products	P	Products from non-organic sources may not be used except in accordance with conditions set forth in the standards. See sections 6.3 and 6.4.
Molasses	P	Products from non-organic sources may not be used except in accordance with conditions set forth in the standards.
Protein concentrates and amino acids	P	Shall be certified in accordance with the standards and produced without the use of prohibited substances.
Sugar (glucose)	P	Products from non-organic sources may not be used except in accordance with conditions set forth in the standards.
Vitamins	P	Preferably, sourced from primary materials naturally present in animal feed, or synthetic vitamins identical to natural vitamins only if the naturally sourced ones are commercially unavailable.

A2.3 Livestock Health Care

The following substances are approved for livestock health care in accordance with their compliance, as to their source and their use according to section 6 of the standards.

Common Name(s)	Status	Origin and usage annotation
Activated charcoal	P	Plant source only
Antibiotics	R	Subject to livestock production standards (see section 6.5.4). Breeding stock or dairy animals only. Prohibited for slaughter animals.
Botanicals	P	Botanical preparations registered for use and according to label specifications. Including preparations from non-toxic plants for topical application or as an external parasite control.
Calcium borogluconate	P	
Calcium gluconate	P	
Calcium or magnesium chloride	P	Mineral preparation.
Chlorohexidine	R	For surgery performed by a veterinarian. Authorized as a teat dip when alternative germicidal agents and/or physical barriers are no longer effective.
Clay	P	
Copper sulphate	P	
Cortisone	R	Subject to livestock production standards.
Diatomaceous earth	P	"Free choice" only.
Electrolyte (salt) solutions	P	Without prohibited substances.
Ethanol (ethyl alcohol)	P	As a disinfectant and antiseptic only.

Formic acid	R	For apicultural use to control Varroa mites only.
Glycerin	P	As a livestock teat dip, must be produced through the hydrolysis of lipids, from plant or animal sources.
Homeopathic products	P	
Hydrated lime	P	For foot baths.
Hydrogen peroxide	P	For external use.
Iodides	P	For use as a topical disinfectant. Sources are sodium and potassium iodide.
Isopropyl alcohol	P	As a disinfectant and antiseptic only.
Lactic acid	P	For teat dips.
Lime sulphur	P	For foot baths.
Local anesthetics (lidocaine and procaine)	R	Use requires a ninety-day withdrawal period after administration to slaughter animals and seven days for dairy animals. Preference should be given to natural alternative solutions.
Mineral oil	P	Topical use only and as a lubricant.
Oxytocine	R	For therapeutic and post-birthing applications.
Oxalic acid	R	For apicultural use to control Varroa mites only.
Plants and plant extracts (e.g. garlic, nettle) including essential oils	P	Plant extracts obtained by using water, alcohol or a diluted solution of potassium hydroxide and uncontaminated by prohibited substances.
Salts and saltwater	P	
Salicylic acid (e.g. aspirin)	R	Subject to livestock production standards.
Seaweed, seaweed flour, algae extracts	P	
Selenium and other trace elements	P	
Synthetic parasiticides (e.g. Ivermectin, Mebendazole)	R	Subject to livestock production standards.
Synthetic vitamins	R	Subject to livestock production standards.
Vaccines	P	Only those necessary to control common local diseases.
Zinc sulphate	P	

A2. 4 Topical Control of Livestock Parasites

The following substances are approved for the topical control of external parasites in accordance with their compliance, as to their source and their use according to section 6 of the standards.

Common Name(s)	Status	Origin and usage annotation
Plants and plant extracts (e.g. garlic, nettle) including essential oils	P	Plant extracts obtained by using water, alcohol or a diluted solution of potassium hydroxide and uncontaminated by prohibited substances.
Rotenone et pyrethrum	R	
Sulphur	P	For ticks, mites and fleas (external use only).
Diatomaceous earth	P	

A3 List of Substances Authorized for Processing, Handling and Storage

The following substances are approved for use in the processing, handling and storage of organic food products in Québec, in accordance with their compliance as to product (identity) and use according to section 8 of the standards.

A3.1 Additives

Substances approved as additives for organic food products shall also be used according to section 8 of the standards and as prescribed in Division 16 of The Food and Drug Regulations and the Food Products Act.

The use of the ingredients in this list is permitted when they cannot be obtained through organic means. All products created through genetic modification are excluded.

This list is not intended to be exhaustive; certification bodies shall therefore determine the acceptability of an unlisted product according to criteria based on: (1) a real need for the product, (2) the product's environmental impact, (3) the product's quality, and (4), the product's toxicity.

Common Name(s)	Status	Origin and usage annotation
Agar	P	As a thickener
Alginates	P	Forms of sodium and potassium.
Alginic acid	P	Thickening and gelling agent.
Ammonium carbonate	P	Cereals, cookies, baked goods, confectionaries.
Ammonium phosphate	P	For alcoholic beverages (yeast nutrient) (restricted to 0.3g/l).
Argon	P	
Ascorbic acid (Vitamin C)	R	When required as a remedy for vitamin C deficiency that needs to be incorporated in food products.
Baking powder (sodium bicarbonate)	P	As a chemical leavening agent.
Calcium carbonate	P	For milk products.
Calcium carbonate	P	In sugar production and as a neutralizer of milk and cream in cheese and butter making, also used in the making of cocoa and caramel. Not for use as a food colour.
Calcium chloride	P	Soy products, brewing industry as beer clarification agent
Calcium sulfate	P	Soy products, cookies and pastries
Carbon dioxide	P	For beverages.
Carrageenins	P	
Casein	P	See "Yeast"
Charcoal	P	
Citric acid	P	
Enzymes	P	All enzyme preparations normally used in food processing, obtained from edible substances, non-poisonous plants, non-poisonous fungi, benign bacteria, except for genetically modified micro-organisms or enzymes derived from genetic engineering.
Ethanol (ethyl alcohol)	P	Organic sources preferred.
Gelatin	R	Plant sources only.
Glycerin	P	

Gum	P	Aqueous extracts of arabic, guar, karaya, tragacanth, xanthan, and carob.
Gypsum (calcium sulphate)	P	For bread and pastry products and soy products.
Lactic acid	P	Fermentation of fruits and vegetables. Sausage casings.
Lecithin	P	Produced without the use of bleaching agents or synthetic solvents. Emulsifying agent for dairy products/milk based baby foods/fat-based products/mayonnaise.
Magnesium carbonate	P	Cereals, cookies, baked goods, confectionaries.
Magnesium Chloride	P	Soy products
Malic acid	P	
Mono calcium orthophosphate	P	Only to raise dough (yeast nutrient).
Micro-organisms	R	Includes all micro-organism preparations normally used in food product processing, except for genetically modified micro-organisms and enzymes created through genetic engineering; not grown by means of any prohibited substances.
Minerals	R	Only used when required by law or when a deficiency in a food product has been documented. Synthetic forms may be used if natural sources are not commercially available.
Nigari (magnesium chloride)	P	For soy products.
Nitrogen (N ₂)	P	
Oxygen (O ₂)	P	
Oils & vegetable fats	P	Organic source. Shall be obtained without using synthetic solvents.
Pectin	P	
Potassium citrate	P	
Potassium carbonate	P	Permitted in cereal products, bakery products, confectionaries, milk products, fruit and vegetable products and in wine making.
Potassium tartrate	P	
Plant extracts	P	Obtained from plants without using synthetic solvents or prohibited substances.
Salt (sodium chloride)	P	
Sodium carbonate	P	Cereals, cookies, baked goods, confectionaries.
Sodium hydroxide	P	Cereal products
Sodium tartrate	P	Cookies and pastries, confectionaries
Starches	P	Non GMO, Preferred source is extraction from organic cereals or tubers.
Sulphureous acid (sulphureous anhydride solution) and potassium meta bisulfite	R	For the preservation of wines and alcoholic beverages only.
Tartaric acid	P	Alcoholic beverages
Tocopherols	P	Obtained from vegetable oils.
Vegetable oil (except soy, peanut, sesame,	P	Apicultural use. Anti-foaming agent as specified in 7.4.6. Organic source. Shall be obtained without using

nut)		synthetic solvents.
Vinegar (acetic acid)	P	Non GMO, organic preferred
Vitamins	R	Only used when required by law or when a deficiency in a food product has been documented; certified organic source; other forms may be used when organic forms are not commercially available.
Yeasts	P	Includes all yeast preparations normally used in food product processing, except for genetically modified yeasts and enzymes created through genetic engineering; not grown by means of any prohibited substances.

A3.2 Processing, Handling and Storage Aids.

The following substances may come in contact with organic food products during their preparation handling or storage but may not be present in significant amounts in the final product.

Common Name(s)	Status	Origin and usage annotation
Ascorbic acid	R	Bread making
Bark preparation	P	Sugar processing.
Bentonite	P	As a clarifying or fining agent.
Calcium carbonate	P	
Calcium Chloride	P	Flocculate. Soy products; cheese processing
Calcium Sulphate	P	Flocculate.
Carbon dioxide (CO ₂)	P	Controlled atmosphere storage.
Casein	P	
Citric acid	P	For pH adjustment.
Diatomaceous earth	P	As a food filtration agent or as a clarifying agent only.
Egg white albumin	P	Sourced from organic eggs preferred; as a clarifying agent
Ethanol	P	Solvent
Ethylene (C ₂ H ₄)	P	For post-harvest ripening of fruit.
Gelatin	P	Plant source, (seaweed carrageenans), used in meat packing, for "jellied" products, for cooked de-boned meats to facilitate reconsolidation of the product, confectioneries, for binding wines and fruit juices, jams, jellies, ice cream, pill coatings, etc....
Hazelnut husks	P	
Ichtyocolla	P	As a fining agent.
Iron powder	P	For oxygen absorption.
Isinglass	P	As a fining agent for fermented beverages; confectionaries; thickener for jellies. Shall come from organically produced fish.
Kaolinite	P	
Lactic acid	P	Meats
Magnesium Chloride (Nigari)	P	Flocculate. Soy products
Nitrogen (N ₂)	P	Controlled atmosphere storage.
Oxygen (O ₂)	P	Controlled atmosphere storage.

Ozone (O3)	P	
Pennsylvania maple wood	P	Anti-foaming agent for maple syrup production.
Potassium carbonate	P	Cereals, cookies and pastries, confectionaries, grape drying.
Potassium hydroxide	P	For pH adjustment of water in sugar processing
Powdered milk	P	As a drying agent.
Silica powder	P	Filtering agent in maple syrup production.
Silicon dioxide (silica)	P	As an abrasive.
Sodium carbonate	P	In sugar production and as a neutralizer of milk and cream in cheese and butter making, also used in the making of cocoa and caramel.
Sodium hydroxide	R	For pH adjustment of water in sugar processing
Sulphuric acid	P	For pH adjustment of water in sugar processing
Talc	P	As a clarifying agent.
Tannic acid	P	Filtration aid - wines
Tannin	P	Wines
Tartaric acid	P	Wines
Vegetable oils	P	
Waxes	R	Carnauba and beeswax for lubrication.

A4 List of Substances Authorized for Sanitation and Parasite Control

A4.1 Equipment and Facility Cleaning

The following substances are authorized for the sanitizing organic processing, handling and storage operations. This includes equipment and facilities in accordance with compliance as to product (identity) and use according to sections 7 and 8 of the standards. Substances authorized for maple syrup production, (section 7), are followed by an asterisk. (*)

Common Name(s)	Status	Origin and usage annotation
Alkali carbonates	P	Sodium and potassium carbonate
Bleach (chlorinated water) *	P	Sodium Hypochlorite and calcium and chlorine dioxide, The amount of chlorine in the final rinse shall be effectively zero.
Caustic soda (sodium hydroxide)*	P	
Citric acid*	P	
Citrus extract	P	For livestock buildings
Ethanol (ethyl alcohol) *	P	
Hydrated lime	P	
Hydrogen peroxide	P	
Iodides	P	Sodium and potassium iodide. The strength of the iodide in the final rinse shall not exceed government permitted levels.
Isopropyl alcohol	R	As a disinfectant and cleaner only.
Lime (calcium carbonate)	P	
Maple vinegar (fermented sap) *	P	Equipment and vacuum system pipeline cleaner.
Phosphoric acid	R	For use in the dairy industry only.
Potash (potassium hydroxide)	P	
Potassium carbonate	P	See "alkali carbonates."

Version 6.0 (standards in force January 1st, 2009)
Last version of the requirements: December 30, 2008
Last editorial update June 30, 2009

Potassium permanganate	P	Solution shall not exceed 1%.
Soaps (*)	P	Biodegradable detergents preferred.
Sodium bicarbonate	P	
Sodium meta bisulphite *	P	As a membrane preservation agent for reverse osmosis filters for maple syrup production.
Vinegar (acetic acid) *	P	

A4.2 Pest Control

Permitted substances for pest control in processing and storage facilities may only be used in accordance with sections 7 and 8 of the standards and therefore only as a last resort.

Common Name(s)	Status	Origin and usage annotation
Ammonium carbonate	P	As a bait in insect traps.
Boric acid	P	Insect pest control for buildings (treating cracks and crevasses).
Carbon dioxide CO2	R	Requires certification body authorization. Must be used according to existing legal and regulatory requirements.
Neem oil, Pyrethrum	P	
Soap, ammonia	P	As an animal repellent, not in contact with crops or soil.
Vitamin D-3	R	As a last resort and only after alternative control solutions have been proved ineffective.
Silicon dioxide	P	

APPENDIX B: Rules covering the use of authorized descriptions appearing on the labels of products certified as having organic content

Description	Greater Than 95 % Organic Ingredients	Between 70 % to 95 % Organic Ingredients	Less Than 70 % Organic Ingredients
Organic (or ecological, eco, biologique, bio, or biodynamic) (ex.: organic bread)	Main package panel	Prohibited	Prohibited
"Contains x% Organic Ingredients"	Optional (e.g.: 100% Organic)	Main or secondary package panel	Prohibited
Listing of Organic Ingredients	Organic ingredients shall be clearly identified in the list of ingredients. When less than 100% organic ingredients, they shall be differentiated from non-organic ingredients	Organic ingredients shall be clearly identified in the list of ingredients; they shall be differentiated from non-organic ingredients	When they are identified as organic, ingredients must be displayed in the same way than any other ingredients listed in the ingredient panel
Name of Certification Body (Trade Name) having most recently evaluated the operation related to the production or the preparation of the product	On the main or secondary package panel: "Certified by ..."	On the main or secondary package panel, below list of ingredients: "Certified by ..."	Prohibited, except when a certifying body has issued a verification certificate attesting for the authenticity of organic ingredients contained in the product The mention which must appear below the list of ingredients is then: "Verified by ..."
Certification Body's address	Optional	Optional	Optional when a verification attestation was issued
Certification Body's Logo	Optional	Optional	Prohibited

Note: Any other reference appearing on an organic product's label or package (e.g.: "Made with certain ingredients or organic food groups" – used in the United States for products whose ingredients are at least 70% organic), should only be included in the form of an addition to the minimal information required by law. Consequently, the addition of any other non-obligatory

information should not cause conflicting interpretations such that a product gray area would be created as to the composition and compliance of the product in question.

APPENDIX C: Standards Classified by Production Sector

Production sector	Targeted Standards	Reference
All sectors	Prohibitions Regarding Transgenesis and Products Originating from Genetic Engineering (GMOs)	Section 2
Crop production	Transition Period Applicable to Crop Production	3.1
	Organic Crop Production Plan	4.1
	Keeping Accounts and Records	4.4
	Crop Production	Section 5
	Labelling and advertising	9.1; 9.2; 9.4; 9.6
Wild Crops	Transition Period Applicable to Crop Production	3.1
	Keeping Accounts and Records	4.4
	Wild Crops	5.12
	Labelling and advertising	9.1; 9.2; 9.4; 9.6
Greenhouse Crops	Organic Crop Production Plan	4.1
	Keeping Accounts and Records	4.4
	Greenhouse Crops	5.13
	Labelling and advertising	9.1; 9.2; 9.4; 9.6
Mushroom Cultivation	Organic Crop Production Plan	4.1
	Keeping Accounts and Records	4.4
	Mushroom Cultivation	5.14
	Labelling and advertising	9.1; 9.2; 9.4; 9.6
Livestock Production	Transition Period Applicable to Animal Production	3.2
	Organic Animal Production Plan	4.2
	Keeping Accounts and Records	4.4
	Livestock Production	Section 6
	Labelling and advertising	9.1; 9.2; 9.6
	Organic Animal Production Plan	4.2

Apiculture	Keeping Accounts and Records	4.4
	Apiculture	6.13
	Labelling and advertising	9.2; 9.2; 9.3; 9.6
Aquaculture	Transition Period Applicable to Animal Production	3.2
	Organic Animal Production Plan	4.2
	Keeping Accounts and Records	4.4
	Aquaculture	6.14
	Labelling and advertising	9.1 9.2 ; 9.6
Maple Production	Transition Period for Maple Products	3.3
	Organic Product Preparation Plan	4.3
	Keeping Accounts and Records	4.4
	Maple Production	Section 7
	Labelling and advertising	9.1; 9.2; 9.3; 9.6
Food Products Preparation	Organic Product Preparation Plan	4.3
	Keeping Accounts and Records	4.4
	Food Products Preparation	Section 8
	Labelling and advertising	9.1; 9.2; 9.3; 9.4; 9.6
Retail sale of products whose label has been modified in order to be marked under a retail	Organic Product Preparation Plan	4.3
	Keeping Accounts and Records	4.4
	General Information	8.1
	Facilities and Equipment	8.2
	Processing Procedures	8.3
	Pest Control	8.4
	Packaging Material	8.5
	Personnel Training	8.6
	Labelling and advertising	9.1; 9.2; 9.3; 9.4

	Storage, Preservation, Transport, and Handling	10
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