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**ORGANIC PRODUCTION SYSTEMS
GENERAL PRINCIPLES AND MANAGEMENT STANDARDS**

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FRANÇAISE ET ANGLAISE.

Prepared by the

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Approved by the

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CANADIAN GENERAL STANDARDS BOARD

ORGANIC PRODUCTION SYSTEMS

GENERAL PRINCIPLES AND MANAGEMENT STANDARDS

PREFACE

This National Standard of Canada, *Organic Production Systems — General Principles and Management Standards*, was published in September 2006 and amended in October 2008, and it includes Amendment No. 1 published in December 2009. The June 2011 amended standard includes significant changes in content and, consequently, a list of revised paragraphs has not been provided. This August 2011 reprint incorporates Corrigendum No. 1 published in July 2011.

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ORGANIC PRODUCTION SYSTEMS

GENERAL PRINCIPLES AND MANAGEMENT STANDARDS

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ORGANIC PRODUCTION SYSTEMS
GENERAL PRINCIPLES AND MANAGEMENT STANDARDS

INTRODUCTION (Informative)

I. Description

Organic production is a holistic system designed to optimize the productivity and fitness of diverse communities within the agro-ecosystem, including soil organisms, plants, livestock and people. The principal goal of organic production is to develop enterprises that are sustainable and harmonious with the environment.

CAN/CGSB-32.310, *Organic Production Systems — General Principles and Management Standards*, describes the principles and management standards of organic production systems.

CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*, provides lists of substances that are allowed for use in organic production systems.

As in the case of all products sold in Canada, organic inputs, such as, but not limited to, fertilizers, feed supplements, pesticides, soil amendments, veterinary treatments, processing additives or aids, sanitizing and cleaning material; and products derived from organic agriculture, such as, but not limited to, feed and food should comply with all applicable regulatory requirements.

II. General Principles of Organic Production

Organic production is based on principles that support healthy practices. These principles aim to increase the quality and the durability of the environment through specific management and production methods. They also focus on ensuring the humane treatment of animals.

The general principles of organic production include the following:

1. Protect the environment, minimize soil degradation and erosion, decrease pollution, optimize biological productivity and promote a sound state of health.
2. Maintain long-term soil fertility by optimizing conditions for biological activity within the soil.
3. Maintain biological diversity within the system.
4. Recycle materials and resources to the greatest extent possible within the enterprise.
5. Provide attentive care that promotes the health and meets the behavioural needs of livestock.
6. Prepare organic products, emphasizing careful processing, and handling methods in order to maintain the organic integrity and vital qualities of the products at all stages of production.
7. Rely on renewable resources in locally organized agricultural systems.

III. Organic Practices

Neither this standard¹ nor organic products in accordance with this standard represent specific claims about the health, safety and nutrition of such organic products.

Management methods are carefully selected in order to restore and then sustain ecological stability within the enterprise and the surrounding environment. Soil fertility is maintained and enhanced by promoting optimal biological activity within the soil and conservation of soil resources. Weeds, pests and diseases are managed using biological and mechanical control methods, and cultural practices, including minimized tillage. Crop selection and rotation are important for managing nutrient cycling, recycling of plant and animal residues, water management, augmentation of beneficial insects to encourage a balanced predator–prey relationship, and the promotion of biological diversity, and ecologically based pest management.

Under a system of organic production, livestock are provided with living conditions and space allowances appropriate to their behavioural requirements, and organically produced feed. These practices strive to minimize stress, promote good health and prevent disease.

Organic products are produced and processed under a system that strives to preserve the integrity of the principles in this standard.

Organic practices and this standard cannot assure that organic products are entirely free of residues of substances prohibited by this standard and of other contaminants, since exposure to such compounds from the atmosphere, soil, ground water and other sources may be beyond the control of the operator. The practices permitted by this standard are designed to assure the least possible residues at the lowest possible levels.

In the development of the standard, it was recognized that differences between Canada's agricultural regions require varying practices to meet production needs.

This standard is intended for certification and regulation to prevent deceptive practices in the marketplace. The certification of a process, rather than a final product, demands responsible action by all involved parties.

¹ References throughout this document to “this standard” refer to CAN/CGSB-32.310, Organic Production Systems — General Principles and Management Standards.

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**ORGANIC PRODUCTION SYSTEMS
GENERAL PRINCIPLES AND MANAGEMENT STANDARDS**

1. SCOPE

- 1.1 Foods and other agricultural products shall refer to organic production methods only if they come from a farm system employing management practices that seek to nurture ecosystems in order to achieve sustainable productivity; and that provide weed, pest and disease control through enhancement of biodiversity, recycling of plant and animal residues, crop selection and rotation, water management, tillage and cultivation.
- 1.2 This standard applies to the following products:
- a. Unprocessed plants and plant products, livestock and livestock products, to the extent that the principles of production and specific verification rules for them are described in the standard
 - b. Processed agricultural crop and livestock products intended for human consumption or use and derived from the items mentioned in par. 1.2 a.
 - c. Livestock feed
 - d. Processed agricultural crop and livestock products intended for animal consumption or use and derived from the items mentioned in par. 1.2 a.
- 1.3 Quantities and dimensions in this standard are given in metric units with yard/pound equivalents, mostly obtained through soft conversion, given in parentheses. The metric units shall be regarded as official in the event of dispute or unforeseen difficulty arising from the conversion.
- 1.4 **Prohibited Substances, Methods or Ingredients in Organic Production and Handling**
- 1.4.1 When producing or handling organic products, it is forbidden to use any of the following substances or techniques:
- a. All materials and products produced from genetic engineering as these are not compatible with the general principles of organic production and therefore are not accepted under this standard, except for vaccines only that have been grown on genetically engineered substrates but are not themselves a product of genetic engineering, as specified in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*
 - b. Synthetic pesticides (e.g. defoliants and desiccants, fungicides, insecticides and rodenticides), wood preservatives (e.g. arsenate) or other pesticides, except as specified in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*
 - c. Fertilizer or composted plant and animal material that contains a substance prohibited by par. 1.4.1 (and not included in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*)
 - d. Sewage sludge, in any form, as defined in this standard, as a soil amendment
 - e. Synthetic growth regulators

- f. Synthetic allopathic veterinary drugs, including antibiotics and parasiticides, except as specified in this standard
- g. Synthetic processing substances, aids and ingredients, and food additives and processing aids including sulphates, nitrates and nitrites, except as specified in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*
- h. Ionizing radiation and forms of irradiation on products destined for food or their inputs, as defined in this standard, except as specified in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*
- i. Equipment, packaging materials and storage containers, or bins that contain a synthetic fungicide, preservative or fumigant
- j. Substances that are not included in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*, except as provided by this standard
- k. Cloned farm animals and their descendants. A producer shall know the lineage of any non-organic animal brought under organic management.
- l. Intentionally manufactured nano-technology products, or nano-processes involving intentional manipulation of matter at the nano scale to achieve new properties or functions that are different than properties and functions of the materials at the macro scale, except naturally occurring nano sized particles, or those produced incidentally through normal processes such as grinding flour, or nano sized particles used in a way that guarantees no transference to product.

1.4.2 The same ingredient in both an organic and non-organic form shall not be present in an organic product.

2. REFERENCED PUBLICATIONS

2.1 The following publications are referenced in this standard:

2.1.1 Canadian General Standards Board (CGSB)

CAN/CGSB-32.311 — *Organic Production Systems — Permitted Substances Lists*.

2.1.2 Health Canada

Food and Drug Regulations (C.R.C., c. 870).

2.2 A dated reference in this standard is to the issue specified. An undated reference in this standard is to the latest issue. The sources are given in the Notes section.

3. DEFINITIONS AND TERMINOLOGY

3.1 The following definitions and terms apply in this standard:

Aeroponics (Aéroponie)

A soil-free cultivation method whereby plants are suspended with their roots partially or even totally exposed to the air.

Agricultural Product (Produit agricole)

An animal, a plant, an animal or a plant product, or a product, including any food or drink wholly or partly derived from an animal or a plant.

Agro-ecosystem (Agroécosystème)

A system consisting of the form, function, interaction and equilibrium of the biotic and abiotic elements present within the environment of a given agricultural enterprise.

Allopathic (Allopathique)
Using allopathy.

Allopathy (*Allopathie*)

A method of treating disease with substances that produce a reaction or effects different from those caused by the disease itself.

Annual Seedling (Semis annuel)

A young plant grown from seed that will complete its life cycle or produce a yield and be able to be harvested within the same crop year or season in which it was planted.

Antibiotic (Antibiotique)

Various substances that contain any quantity of any chemical substance produced by a micro-organism, like penicillin, and that are used to inhibit or destroy the growth of micro-organisms to prevent or treat disease.

Apiculture (Apiculture)

The management and production of honeybees and queens and their products (e.g. honey, beeswax, pollen, royal jelly, propolis and bee venom).

Biodegradable (Biodégradable)

Capable of biological decomposition into simpler biochemical or chemical components.

Buffer Zone (Zone tampon)

A clearly defined and identifiable boundary area that separates an organic production unit from adjacent non-organic areas.

Cloned Animals (Animaux clonés)

Identical animals resulting from human manipulation of embryos and embryo transfer, using techniques such as somatic cell nuclear transfer, embryonic cell nuclear transfer or embryo splitting.

Commercially Available (Disponible sur le marché)

The documented ability to obtain a production input or an ingredient in an appropriate form, quality, quantity or variety in order to fulfil an essential function in an organic farming, preparation or handling system.

Commingling (Mélange)

Physical contact between bulk, unbound or unpackaged organic products and non-organic products during production, preparation, transportation, storage or handling.

Compost (Compost)

The product of a carefully managed aerobic process by which non-synthetic materials are digested by micro-organisms. Organic materials for compost shall be managed appropriately to reach temperatures for the duration necessary to effectively stabilize nutrients and kill human pathogens.

Compost Tea (Thé de compost)

A soil amendment solution created by steeping mature compost in order to promote beneficial bacterial growth.

Crop Rotation (Rotation des cultures)

The practice of alternating crops grown on a specific field in a planned sequence in successive crop years so that crops of the same species or family are not continuously grown on the same field. Perennial cropping systems employ techniques such as alley cropping, intercropping and hedgerows to introduce biological diversity in lieu of crop rotation.

Perennial Crop (*Culture vivace*)

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

Feed Additive (Additif pour alimentation animale)

A substance added to feed in small quantities to fulfil a specific nutritional need (i.e. essential nutrients in the form of amino acids, vitamins and minerals).

Feed Supplement (Supplément alimentaire)

“Supplement” means a feed that is used with another feed to improve the nutritive balance of the total and that is intended to be

- a. fed undiluted as a supplement to other feeds,
- b. offered free choice with other parts of the ration separately available, or
- c. further diluted and mixed to produce a complete feed.

Note: In Canada, regulations require that the resulting feed must be acceptable for registration.

Fertilizer (Engrais)

A single or blended substance composed of one or more recognized plant nutrient(s).

Food Additive (Additif alimentaire)

“Food additive” has the same meaning as in Section B.01.001 of Part B of the *Food and Drug Regulations*.

Food Irradiation (Irradiation des aliments)

A sanitation or preservative method for packaged or bulk foodstuffs that controls insect infestation and that reduces microbial load by ionizing radiation from Cobalt-60 or Cesium-137; or X-rays generated by a machine source operated at or below an energy level of 5 MeV; or from electrons generated by a machine source operated at or below an energy level of 10 MeV.

Forage (Fourrage)

Vegetative material in fresh, dried or ensiled state (pasture, hay or silage), which is fed to livestock.

Genetic Engineering (Génie génétique)

Refers to techniques by which the genetic material of an organism is changed in a way that does not occur naturally by multiplication and/or natural recombination. Examples of the techniques used in genetic engineering include but are not limited to

- recombinant DNA (rDNA) techniques that use vector systems;
- techniques involving the direct introduction into the organism of hereditary materials prepared outside the organism;
- cell fusion (including protoplast fusion) or hybridization techniques that overcome natural physiological, reproductive or recombination barriers, where the donor cells/protoplasts do not fall within the same taxonomic family.

Unless the donor/recipient organism is derived from any of the above techniques, examples of techniques not covered by this definition include

- in vitro fertilization;
- conjugation, transduction, transformation, or any other natural process;
- polyploidy induction;
- cell fusion (including protoplast fusion) or hybridization techniques where the donor cells/protoplasts are in the same taxonomic family.

Handling (Manutention)

Any operation or portion of operation that receives or otherwise acquires agricultural products for resale, including final retailers of agricultural products, who process and transform, repack or relabel such products.

Herbivore (Herbivore)

An animal that feeds chiefly on plants.

Homeopathic (Homéopathique)

Using homeopathy.

Homeopathy (*Homéopathie*)

A treatment of disease based on the administration of minute doses of a substance that in massive amounts produce symptoms in healthy animals similar to those of the disease itself.

Hydroponics (Hydroponie)

Cultivation of plants (flowers and vegetables) in aqueous nutrient solutions without the aid of soil. The soil is replaced by an inert culture medium (e.g. coarse sands, expanded clay, rockwool). Plants are cultivated by using a nutritive solution that is brought to each plant by taking into account the requirements of the species.

Ingredient (Ingrédient)

Any substance, including a food additive, used in the manufacture or preparation of a product. The substance is present in the final product, possibly in a modified form.

Input (Intrant)

Substances that are used or directly applied to the organic production system: particularly fertilizers, feed supplements, pesticides, soil amendments, veterinary treatments, processing additives or aids, sanitizing and cleaning materials.

Livestock (Animaux d'élevage)

Livestock means any domestic or domesticated animal including bovine (e.g. buffalo and bison), ovine, porcine, caprine, equine, poultry and bees raised for food or in the production of food. The products of hunting or fishing of wild animals shall not be considered part of this definition.

Manure (Déjections animales)

Livestock feces, urine and other excrement, and bedding used (or soiled) by livestock and that have not been composted.

Nanotechnology (Nanotechnologie)

Nanotechnology is a field described generally as the control and structuring of matter at dimensions typically between 1 and 100 nm to create materials, devices and systems with fundamentally new properties and functions. Nanoscale chemical substances, or nanomaterials, behave differently from their macroscale counterparts, exhibiting different mechanical, optical, magnetic and electronic properties.

Non-synthetic (Non synthétique)

A substance derived from mineral, plant or animal matter that does not undergo a synthetic process as defined in accordance with this standard.

Nutrient Management Plan (Plan de gestion des nutriments)

A nutrient budgeting plan in which the timing and rate of nutrient application is based on soil nutrient status (soil test results), crop nutrient needs, amendment (manure, compost, plow-down crop or other permitted substance), nutrient contents and expected nutrient release rates. The goal of a nutrient management plan is to minimize nutrient loss, protect water quality, maintain soil fertility and ensure effective use of permitted soil amendments.

Operator (Exploitant)

Any person, firm or organization that produces, prepares or imports, with a view to the subsequent marketing of products referred to as organic.

Organic Integrity (Intégrité biologique)

The maintenance of the inherent organic qualities of a product from the reception of ingredients through to the end consumer, in accordance with this standard.

Organic Product (Produit biologique)

Any commodity or output produced by a system conforming to this standard.

Organic Production (Production biologique)

A method of agricultural production, including any subsequent preparation, storage and transportation, conforming to this standard.

Parallel Production (Production parallèle)

The simultaneous production, preparation or handling of organic and non-organic (including transitional) crops, livestock and other organic products of the same or similar, visually indistinguishable varieties.

Pest (Organisme nuisible)

An organism causing damage to humans or to resources used by humans, such as some viruses, bacteria, fungi, weeds, parasites, arthropods and rodents.

Pesticide (Pesticide)

Any substance or mixture of substances intended to prevent, destroy, repel or mitigate any pests or plants.

Planting Stock (Matériel de reproduction végétale)

Any plant or plant tissue, other than annual seedlings but including rhizomes, shoots, leaf or stem cuttings, roots or tubers, bulbs or cloves, used in plant production or propagation.

Preparation (Préparation)

Includes, in respect of an agricultural product, processing, slaughtering, storing, inspecting, grading, packing, assembling, pricing, marking and labelling.

Processing Aids (Auxiliaires de production)

Substances that are added to a food for a technological effect during processing and that are not present in the finished food product or are present at insignificant and non-functional levels.

Production Unit (Unité de production)

An identifiable portion of an operation that produces, raises or prepares an organic product under a specific management plan.

Records (Registres)

Any information in written, visual or electronic form that documents the activities undertaken by a producer or a person engaged in the preparation of organic products, in accordance with this standard.

Sewage Sludge (Boues d'épuration)

A solid, liquid or semisolid material typically formed as a precipitate from wastewater treatment of liquid and solid human domestic waste, among other compounds, which is accumulated predominantly in municipal or industrial sewage treatment facilities, sewers and drains. Sewage sludge includes, but is not limited to, domestic septage; scum or solids removed in primary, secondary or advanced wastewater treatment processes; or material derived from sewage sludge.

Soil (Sol)

A mixture of minerals, organic matter and living organisms.

Split Production–Split Operation (Production fractionnée–Exploitation fractionnée)

An operation that produces, prepares or handles organic and non-organic agricultural products (including transition).

Synthetic Substance (Substance synthétique)

A man-made substance formulated or manufactured by a chemical process or by a process that chemically alters compounds extracted from plant, micro-organisms, and animal or mineral sources. This term does not apply to compounds synthesized or produced by biological processes, including heat and mechanical processing.

Traceability (Traçabilité)

A documentation control procedure that can determine the origin, transfer of ownership, and transportation process (i.e. supply chain) of an organic product or a product containing organic ingredients.

Transition (Conversion)

Set of steps taken by the operator of a non-organic production system to establish organic management practices, in accordance with this standard.

Transitional Period (Période de conversion)

The period of time between the start of an organic management program in a production unit and the attainment of organic status by a production unit, in accordance with this standard.

Transplant (Plant repiqué)

A seedling that has been removed from its original place of production, transported and replanted.

Veterinary Biologic (Produit biologique vétérinaire)

A helminth, protozoa or micro-organism; or a substance or mixture of substances derived from animals, helminths, protozoa or micro-organisms; or a substance of synthetic origin that is manufactured, sold or represented for use in restoring, correcting or modifying functions in animals or for use in the diagnosis, treatment, mitigation or prevention of a disease, disorder, abnormal physical state, or the symptoms thereof, in animals. Veterinary biologics include vaccines, bacterins, bacterin-toxoids, immunoglobulin products, diagnostic kits and any veterinary biologic derived through biotechnology.

Veterinary Drug (Médicament vétérinaire)

Any substance or mixture of substances represented for use or administered in the diagnosis, treatment, mitigation or prevention of disease, disorder, abnormal physical state or its symptoms in animals; restoring, correcting or modifying functions in animals.

Wild Crop (Plante sauvage)

Naturally growing plants in their natural habitat collected or harvested from a site that is not maintained under cultivation or other agricultural management.

4. ORGANIC PLAN

4.1 The operator of an enterprise shall prepare an organic plan outlining the details of transition, production, preparation, handling and management practices, in accordance with this standard.

4.2 The organic plan shall be updated annually to address changes to the plan or management system, problems encountered in executing the plan, and measures taken to overcome such problems.

4.3 The organic plan shall include a description of the internal record-keeping system, with documents sufficient to meet traceability requirements as specified in par. 4.4.1 and record-keeping requirements.

4.4 **Record Keeping and Identification** — The operator seeking to comply with this standard shall maintain records and relevant supporting documents concerning the inputs and details of their use, production, preparation, handling and transport of organic crops, livestock and products. The operator is responsible for maintaining the organic integrity of the product and shall fully record and disclose all activities and transactions in sufficient detail as to be readily understood; and sufficient to demonstrate compliance to this standard.

4.4.1 Records shall make it possible to trace

a. the origin, nature and quantities of organic products, as stated within this standard, that have been delivered to the production unit;

- b. the nature, quantities and consignees of products, as stated within this standard, that have left the production unit;
- c. any other information, such as the origin, nature and quantities of ingredients, additives and manufacturing aids delivered to the unit, and the composition of processed products, for the purposes of proper verification of the operations in accordance with this standard.

4.4.2 Records shall be maintained for not less than five years beyond their creation.

4.4.3 An identification system shall be provided for distinguishing organic and non-organic crops, livestock (e.g. general appearance, colour, variety and types) and products.

5. CROP PRODUCTION

5.1 Land Requirements for Organic Crop Production

5.1.1 This standard shall be fully applied on a production unit for at least 12 months before the first harvest of products. Substances prohibited by par. 1.4.1 and substances not in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*, shall not have been used for at least 36 months before the harvest of any organic crop.

*Note: The Canadian Organic Products Regulations require operators to document that they have not used substances prohibited by this standard and substances not listed in CAN/CGSB-32.311, Organic Production Systems — Permitted Substances Lists. The Organic Products Regulations also require that, in the case of an initial application for an organic certification of **field crops**, the application for certification must be filed 15 months before the day on which the product is expected to be marketed. During that period of time, compliance to (or with) this standard will be assessed by the certification body, and this assessment must at least include one inspection of the production unit during production in the year before **field crops** may be eligible for certification and one inspection during production in the year **field crops** are eligible for certification.*

5.1.2 The enterprise shall aim at a complete transition of its production. During the transition period, the enterprise can maintain, in addition to the production in transition, a non-organic system of production (split operation) that shall be entirely separate and identified separately, pending its incorporation into the overall transition process. The enterprise can be converted one unit at a time, and each converted unit shall respect the requirements of this standard. The exception to this norm, parallel production, is only allowed in the following cases: perennial crops (already planted), agricultural research facilities, production of seed, vegetative propagating materials and transplants. The following special conditions shall be observed for parallel production:

- a. The operator shall clearly demonstrate that the identity of the crops so produced can be maintained during their production, harvesting, storage, processing, packaging and marketing.
- b. The operator shall maintain verifiable, accurate records of both non-organic and organic produce and product storage, transportation, processing and marketing.

Note: Parallel production crops both organic and non-organic must be inspected just prior to harvest and an audit of all parallel production crops must occur after harvest.

5.1.3 All production units shall have distinct, defined boundaries.

5.1.4 When unintended contact with substances prohibited by par. 1.4.1 is possible, distinct buffer zones or other features sufficient to reasonably prevent contamination are required.

- a. Buffer zones shall be at least 8 m wide.
- b. Permanent hedgerows or plant windbreaks, artificial windbreaks, permanent roads or other adequate physical barriers may be used instead of buffer zones.

5.1.5 Crops grown in buffer zones shall be considered non-organically grown products whether they are used on the farm or not.

- 5.1.6 Production units shall not be alternated between organic and non-organic production methods.
- 5.2 **Environmental Factors**
- 5.2.1 Measures shall be taken to minimize the physical movement of substances prohibited by par. 1.4.1 from neighbouring areas onto organic farmland and crops. Similarly, measures shall be taken to minimize the contamination of land and crops with such substances.
- 5.2.2 The use of posts or wood treated with materials other than those in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*, is prohibited.
- a. Continued use and recycling of existing (prohibited) posts within the farm are allowed.
 - b. Acquisition of any additional material with these wood treatments is prohibited for new installations or replacement purposes. Exceptions may be granted in vast rangeland and semi-arid regions, and will consider the availability of alternate materials.
- 5.3 **Seeds and Planting Stock**
- 5.3.1 The operator shall use organic seed, bulbs, tubers, cuttings, annual seedlings, transplants and other propagules produced in accordance with this standard.
- 5.3.2 ***Exceptions or Conditions***
- 5.3.2.1 A variety of non-organic untreated seed and planting stock or seed treated only with substances in accordance with this standard may be used provided that the organically produced seed or planting stock variety
- a. is not available from the enterprise;
 - b. is not commercially available, and a reasonable search involving potential, known organic suppliers has been conducted.
- 5.3.2.2 Non-organic perennial planting stock may be used provided that the organic products were harvested after such plants have been maintained in accordance with this standard for at least one year. The land on which the stock is planted shall meet the requirements in par. 5.1.1.
- 5.3.2.3 Plant varieties, seeds, seed inoculant, germ plasm, scions, rootstocks or other propagules developed through the use of genetic engineering are prohibited, in accordance with par. 1.4.1.
- 5.4 **Soil Fertility and Crop Nutrient Management**
- 5.4.1 The main objective of the soil fertility and crop nutrient management program shall be to establish and maintain a fertile soil using practices that maintain or increase soil humus levels, that promote an optimum balance and supply of nutrients, and that stimulate biological activity within the soil.
- 5.4.2 The fertility and biological activity of the soil shall be maintained or increased, where appropriate, by
- a. crop rotations, which shall be as varied as possible and include plough-down, legumes, catch crops or deep-rooting plants;
 - b. incorporating plant and animal matter that can be obtained from organic production in compliance with this standard and that include the following:
 - i. Composted animal and plant matter
 - ii. Non-composted plant matter, specifically legumes, plough-down crops or deep-rooting plants within the framework of an appropriate multiyear rotation plan
 - iii. Non-processed animal manure, including liquid manure and slurry

- iv. Animal manures that have been processed using physical (e.g. dehydration), biological or chemical treatment only with substances permitted by CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*. Techniques for processing animal manure shall minimize the loss of nutritional elements.

5.4.3 The operator shall select and implement tillage and cultivation practices that maintain or improve the physical, chemical and biological condition of soil, that minimize damage to the structure and tilth of soil, and that minimize soil erosion.

5.4.4 The operator shall manage plant and livestock materials to maintain or improve soil organic matter content, crop nutrients, and soil fertility in a manner that does not contribute to the contamination of crops, soil or water, by plant nutrients, pathogenic organisms, heavy metals or residues of substances prohibited by par. 1.4.1.

5.4.5 Except as provided in par. 5.5.1, the organic matter produced on the enterprise shall be the basis of the nutrient cycling program and may be supplemented with off-farm organic and non-organic nutrient sources specified in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*.

5.4.6 The operator shall not use burning to dispose of crop residues produced on the operation, except that burning may be used to suppress the spread of disease or to stimulate seed germination.

5.5 Manure Management

5.5.1 **Manure Sources** — The operator shall first use all available animal manure produced on the organic operation (on-farm) and then may use manure from other organic operations (off-farm). When manure from organic operations is not available in sufficient quantities, the operator may use manure from non-organic farm operations provided that

- a. the non-organic operation is not a fully caged system where livestock are not able to turn 360°;
- b. livestock are not permanently kept in the dark;
- c. the source of manure, type of livestock, evaluation of the criteria mentioned in par. 5.5.1 a. and b., and quantity shall be recorded.

Note: Organic operations should make it a priority to use manure obtained from transition or extensive livestock operations and not originating from landless livestock production operations or from livestock operations using genetically modified organisms (GMOs) and their derivatives in animal feeds.

5.5.2 Land Application of Manure

5.5.2.1 The essential elements of an organic manure application program shall address land area, rate of application, time of application, soil incorporation and retention of nutrient components.

5.5.2.2 All soil amendments including liquid manure, slurries, compost tea, solid manure, raw manure, compost and other approved substances shall be applied to land in accordance with nutrient management planning principles.

Note: In Canada, some additional provincial requirements may also apply.

5.5.2.3 Where manure is applied, the soil shall be sufficiently warm and moist to ensure active bio-oxidation.

5.5.2.4 In season, the timing, rate and method of manure application shall be designed to ensure that manure application

- a. does not contribute to the contamination of crops by pathogenic bacteria;
- b. minimizes the potential for run-off into ponds, rivers and streams;
- c. does not significantly contribute to ground and surface water contamination.

- 5.5.2.5 The non-composted solid or liquid manure shall be
- a. incorporated into the soil at least 90 days before the harvesting of crops for human consumption that do not come into contact with soil,
 - b. incorporated into the soil at least 120 days before the harvesting of crops having an edible part that is directly in contact with the surface of the soil or with soil particles.

5.6 Crop Pest, Disease and Weed Management

- 5.6.1 Pest, disease and weed control shall be centred on organic management practices aimed at enhancing crop health and reducing losses caused by weeds, disease and pests. Organic management practices include cultural practices (e.g. rotations, establishment of a balanced ecosystem, and use of resistant varieties) and mechanical techniques (e.g. sanitation measures, cultivation, traps, mulches and grazing).
- 5.6.2 When the organic management practices alone cannot prevent or control crop pests, disease or weeds, a biological or botanical substance, or other substances in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*, may be applied. However, the conditions for using the substance shall be documented in the organic plan, in accordance with section 4.
- 5.6.3 Application equipment (e.g. spray equipment) used for soil nutrient supplements, disease or pest management on the enterprise shall be cleaned thoroughly between applications to remove residues of applied substances. If products presenting a contamination risk have been previously applied with the equipment, equipment parts from which residue cannot be removed shall be replaced.

6. LIVESTOCK PRODUCTION

6.1 General

- 6.1.1 Livestock for organic production shall be raised according to this standard.
- 6.1.2 Livestock can make an important contribution to an organic farming system by
- a. improving and maintaining the fertility of the soil,
 - b. managing the flora through grazing,
 - c. enhancing biodiversity and facilitating complementary interactions on the farm.
- 6.1.3 Livestock production is a land-related activity.
- a. Herbivores shall have access to pasture during the grazing season and access to the open air at other times whenever weather conditions permit. Calculated on the basis of dry matter intake, the consumption of grazed forage during the grazing season of the region shall represent a minimum of 30% of the total forage intake during this period for ruminants that have reached sexual maturity. 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).
 - b. All other animals, including poultry, shall have access to the outdoors whenever weather conditions permit.
 - c. See par. 6.8.2 and 6.8.7 for exceptions.
- 6.1.4 Livestock stocking rates shall recognize the differences between Canada's agro-climatic regions and take into consideration feed production capacity, stock health, nutrient balance and environmental impact.
- 6.1.5 Organic livestock management shall aim to utilize natural breeding methods, minimize stress, prevent disease, progressively eliminate the use of chemical allopathic veterinary drugs (including antibiotics), and maintain animal health and welfare.

6.2 **Origin of Livestock**

6.2.1 The choice of breeds, strains and breeding methods shall be consistent with the principles of this standard and, in particular, shall take into account

- a. adaptation of livestock to local conditions,
- b. vitality and resistance of livestock to disease,
- c. absence of disease and health problems specific to breeds or strains.

6.2.2 Livestock used for organic livestock products shall

- a. be born or hatched on production units conforming to this standard;
- b. have been the offspring of parents raised under the conditions specified in this standard;
- c. be raised under this system throughout their life;
- d. exceptions to the requirements in par. 6.2.2 a., b. and c. are allowed for poultry and for herds or individual animals that are being converted to organic production:
 - i. Poultry used for edible poultry products shall be poultry that have been under continuous organic management, in accordance with this standard, beginning no later than the second day of life; birds shall not have been given medication other than vaccines.
 - ii. Animals used for milk production shall have been under continuous organic management, in accordance with this standard, for at least one year.
 - iii. Animals used for meat shall have been under continuous organic management, in accordance with this standard, from the beginning of the last third of the gestation period (of the dam).

6.2.3 Animals purchased for breeding shall be from organic enterprises. By way of derogation, when it can be shown that suitable organic breeding stock are not available, non-gestating breeder animals and breeding males may be brought from a non-organic operation onto an organic operation and integrated into the organic system. However, the meat from such animals shall not be organic. Livestock from non-organic sources shall not be considered as organic breeding stock outside the organic operation if raised according to this standard for less than 12 months.

6.2.4 All livestock or edible livestock products that are removed from an organic enterprise and subsequently managed on a non-organic enterprise shall not be considered as organically produced, in accordance with this standard.

6.3 **Transition to Organic**

6.3.1 When an entire dairy herd is being converted to organic production, the operator shall,

- a. in the first nine months of the transition year, provide a minimum of 80% feed, calculated by dry matter, that is either organic or raised from land included in the organic system plan and that is managed in accordance with organic crop requirements
- b. in the final three months of the transition year, provide only organic feed conforming to this standard.

6.3.2 The transition of the land intended for feed crops or pasture shall comply with par. 5.1.

6.3.3 During the final year of transition, animal feed and pasture of the enterprise can be used as organic by the production unit of the enterprise. The feed shall not be considered as organic outside of this unit.

6.3.4 New breeding stock brought onto the farm to expand production may consume third year transition pasture forage during the first and second trimester.

6.4 Livestock Feed

- 6.4.1 The operator of an organic livestock operation shall provide livestock with a feed ration balanced to meet their nutritional requirements and consisting of feedstuffs produced in accordance with this standard.
- a. During a farm-scale catastrophic event (e.g. fire, flood, or extreme climatic conditions) where organic feed is unobtainable, an exception to this specification of up to 10 consecutive days may be allowed so that the livestock are provided a balanced diet. Under this exemption, feed from land in transition to organic production and known to be free of substances prohibited by par. 1.4.1 shall be used in preference to non-organic feed.
 - b. In the case of regional forage shortages, breeding herds may be fed non-organic forage without affecting the organic status of other stock on the establishment, provided that the livestock fed non-organic forage are segregated, are visually distinguishable (i.e. ear tags, age verification records) and record keeping is maintained. Under this exemption, forage from land in transition to organic production and known to be free of substances prohibited by par. 1.4.1 shall be used in preference to non-organic forage. Otherwise, and in all other respects, breeding herds intended to produce organic offspring shall be managed according to this standard at all times. The breeding herd shall be re-transitioned when organic forage supply becomes available and par. 6.2.2 d. iii. shall still apply to any offspring.
- 6.4.2 Livestock feed shall consist of substances that are necessary and essential for maintaining the animals' health, well-being and vitality and that meet the physiological and behavioural needs of the species in question.
- 6.4.3 Specific livestock rations shall take into account the following:
- a. For young mammals, the need for natural milk, including colostrum within the first day of life
 - b. For ruminants, that at least 60% of dry matter in daily rations consists of hay, fresh/dried fodder or silage
 - c. For ruminant animals, when silage is fed, at least 15% of the total dry matter in daily rations shall consist of long-fiber forage (>10 cm stem length)
 - d. For poultry, when in the finishing phase, the need for grains
 - e. For poultry and pigs, the need for vegetable matter other than grain.
- 6.4.4 The operator of an organic operation shall not provide organic livestock with
- a. feed and feed additives, including amino acids and feed supplements that contain substances not in accordance with CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*;
 - b. feed medications or veterinary drugs, including hormones and prophylactic antibiotics, to promote growth;
 - c. approved feed supplements or additives used in amounts above those required for adequate nutrition and health maintenance for the species at its specific stage of life;
 - d. feeds chemically extracted or defatted with substances prohibited by par. 1.4.1;
 - e. feed that contains mammalian or avian slaughter by-products;
 - f. feed that contains synthetic preservation agents;
 - g. silage preservation products except for products listed in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*;
 - h. synthetic appetite-enhancers or synthetic flavour-enhancers;
 - i. feed formulas containing manure or other animal waste;
 - j. feed that contains synthetic colouring-agents.

- 6.4.5 Animals shall be provided with clean fresh water on demand.
- 6.4.6 The force feeding of ducks and geese is prohibited.
- 6.5 **Breeding** — Breeding methods shall conform to the principles of organic production in this standard. The operator shall
- a. select breeds and types of livestock that are suitable for site-specific conditions within the local environment and production system and that are resistant to prevalent diseases and parasites;
 - b. use natural methods of reproduction; however, artificial insemination is permitted;
 - c. not use embryo transfer techniques or breeding techniques using genetic engineering or related technology;
 - d. not use reproductive hormones to trigger and synchronize estrus.
- 6.6 **Transport and Handling**
- 6.6.1 Livestock shall be managed responsibly with care and respect. Stress shall be minimized in all handling practices.
- Note: In Canada, see also the Health of Animals Regulations under the Health of Animals Act (Canadian Food Inspection Agency).*
- 6.6.2 The transport and slaughter of livestock shall be managed to minimize stress, injury and suffering. The use of electrical stimulation or allopathic tranquilizers is prohibited.
- 6.6.3 The animals shall have suitable shelter against inclement weather conditions (e.g. wind, rain, excessive heat and cold) during transportation and before slaughter.
- 6.6.4 Efforts shall be made to transport animals directly from the farm to their final destination.
- 6.6.5 The duration of transportation shall be as short as possible.
- 6.6.6 Animals too ill to be transported shall be suitably euthanized, without cruelty.
- 6.7 **Livestock Health Care**
- 6.7.1 The operator shall establish and maintain preventive livestock health care practices, including
- a. the choice of appropriate breeds or strains of animals, as specified in par. 6.2.1;
 - b. the provision of a feed ration sufficient to meet nutritional requirements, including vitamins, minerals, protein, fatty acids, energy sources and fibre (ruminants), in accordance with this standard;
 - c. the establishment of appropriate housing, pasture conditions, space allowance and sanitation practices, to minimize crowding and the occurrence and spread of diseases and parasites;
 - d. the provision of conditions that allow for exercise, freedom of movement, and a reduction in stress appropriate to the species;
 - e. the provision of prompt treatment for animals with detectable disease, lesions, lameness, injury and other physical ailments;
 - f. the administration of vaccines in accordance with this standard when it has been documented that the targeted diseases are communicable to livestock on the enterprise and cannot be combatted by other means.
- 6.7.2 Physical alterations are prohibited except when absolutely necessary to improve the health, welfare or hygiene of animals, or for identification or safety reasons. Physical alterations shall be undertaken in a manner that

minimizes pain, stress and suffering, with consideration to the use of anaesthetics, sedatives and non-steroid anti-inflammatory analgesics (e.g. ketoprofen).

- a. Beak trimming and de-toeing of birds, tail docking of pigs and trimming of needle teeth in piglets are only allowed when necessary to control problem behaviour that has a negative impact on the welfare of other animals. Operators shall document the measures taken to control or eliminate the behaviour.
- b. Tail docking of cattle is prohibited except when necessary for veterinary treatment of injured animals.
- c. The following procedures are allowed under the conditions specified in par. 6.7.2:
 - i. Castration of piglets, lambs and calves
 - ii. Docking of lambs' tails
 - iii. Branding and ear tagging
 - iv. Dehorning and debudding (use of anaesthetics or sedatives is required for dairy calves).
- d. Castration of piglets shall take place in the first two weeks of life. Castration of cull boars is prohibited.

6.7.3 Where preventive practices and vaccines are inadequate to prevent sickness or injury and where disease and health problems require treatment, the use of biological, cultural, and physical treatments and practices is permitted, in accordance with CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*.

6.7.4 Medical treatment for sick or injured livestock shall not be withheld to preserve their organic status. All appropriate medications shall be used to restore livestock to health when methods acceptable to organic production fail. Shipping of diseased livestock to slaughter for human consumption is prohibited. Sick and medicated animals shall be quarantined from healthy livestock.

6.7.5 Products from sick animals or those undergoing treatment with restricted substances shall not be organic or fed to organic livestock.

6.7.6 The use of veterinary medicinal substances in organic production systems shall conform to the following:

- a. If no alternative treatment or management practice exists, the use of veterinary biologics, including vaccines, the use of parasiticides or the therapeutic use of synthetic medications may be administered provided that such medications are allowed, in accordance with this standard, or are required by law.
- b. Phytotherapeutic (i.e. herbal or botanical substances excluding antibiotics), homeopathic or similar products shall be used in preference to chemical allopathic veterinary drugs or antibiotics, provided that their therapeutic effect is effective for the species and the condition for which the treatment is intended.
- c. If the use of the products in par. 6.7.6 a. and b. is unlikely to be effective in combatting illness or injury, chemical allopathic drugs (not listed in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*) may be administered under veterinary supervision. Some restrictions apply when meat animals are treated (see par. 6.7.7, 6.7.8 e. and 6.7.9).
- d. When veterinary drugs other than those with specific requirements listed in this standard or CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*, are used, a withholding period equivalent to double the label requirement or 14 days, whichever is longer, shall be observed before the products from treated livestock can be considered organic.
- e. Antibiotic treatment of dairy animals is permitted in emergencies under the following conditions:
 - i. The operator shall have written instructions from a veterinarian indicating the product and the treatment method used.

- ii. Such treatment shall result in a milk withdrawal time of at least 30 days or two times the specific medication's withdrawal period, whichever is longer.
- iii. Antibiotic use shall be documented in herd health records.
- iv. Dairy animals shall undergo only two treatments (of combined parasiticides and antibiotics) per year. Dairy animals that require more than two treatments shall undergo a 12-month transition period.
- v. Dairy animals with chronic conditions requiring repeated use of this practice shall be removed from the herd.

6.7.7 Hormonal treatment shall only be used for therapeutic reasons and under veterinary supervision. The meat from animals so treated shall not be organic meat unless the treatment is permitted by CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*.

6.7.8 The operator of an organic livestock operation shall not administer

- a. veterinary drugs, other than vaccines, in the absence of illness, with the exception of anaesthetics and analgesics used in permitted physical alterations;
- b. synthetic compounds to stimulate or retard growth or production, including hormones for growth promotion;
- c. synthetic parasiticides to meat animals, except as provided in par. 6.7.9;
- d. antibiotics to meat animals and birds for egg production;
- e. chemical allopathic veterinary drugs (e.g. pharmaceuticals, antibiotics, hormones and steroids) for preventive treatments.

6.7.9 Organic livestock operations shall have a comprehensive plan to minimize parasite problems in livestock.

- a. The plan will include preventive measures such as pasture management and fecal monitoring, as well as emergency measures in the event of a parasite outbreak.
- b. By way of derogation, when preventive measures fail (because of climatic conditions or other uncontrollable factors), the operator may use parasiticides not listed in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*, provided that
 - i. observation of the animal or fecal samples, as appropriate for the species, indicate the livestock is infected with parasites;
 - ii. the operator has received written instructions from a veterinarian indicating the product and method for parasite control that shall be used;
 - iii. withdrawal times shall be twice the label requirement or 14 days whichever is longer;
 - iv. there shall be only one treatment for slaughter animals under a year old and a maximum of two treatments for older slaughter animals. Slaughter animals that require further treatment will lose organic status;
 - v. 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;
 - vi. under this derogation, a dam may be treated during gestation;

vii. treatment of a poultry flock is allowed. Laying hens requiring more than one treatment of parasiticides per 12 month period will lose organic status;

viii. the operator shall provide a written action plan (including timing), describing how they will amend their parasite control plan, to avoid similar emergencies.

6.7.10 Except as provided in par. 6.7.9, no breeding livestock or poultry treated with a parasiticide or veterinary drug (not listed in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*) shall be considered as an organic meat animal.

6.7.11 Injured, diseased or sick animals shall receive individual treatment designed to minimize pain and suffering, which may include euthanasia.

6.7.12 Forced moulting of poultry is prohibited.

6.8 **Livestock Living Conditions**

6.8.1 The operator of an organic livestock operation shall establish and maintain animal living-conditions that accommodate the health and natural behaviour of all animals, including

- a. access to the outdoors, shade, shelter, rotational pasture, exercise areas, fresh air and natural daylight suitable to the species, its stage of production, the climate and the environment;
- b. access to fresh water and high-quality feed in accordance with the needs of the animal;
- c. sufficient space and freedom to lie down in full lateral recumbency, stand up, stretch their limbs and turn freely, and express normal patterns of behaviour;
- d. space allowances appropriate to local conditions, feed production capacity, livestock health, nutrient balance of livestock and soils, and environmental impact;
- e. production techniques that foster the long-term health of livestock, especially where animals are required to provide a high level of production or rate of growth;
- f. air quality including moisture and dust content shall not prejudice the well-being of the herd/flock;
- g. appropriate resting and bedding areas in accordance with the needs of the animal;
- h. livestock housing with non-slip floors. The floor shall not be entirely of slatted or grid construction. Solid flooring is preferred but where nonslip slatted floors exist, the floor design shall ensure that the foot of the smallest animal cannot be caught in a void. Areas between the voids shall be at least the width of the foot of the animals. Buildings shall have areas for bedding and resting that are sufficiently large, solidly built, comfortable, clean and dry. They shall be covered with a thick layer of dry bedding that can absorb excrement. When a production unit is unable to source sufficient organic bedding and a reasonable regional search has been conducted, involving potential known organic suppliers, bedding material not produced from genetic engineering and free from the application of substances prohibited by par. 1.4.1 for at least 60 days prior to harvest, may be used;
- i. the management of runs and the grazing management of pasture shall be designed to avoid soil degradation, long term damage to vegetation or water contamination.

6.8.2 The operator of an organic livestock operation may provide temporary confinement for livestock owing to

- a. inclement weather;
- b. conditions where the health, safety or well-being of the animal could be jeopardized given its stage of production;
- c. risks relating to soil, water or plant quality.

- 6.8.3 Except for lactating cows, the continuous tethering of livestock is not permitted. When tie stalls are used in dairy barns in the winter season, cows shall be allowed a period of exercise each day, when possible, and at least twice a week.
- 6.8.4 Housing, pens, runs, equipment and utensils shall be properly cleaned and disinfected to prevent cross infection and build-up of disease-carrying organisms.
- 6.8.5 All livestock in a single production unit shall be reared in accordance with this standard. Individual animals with non-organic status may be present in the production unit if they are clearly identified and managed in accordance with this standard. Non-organic livestock production units may be present on a farm if clearly identified and kept separate from the organic livestock production.
- 6.8.6 Animals reared in accordance with the provisions of this standard may be grazed with other animals on common land (i.e. crown range or community pasture), provided that²
- this land has not been treated with products other than those allowed in accordance with this standard for at least three years,
 - health care and feed products available to organic livestock on common land shall be in accordance with this standard,
 - identification permits clear distinction between organically raised animals and non-organically raised animals.
- 6.8.7 Herbivores shall have access to pasture, during the grazing season, and to the open air or outdoor exercise area at other times weather permitting. Exceptions to the pasture requirement are allowed for
- breeding males;
 - the final finishing phase — when cattle are confined for finishing, there shall be at least 23 m²/animal;
 - young animals when their health and welfare are jeopardized.
- 6.8.8 **Cattle** — The minimum indoor and outdoor space requirements for cattle are as follows:

	Indoor Space	Outdoor Runs and Pens
Adult cows	6 m ² /head	9 m ² /head
Calves	Incremental increase of 2.5 m ² /head for young calves to 5 m ² /head for growing (1-year old) steers and heifers	5 m ² /head to 9 m ² /head, depending on the size of animals

² In addition to the requirements previously stated, the following apply to specific types of livestock.

6.8.9 **Sheep and Goats** — The minimum indoor and outdoor space requirements for sheep and goats are as follows:

Indoor Space	Outdoor Runs and Pens
1.5 m ² /head plus 0.35 m ² /head for each additional lamb/kid	2.5 m ² /head plus 0.5 m ² /head for each additional lamb/kid

6.8.10 **Housing of Dairy Calves**

6.8.10.1 The housing of calves in individual pens and hutches is permitted provided the following conditions are met:

- a. Calves may be housed in individual pens until three months of age, providing that they are not tethered and have enough room to turn around, lie down, stretch out when lying down, get up, rest and groom themselves.
- b. Individual calf pens shall be designed and located so that each calf can see, smell and hear other calves.
- c. Individual housing shall have an area of at least 2.5 m² and a minimum width of 1.5 m.
- d. Only hutches with access to an enclosed yard or run are acceptable for outdoor use.

6.8.10.2 Calves shall be group-housed following weaning.

6.8.10.3 As appropriate for the season, dairy replacement calves over nine months of age shall have access to pasture.

6.8.11 **Poultry**

Note: This paragraph is in addition to the standards that apply to all livestock in par. 6.1 to 6.8.

6.8.11.1 The operator of an organic poultry operation shall establish and maintain poultry living conditions that accommodate the health and natural behaviour of poultry.

- a. The keeping of poultry in row/battery cages is not permitted.
- b. Poultry shall be reared in open-range conditions and have free access to pasture, open-air runs, and other exercise areas subject to the weather and ground conditions. Outside areas used for poultry shall
 - i. be covered with vegetation (seeded if necessary) and periodically left empty to allow vegetation to re-grow and to prevent disease build-up. As a means of rodent control, a vegetation free perimeter around poultry houses is allowed;
 - ii. provide protection from predators.
- c. In emergency situations when outdoor access is considered to result in an imminent threat to the health and welfare of poultry, outdoor access may be restricted. When the imminent threat ends, outdoor access shall resume. Producers shall maintain records documenting periods of confinement.
- d. Operators shall have an organic plan for their poultry operation that describes outdoor access and how they will protect birds from disease and predators.
- e. Laying birds may be confined during onset of lay (i.e. until peak production is reached).

6.8.11.2 Ducks and geese shall have access to a water area created for their use, when weather conditions permit. Facility design shall address the need to prevent the co-mingling of wild waterfowl and domestic poultry.

6.8.11.3 Laying hens shall have access to an adequate number of nests according to recommended best management practices.

- 6.8.11.4 Surfaces to perch shall be provided for all laying hens at not less than 18 cm/hen. Perch area can include raised perches, nest rails and raised floors.
- 6.8.11.5 Birds shall have sufficient exit areas to ensure that all birds have ready access to the outdoors. Exits shall allow the passage of more than one bird at a time.
- 6.8.11.6 Litter shall be provided and maintained in a dry manner. Houses with slatted floors shall have 30% minimum of solid floor area with sufficient litter available for dust baths, scratching and foraging.
- 6.8.11.7 Facilities shall permit poultry access to an adequate number of drinkers and feeders according to recommended best management practices.
- 6.8.11.8 Natural light shall be provided indoors for all poultry. If day length is artificially prolonged, the total duration of light shall not exceed 16 hours and shall be terminated by gradual reduction of light intensity.
- a. Exceptions may occur for certain stages of production (e.g. arrival of chicks, turkey poults). Producers shall document periods of increased and decreased lighting periods due to stage of production.
- 6.8.11.9 The maximum indoor and outdoor densities for poultry are as follows:

Stocking Density	Layers	Broilers	Turkeys/Large birds
Indoors	6 birds/m ²	21 kg/m ²	26 kg/m ²
Outdoor runs	4 birds/m ²	21 kg/m ² *	17 kg/m ²

* Taking into consideration the requirements of par. 6.8.1 i. and 6.8.11.1 b. i.

- 6.8.11.10 For pasture-based operations and mobile units, the stocking density shall be no more than 2000 layers per hectare (800 per acre), 2500 broilers per hectare (1000 per acre) or 1300 large birds (turkeys/geese) per hectare (540 per acre) calculated using the total amount of land available for rotation.
- 6.8.11.11 For poultry, buildings shall be emptied, cleaned and disinfected, and runs left empty to allow the vegetation to grow back between flocks.

6.8.12 ***Rabbits***

- 6.8.12.1 The keeping of rabbits in cages is not permitted.
- 6.8.12.2 The minimum indoor and outdoor space requirements for rabbits are as follows:

	Indoor Space	Outdoor Runs and Pens
Young rabbits	0.3 m ² /head	2 m ² /head
Pregnant does	0.5 m ² /head	2 m ² /head
Does and offspring	0.7 m ² of floor space/doe and offspring	2 m ² /head
Bucks	0.3 m ² /head	2 m ² /head

6.8.13 ***Pigs/Wild Boar (farm-raised)***

Note: This paragraph is in addition to the standards that apply to all livestock in par. 6.1 to 6.8.

- 6.8.13.1 The size of individual livestock operations shall respect a ratio of land-owned, leased or available for spreading manure of animals housed, based on a balance between animal units, feed production and manure management. Farrow to finish operators shall not exceed 2.5 sows/ha.
- 6.8.13.2 Pigs shall have access to outdoor exercise areas. Access to pasture is recommended but not mandatory. Outdoor areas for pigs may also include woodlands or other natural environments, in which case the same guidelines regarding pasture management shall apply, i.e. management systems shall be designed to avoid soil degradation, long-term damage to the vegetation or water contamination.

- 6.8.13.3 Sows shall be kept in groups, except in the last stages of pregnancy and during the suckling period. Management systems shall be designed to avoid restraining sows. Restraint is allowed for a maximum of 5 days when needed for piglet protection. Individual pens are allowed for the protection of females during estrus for a period of up to 5 days or for other health reasons.
- 6.8.13.4 Piglets shall not be weaned before 4 weeks of age. Earlier weaning is allowed if the welfare of the sow and piglets is compromised.
- 6.8.13.5 Piglets shall not be kept on flat decks or in piglet cages.
- 6.8.13.6 Boars may be housed in individual enclosures if there is visual and tactile contact with other pigs.
- 6.8.13.7 Indoor and outdoor exercise areas shall permit rooting by the animals.
- 6.8.13.8 The use of nose rings is prohibited.
- 6.8.13.9 The minimum indoor and outdoor space requirements for pigs are as follows:

	Indoor Space	Outdoor Runs and Pens
Sow and piglets (up to 40 days' old)	7.5 m ² for each sow and litter	Not required
Growing pigs		
a. up to 30 kg	0.6 m ² /head	0.4 m ² /head
b. 30-50 kg	0.8 m ² /head	0.6 m ² /head
c. 50-85 kg	1.1 m ² /head	0.8 m ² /head
d. >85 kg	1.3 m ² /head	1.0 m ² /head
Sows in group pens	3 m ² /head	3 m ² /head
Boars in individual pens	9 m ² /head	9 m ² /head

6.9 Manure Management

- 6.9.1 Manure management practices used to maintain areas in which livestock are housed, penned or pastured shall be implemented in a manner that minimizes soil and water degradation.
- 6.9.2 All manure storage and handling facilities, including composting facilities, shall be designed, constructed and operated to prevent contamination of ground and surface water.

6.10 Pest Management — Pest management shall involve in descending order of preference

- a. preventive methods;
- b. mechanical, physical and biological control methods;
- c. the use of pesticides included in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*.

7. SPECIFIC PRODUCTION REQUIREMENTS

7.1 Apiculture

- 7.1.1 An operator may introduce and manage bees on the enterprise for production benefits, such as the pollination of organic crops. If managed as a livestock species yielding organic apiculture products (e.g. honey, pollen, propolis, royal jelly, beeswax and bee venom), the operator shall manage bees in accordance with this standard.
- 7.1.2 The treatment and management of colonies shall respect the principles of organic production.
- 7.1.3 The sources of nectar, honeydew and pollen shall consist mainly of organically produced plants and spontaneous (wild) vegetation.

- 7.1.4 The management of bee health shall be based on appropriate measures such as selection of stock with disease-resistant traits, availability of suitable forage, and good apiary management practices.
- 7.1.5 When bees are placed in wild areas, consideration shall be given to the indigenous insect population.
- 7.1.6 An operator of an organic apicultural enterprise shall prepare an organic plan providing a detailed description of the sources of bees and production methods. The plan shall include a description of colony management for diet, disease, pests, breeding and related problems with production, in accordance with this standard. The operator shall also outline the details of crop management practices, where applicable.
- 7.1.7 **Transition**
- 7.1.7.1 Products from an organic apiculture operation in accordance with this standard shall be from colonies that have been under continuous organic management for not less than one year. During this period all non-organic wax shall be replaced by organically produced wax.
- 7.1.7.2 When no substances prohibited by par. 1.4.1, and no substances not listed in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*, are used in the hive the year before the colonies are under continuous organic management, the replacement of wax is not necessary. However all products, such as wax, that are produced before the colonies are under continuous organic management, shall be considered non-organic.
- 7.1.7.3 Colonies and hives shall not be rotated between organic and non-organic management systems, except for colonies that have undergone a one-year transition after isolation and antibiotic treatment as described in par. 7.1.14.7.
- 7.1.8 **Introduced Bees** — The term *introduced bees* refers to replacement bees for established organic colonies — introduced bees are not established colonies. Introduced bees shall come from organic production units when commercially available. However, replacement bees (e.g. package bees or nucleus colonies) may be from organic sources or from non-organic sources provided that replacement bees are managed in accordance with this standard for at least 60 days before the removal of organic apiculture products from the hive.
- 7.1.9 **Location of Hives** — Apiaries shall be separated by a buffer zone of 3000 m where sources or zones of substances prohibited by par. 1.4.1, or flower-bearing agricultural crops treated with substances not listed in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists* (i.e. genetic engineering or environmental contaminants), are present.
- 7.1.10 **Forage and Feeding**
- 7.1.10.1 The operator shall provide bees with adequate forage and water that are managed in accordance with this standard.
- 7.1.10.2 Owing to the long distances that foraging bees may travel, it is not possible to limit foraging activities to organic floral sources. While placement of colonies on an organic enterprise, in accordance with this standard, is preferable, hives may be located in other foraging sites, provided the operator can demonstrate that the area surrounding the foraging site is not treated or exposed to substances not in accordance with this standard.
- 7.1.10.3 Organic honey and pollen shall be the major foodstuff for adult bees, and maintained in adequate supplies in the colony, including leaving colonies, with reserves of honey and pollen sufficient for the colony to survive the dormancy period.
- a. The feeding of colonies can be undertaken to overcome temporary feed shortages owing to climatic or other exceptional circumstances. Feeding shall be carried out only between the last honey harvest and 15 days before the start of the next nectar or honeydew flow-period.
 - b. In such cases, organically produced honey or sugars shall be used. Non-organic refined sugars may be used when the health of the colony cannot be maintained with the use of organically produced honey or sugars.
- 7.1.10.4 Organically and non-organically produced honey or sugars shall not be provided less than 30 days before the harvest of honey.

7.1.11 ***Colony Management***

- 7.1.11.1 Hives shall be individually identifiable (marked) and shall be monitored regularly (i.e. at one- to two-week intervals, depending upon the colony, weather conditions and time of year).
- 7.1.11.2 Records shall be maintained in accordance with this standard that document all apiary management activities, including removal of supers and extraction of honey.
- 7.1.11.3 Clipping of wings on queen bees is prohibited.
- 7.1.11.4 Bees shall be removed from hives with bee escape-boards, shaking, brushing and forced-air blowers.
- 7.1.11.5 Synthetic materials in bee smokers are prohibited in accordance with par. 1.4.1.
- 7.1.11.6 Annual destruction of bee colonies following nectar flows is prohibited.

7.1.12 ***Hive Construction***

- 7.1.12.1 Hives shall be constructed of natural materials, including wood and metal. Pressure-treated lumber or particleboard, wood preservatives and lumber treated with substances not in accordance with this standard shall not be used in hive construction or maintenance.
- 7.1.12.2 Exterior surfaces of the hive shall be painted only with non-lead-based paints.
- 7.1.12.3 Plastic foundation, if dipped in organic beeswax, is permitted.

7.1.13 ***Health Care***

- 7.1.13.1 Preventive health-care practices shall be established and maintained, including the selection of bee stocks resistant to prevalent diseases and pests; the selection of colony locations appropriate to site-specific conditions; the availability of sufficient pollen and honey; the renewal of beeswax; the disinfection and regular cleaning of equipment; and the destruction of contaminated hives and materials.
- 7.1.13.2 The operator shall promote strong healthy colonies, including uniting weaker albeit healthy colonies, renewing queens if necessary, maintaining adequate hive density, inspecting colonies systematically and relocating diseased colonies to isolated areas.

7.1.14 ***Disease and Pest Management***

- 7.1.14.1 The operator shall be knowledgeable about the life cycle and the behaviour of the bee, as well as related disease-causing organisms, parasitic mites and other pests. The operator shall also initiate efforts to restore the health of the colony in the presence of such pests, parasites or disease.
- 7.1.14.2 Every effort shall be made to breed and select queen bees for resistance to diseases and parasites, and to take preventive measures to control disease and pest problems.
- 7.1.14.3 Comb foundation shall be obtained from beeswax of the enterprise apiary or from other organic sources in accordance with this standard, where commercially available.
- 7.1.14.4 The operator shall use management methods or modified equipment to control pests and diseases.
- 7.1.14.5 Botanical compounds may be introduced into the hive provided that such remedies are in accordance with this standard and are not used within 30 days of nectar flow or whenever honey supers are on the hive.
- 7.1.14.6 The use of therapeutic applications of non-synthetic or synthetic substances to control pests, parasites and diseases is permitted, provided that such substances are in accordance with CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*.
- 7.1.14.7 The use of synthetic allopathic drugs (e.g. antibiotics) in organic apicultural production systems is prohibited. However, where the imminent health of the colony is threatened, such substances are allowed in accordance with

CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*, and par. 7.1.14.8. Treated hives shall be placed in isolation and undergo a one-year transition period. All the wax shall be replaced with wax that is in accordance with this standard, and all veterinary treatments shall be clearly documented. Before such treatments, the hive shall be removed from the foraging area and taken out of organic production to prevent the spread of antibiotics within the apiary.

7.1.14.8 The practice of destroying the male brood is permitted only to contain infestation with varroa mites.

7.1.15 ***Extraction, Processing and Storage***

7.1.15.1 Extraction of honey from a brood comb with live brood is prohibited.

7.1.15.2 The operator shall preserve and protect the quality and organic integrity of the honey, produced in accordance with this standard, once it is harvested.

7.1.15.3 Surfaces in direct contact with honey shall be constructed of food-grade materials or coated with beeswax.

7.1.15.4 The heating of honey for extraction shall not exceed 35°C, and the decrystallization temperature shall not exceed 47°C.

7.1.15.5 Gravitational settling shall be used to remove debris from extracted honey; sieves are permitted to remove residual debris.

7.1.15.6 Honey shall be packaged in airtight containers.

7.1.15.7 Cleaning products and insect repellents shall be limited to substances listed in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*.

7.1.15.8 Organic honey products shall not be produced from a hive or colony treated with substances prohibited by par. 1.4.1.

7.2 **Maple Products**

Note: The standards for maple production may also be applied to birch syrup production. In this section, “maple” may be replaced by “birch” and “maple sugaring” or “maple production” by “birch syrup production” as soon as it is necessary for the standards to be applied to this type of production. Similarly, if necessary, the term “sugar bush” may designate the birch syrup production site.

7.2.1 For organic maple products, the operator shall manage production units in accordance with this standard.

7.2.2 In the production of maple syrup or products derived from it, care shall be taken to ensure that the characteristic maple flavour predominates. Organic standards shall be respected during all stages of maple syrup production — the maintenance and development of the sugar bush, the collection and storing of the maple sap, and 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.

7.2.3 For sugar bush development and maintenance, the production of organic maple syrup shall be characterized by management practices that respect the sugar bush and its ecosystem. Development and maintenance shall be focused on preserving the ecosystem of the sugar bush and on improving the vigour of the tree population over the long term.

7.2.4 Tapping practices shall aim to minimize the risks to the health and longevity of the trees.

7.2.5 For the collection and storage of maple sap, the equipment and techniques shall aim to obtain a processed product of the highest possible quality. Equipment shall be in good condition and shall be used according to the manufacturer’s instructions.

- 7.2.6 In converting sap to syrup, the sap can take on the odour of anything it comes into contact with during its processing. Care shall be taken to avoid denaturing the product at any point in the processing. Therefore, the use of any technology likely to alter the intrinsic qualities of the product is prohibited.
- 7.2.7 The cleaning of equipment used in syrup production including the collection system, pipes and tanks shall take place before and after every production season.
- 7.2.8 **Transition** — This standard shall be fully applied on a production unit for at least 12 months before the first harvest of organic maple sap. Substances prohibited by par. 1.4.1 and substances not listed in section 4 of CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*, such as unapproved fertilizers or synthetic pesticides used in forest management, shall not have been used in the sugar bush for at least 36 months preceding the first harvest. Any parallel production is prohibited.
- Note: The Canadian Organic Products Regulations require operators to document that they have not used substances prohibited by this standard and substances not listed in CAN/CGSB-32.311, Organic Production Systems — Permitted Substances Lists. The Organic Products Regulations also require that, in the case of an initial application for an organic certification of **maple products**, the application for certification must be filed 15 months before the day on which the product is expected to be marketed. During that period of time, compliance to (or with) this standard will be assessed by the certification body, and this assessment must at least include one inspection of the production unit during production in the year before **maple products** may be eligible for certification and one inspection during production in the year **maple products** are eligible for certification.*
- 7.2.9 **Sugar Bush Development and Maintenance**
- 7.2.9.1 **Plant Diversity** — Producers shall 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 volume of wood within the sugar bush. The growth of these companion species shall be encouraged if they represent less than 15% of the volume of wood. 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.
- 7.2.9.2 **Thinning** — When it is necessary, or when required by the administrator of the forest, thinning of the sugar bush shall be performed according to good forest management practices currently existing both in private and public forest and be well distributed throughout the sugar bush.
- 7.2.9.3 **Tree Protection** — 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 wound or harm the growth of the trees.
- 7.2.9.4 **Fertilization** — Fertilization shall only be applied using recommendations based on observed, diagnosed and documented deficiencies. Authorized soil amendments for sugar bushes include wood ash, agricultural lime and non-synthetic fertilizers listed in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*.
- 7.2.9.5 **Pest Control** — Understanding the habits of the pests that may attack the sugar bush or production facilities, and seeking harmonious solutions to these attacks, are the preferred basis for pest control. For rodents and other destructive pests, mechanical and sticky traps are permitted, as are natural repellents in accordance with CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*. When populations are too high, they may be hunted. Poisons of any kind are prohibited. Only products appearing in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*, shall be used to control diseases or insects within the sugar bush.
- 7.2.10 **Tapping**
- 7.2.10.1 **Tree Diameter and Number of Taps** — Table 1 indicates the maximum number of taps that a healthy maple can support, based on its chest height diameter (C.H.D.). C.H.D. is the tree's diameter measured at a height of 1.3 m above the soil surface. No maple can receive more than three tapholes.

TABLE 1
Maximum Number of Taps

Diameter Measured at a Height of 1.3 m Above the Soil Surface	Maximum Number of Taps
Less than 20 cm	0
20 to 40 cm	1
40 to 60 cm	2
60 cm or greater	3

- 7.2.10.2 *Depth and Diameter 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 diameters shall not be greater than 11 mm. When a tree is unhealthy, 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 this standard allow 3, and to 1 when 2 are allowed, and it is prohibited to make tapholes when the D.B.H. (diameter at breast height) is less than 25 cm (~9^{7/8} in.). If the majority of trees in the sugar bush are affected, this standard applies but requires using spouts of a reduced diameter or by abstaining from tapping.
- 7.2.10.3 *Disinfection of Tapholes and Tapping Equipment* — The use of any type of germicide, including paraformaldehyde tablets, or denatured alcohol (a mixture of ethanol and ethyl acetate), in tapholes and on tapping equipment, is prohibited. Only food-grade ethyl alcohol may be used as a disinfectant during tapping by sprinkling it on spouts and on drill bits only.
- 7.2.10.4 *Over Tapping and Removal of Spouts* — 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 diameter is not changed. The tapping of maple trees at any other time than the sugar bush operation period (maple syrup season) is forbidden.
- 7.2.11 ***Collection and Storage of Maple Syrup***
- 7.2.11.1 *Spouts* — Only the use of spouts made of food-grade materials is permitted.
- 7.2.11.2 *Sap Collection Under Vacuum* — 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 harm to the environment.
- 7.2.11.3 *Storage* — All equipment that may come in contact with the sap or its concentrate and filtrates, such as storage tanks, connections and transfer systems, shall be made with materials suitable for use in the manufacture of food products. This also applies to any surface coatings (e.g. paints), where applicable.
- 7.2.11.4 *Collecting with Buckets* — Pails or buckets may be made of aluminum or plastic, but not galvanized steel. A lid shall be used to cover the bucket. The same standards that apply to storage tanks apply to reservoirs used to transport the collected sap to the place where it will be boiled.
- 7.2.12 ***Conversion of Sap to Syrup***
- 7.2.12.1 *Sap Filtration* — Sap shall be filtered before processing. This filtration shall not take away the sap's inherent qualities.
- 7.2.12.2 *Sap Sterilization* — Sterilization of the sap before its conversion to syrup is forbidden, either by treating it with ultraviolet radiation or by adding any type of product.
- 7.2.12.3 *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. In the off-season, osmosis membranes shall be stored in filtrate in a hermetically sealed container kept in a frost-free location. Sodium metabisulfite (SMBS) may be added to the filtrate to prevent mould growth. In such cases, the membrane shall

be rinsed before its use the next spring with a volume of water equal to the hourly capacity of the membrane (e.g. 2728 L [600 gal.] of water for a 2728 L/h [600 gal./h] membrane). Off-site storage of the membrane (e.g. by the membrane supplier) shall be documented.

- 7.2.12.4 *Evaporator* — Evaporator pans shall be made of stainless steel. They shall be either tungsten-inert gas (TIG) welded or soldered using tin-silver solder. Pans made of galvanized steel, copper, aluminum and tin-plated steel are not allowed. Acceptable fuels include wood and heating oil. Used oils may be used as a primary or supplementary fuel for the evaporator. Air and environmental quality shall be controlled in the evaporator room. Also, the use of air injection systems is prohibited.

Note: In Canada, some additional provincial requirements may also apply on the use of used oils.

- 7.2.12.5 *Defoamers* — The only antifoaming agents permitted are Pennsylvania maple wood (*Acer pennsylvanicum*, also known as striped maple or moosewood) and all organic vegetable oils, except those made from soy, peanuts, sesame seeds or nuts.

Note: Oils made from soy, peanuts, sesame seeds or nuts are not permitted in order to ensure that organic syrup is produced without these potentially allergens.

- 7.2.12.6 *Syrup Filtration and Other Treatments* — Organic maple syrup shall not be refined by artificial means, bleached or lightened in colour. Simple filtration through cloth or paper, through a filter press or through food grade diatomaceous earth, silica powder or clay dust with a filter press to remove suspended solids is permitted.

- 7.2.12.7 *Provisional Containers* — The maple syrup not intended for immediate consumption shall be packed in containers of food-grade materials that do not alter the chemical composition or the quality of the syrup. Authorized containers include barrels made of stainless steel, fibreglass, food-grade plastic or metal with a food-grade coating inside. The reuse of single-use barrels is prohibited. All barrels shall carry a unique number, with a corresponding entry appearing in the record books of the producer. The date of fill-up shall also be recorded.

7.2.13 ***Cleaning of Equipment Intended for Use with Syrup Production***

- 7.2.13.1 *Authorized Products for Washing and Sanitizing* — Washing of the collection system, pipelines and tanks shall take place before or after each production season. When operators need to carry out sanitizing operations in addition to washing, the products authorized include

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

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

- 7.2.13.2 *Osmosis Extraction and Membranes* — The reverse osmosis unit and membranes shall only be cleaned using filtrate, according to the time and temperature recommended by the unit's manufacturer. If a Pure Water Permeability (PWP) test indicates that the membrane's controlled efficiency is less than 85% of the controlled efficiency recorded at the beginning 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 shall be disposed of in a manner that causes no harm to the environment. Off-season treatment of membranes with citric acid is permitted.

- 7.2.13.3 *Evaporators* — Evaporators may be washed with potable water at any time. Vinegar or fermented sap may be used at end of season.

- 7.2.13.4 *Prohibited Products* — Products other than those specified in par. 7.2.13.1 and 7.2.13.3 are prohibited, including those based on phosphoric acid.

7.2.14 **Food Additives and Processing Aids** — Transformation of syrup into derivative products (e.g. maple butter, sugar and taffy) shall respect this standard. Cooking using microwaves is forbidden. No other product shall 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.

7.2.15 **Transport, Storage and Conservation** — Maple syrup in bulk shall be stored in containers of food-grade materials that do not alter the chemical composition or quality of the syrup. Authorized containers include barrels made of stainless steel, fibreglass, food-grade plastic or metal with a food-grade coating inside. All barrels shall carry a unique number, with a corresponding entry appearing in the record books of the producer.

7.3 **Mushroom Production**

7.3.1 For organic mushrooms or mushroom products, the operator shall manage production units in a manner that ensures the substrates and mushrooms are not in contact with substances prohibited by par. 1.4.1. Substrates shall be produced in accordance with this standard or obtained from vegetation grown in areas free of substances prohibited by par. 1.4.1 for at least three years, and shall be composted in accordance with this standard.

7.3.2 In the production of organic mushrooms, the operator shall

- a. ensure, for new installations or replacement purposes, that only lumber that has not been treated with substances prohibited by par. 1.4.1 is in contact with the growth substrate;
- b. maintain an environment throughout the entire growing cycle, harvesting, and post-harvesting process that prevents contact between organically produced mushrooms and substances prohibited by par. 1.4.1;
- c. use as a production substrate, organic agricultural substances that are in accordance with this standard (e.g. organic straw or hay);
- d. use as a growth substrate, logs, sawdust or other materials derived from wood originating only from trees that have been grown in areas free of substances prohibited by par. 1.4.1 for at least three years and that have not been treated post-harvest with substances prohibited by par. 1.4.1;
- e. use organic spawn (seed), or if not commercially available, non-organic spawn provided that it has not been treated with a substance prohibited by par. 1.4.1 and has been produced in accordance with this standard;
- f. ensure that manure and any non-organic agricultural material used as a growth substrate is composted, in accordance with this standard;
- g. ensure that cultivation sites are free of debris from understorey and diseased trees;
- h. ensure that diseased mushroom strains are either burned, moved at least 50 m from a production site (if the diseased logs are kept for study), or moved to an acceptable disposal area;
- i. precautions shall be taken to prevent disease including the removal of diseased materials and sanitation using substances included in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*.

7.3.3 The cleaning and maintenance of equipment and the use of sanitizers and disinfectants shall be limited to substances included in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*.

7.4 **Sprout Production**

7.4.1 The operator shall use only seed produced under organic production methods, in accordance with this standard.

7.4.2 The operator shall use sources of water (e.g. potable water, distilled or processed by osmosis) that meet or exceed the quality standards for levels of microbial and chemical contaminants in drinking water.

7.4.3 A water quality monitoring program shall be in place, and the water shall be analyzed at least twice a year (once every six months).

7.4.4 Soluble fertilizers shall not be added to rinsing water.

- 7.4.5 Growth medium shall conform to the present standards (e.g. free of substances prohibited by par. 1.4.1 for 36 months).
- 7.4.6 Substances used for cleaning or sanitizing seeds and sprouts shall be limited to the substances included in par. 7.3 of CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*.
- 7.4.7 Substances used for cleaning and maintenance of equipment shall be limited to the substances included in par. 7.3 and 7.4 of CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*.

7.5 Greenhouse Crops Production

- 7.5.1 The operator shall manage soil and crop production units with an in-ground permanent soil system or with a container system with soil free of substances prohibited by par. 1.4.1. In-ground permanent soil systems shall be free of substances prohibited by par. 1.4.1 for at least three years before use. The operator shall totally abstain from using hydroponics and aeroponics.

Note: The Canadian Organic Products Regulations require operators to document that they have not used substances prohibited by this standard and substances not listed in CAN/CGSB-32.311, Organic Production Systems — Permitted Substances Lists. The Organic Products Regulations also require that, in the case of an initial application for an organic certification of crops grown in greenhouses with an in-ground permanent soil system, the application for certification must be filed 15 months before the day on which the product is expected to be marketed. During that period of time, compliance to (or with) this standard will be assessed by the certification body, and this assessment must at least include one inspection of the production unit during production in the year before crops grown in greenhouses with an in-ground permanent soil system may be eligible for certification and one inspection during production in the year crops grown in greenhouses with an in-ground permanent soil system are eligible for certification.

- 7.5.2 The operator may use supplemental heat with proper exhaust of burnt gasses, and supplemental lighting. Supplemental nutrition may be used in accordance with CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances List*.
- 7.5.3 Plants and soil, including potting soil, shall not be in contact with substances prohibited by par. 1.4.1, including wood used for greenhouse structures or frames of raised beds treated with such substances.
- 7.5.4 The operator shall
- a. use reusable and recyclable pots and flats whenever possible;
 - b. use only substances listed in section 4 of CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*;
 - c. disinfect holding or storage facilities and equipment using only substances listed in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*.
- 7.5.5 Full-spectrum lighting is permitted.
- 7.5.6 The following procedures or processes are allowed to
- a. enrich carbon dioxide levels:
 - i. flame
 - ii. fermentation
 - iii. composting
 - iv. compressed gas (CO₂);
 - b. clean and disinfect plant containers, pots and flats:

- i. substances listed in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*
- ii. steam-heat sterilization;
- c. stimulate growth or development:
 - i. substances listed in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances List*
 - ii. control of daily temperature and light levels;
- d. prevent damping-off:
 - i. low-temperature baking
 - ii. hot-water treatment
 - iii. steam treatment.

7.5.7 For the prevention and control of disease, insects or other pests, the following procedures are allowed:

- a. Substances listed in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*
- b. Pruning
- c. Roguing
- d. Vacuuming
- e. Air filters, screens or other physical devices to exclude pests from the greenhouse environment
- f. Biological control methods.

7.5.8 Soil regeneration and recycling procedures shall be practiced. Alternatives to crop rotation may be permitted in greenhouse production, such as grafting of plants on disease-resistant rootstock, winter soil-freezing, soil regeneration by incorporating biodegradable plant mulch (e.g. straw or hay), and partial or complete replacement of greenhouse soil or container soil, provided it is re-used outside the greenhouse for another crop.

7.6 **Wild Crops**

7.6.1 An organic wild plant product shall be harvested from a clearly defined production area having documentation that no substances prohibited by par. 1.4.1 have been applied for a period of three years immediately preceding the harvest of the wild crop.

7.6.2 The operator shall

- a. draw up a detailed description of harvested areas and the history of compliance with this standard over the past three years,
- b. draw up a description of harvest methods used,
- c. propose protection measures for wild species that will prevent disturbance of the environment.

7.6.3 Wild products can only be deemed organic, in accordance with this standard, if they are harvested in relatively undisturbed or stable natural settings. A wild plant shall be harvested or picked in a way that promotes its growth and production and that does not destroy the environment.

7.6.4 The production zone for wild crops shall be isolated from contact with substances prohibited by par. 1.4.1 by a clearly defined buffer zone (par. 5.1.4 applies). The harvest sites shall be situated more than one (1) kilometer from

potential contamination sources, such as golf courses, dumps, sanitary landfill sites and industrial complexes that could be a source of environmental pollution.

7.6.5 The operator that manages the harvest of wild crop products shall maintain records.

8. PREPARATION AND HANDLING OF ORGANIC PRODUCTS

8.1 **Integrity** — The major objective of an organic system is to maintain the inherent organic qualities of the product from production, preparation, storage, handling and labelling, to point of sale. Throughout the preparation and handling, the integrity of organic products is maintained by using techniques appropriate to the specific ingredients and limiting the degree of refinement while minimizing the use of food additives and processing aids. Ionizing radiation shall not be used on organic products for pest control, food preservation, elimination of pathogens or sanitation.

8.2 **Product Composition** — When calculating the organic percentage of a product, all ingredients shall be broken down into their constituent parts to distinguish between organic and non-organic in each ingredient. The calculation shall account for all constituents in the product.

8.2.1 The percentage of all organically produced ingredients in an organic product shall be calculated by the following:

- a. *Solid Products* (excluding livestock feed): Divide the total net mass (excluding water and salt) of combined organic ingredients in the formulation or finished product, whichever is more relevant, by the total mass (excluding water and salt) of all ingredients.
- b. *Liquid Products*: Divide the fluid volume of all organic ingredients (excluding water and salt) by the fluid volume of all ingredients (excluding water and salt) if the product and ingredients are liquid. If the liquid product is identified on the principal display panel as being reconstituted from concentrates or by similar phrases, the calculation shall be made using single-strength concentrations of the ingredients or finished product.
- c. *Solid Products and Liquid Products*: Divide the combined mass of solid organic ingredients and the mass of the liquid organic ingredients (excluding water and salt) by the total mass (excluding water and salt) of all ingredients in the finished product.
- d. Livestock feed shall contain 100% organic agricultural ingredients and necessary feed additives or supplements according to par. 5.2 of CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*. Divide the total net mass (excluding water, salt and calcium compounds) of combined organic ingredients in the formulation or finished product, whichever is more relevant, by the total mass (excluding water, salt and calcium compounds) of all ingredients.

8.2.2 The percentage of all organically produced ingredients in an organic product shall be rounded down to the nearest whole number.

Note: The Canadian Organic Products Regulations stipulate permitted labelling claims for organic products produced in accordance with this standard.

8.2.3 When an organic product contains 95% or more organic ingredients, a maximum of 5% non-organic ingredients may be used only if not commercially available in an organic form, and the cost of organic ingredient(s) is not to be used as a criterion for *commercially available*.

8.2.4 When an organic product contains less than 95% organic ingredients, non-organic ingredients may be used.

8.2.5 Both the non-organic and organic form of an ingredient shall not be used.

8.2.6 All non-organic ingredients of agricultural origin are subject to the requirements of par. 1.4.1 a., 1.4.1 h. and 1.4.1 k.

8.2.7 The product shall contain only ingredients of non-agricultural origin listed in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*.

8.3 **Processing and Handling**

- 8.3.1 Processing methods shall be mechanical, physical or biological (e.g. fermentation and smoking) and shall minimize the use of non-agricultural ingredients, food additives and processing aids in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*.
- 8.3.2 All non-organic processing aids of agricultural origin are subject to the requirements of par. 1.4.1 a., 1.4.1 h., 1.4.1 k. and 1.4.1 l., and may be used if not commercially available in organic form, *but are* subject to *any* annotations for that substance listed in par. 6.6 of CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*.
- 8.3.3 The product shall be made using only processing aids of non-agricultural origin listed in par. 6.6 of CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*.
- 8.3.4 Food additives and processing aids shall only be used to maintain
- a. nutritional value;
 - b. food quality or stability;
 - c. composition, consistency and appearance, provided that their use does not mislead the consumer concerning the nature, substance and quality of the food; and
 - i. there is no possibility of producing a similar product without the use of additives or processing aids;
 - ii. they are not included in amounts greater than the minimum required to achieve the function for which they are permitted.
- 8.3.5 Organic products shall be packaged with materials that prevent commingling, contamination and pest infestation and do not cause a loss of organic integrity.
- 8.3.6 Any materials in contact with food shall be clean and of food-grade quality.
- 8.3.7 Only substances that appear in par. 7.3 of CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*, may be used to clean, disinfect or sanitize organic food or food-contact surfaces without a mandatory removal event, provided that the origin and use are consistent with the annotation for that substance.
- 8.3.8 If the substances given in par 7.3 or 7.4 of CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*, can be demonstrated to be ineffective, substances not included in these lists may be used to clean, disinfect and sanitize organic food-contact surfaces, provided that
- a. documented procedures have verified the efficacy of the chosen removal event,
 - b. their removal from such surfaces as per a. is documented prior to each organic production run,
 - c. the disposition of all such substances is recorded to ensure that the effluent discharge is neutralized to minimize negative environmental impact.
- 8.3.9 Organic products shall be segregated or otherwise protected at all times (i.e. during processing, storage, bulk and unbound stages) from non-organic products, to prevent commingling.
- 8.3.10 Where products not in accordance with this standard are also processed, packaged or stored in the unit operated in accordance with organic production,
- a. processing shall be carried out continuously until the complete run has been dealt with, separated by place or time from similar operations performed on products not covered by this standard;

- b. if such operations are not carried out frequently, they shall be announced in advance, with a deadline appearing in the enterprise's production schedule;
- c. every measure shall be taken to ensure identification of lots and to avoid mixtures with products not obtained in accordance with this standard.

8.3.11 Storage sites and transport containers for organic products shall be maintained and cleaned using methods appropriate for the organic products being stored and with materials in accordance with this standard.

8.4 **Pest Management**

8.4.1 Good manufacturing practices shall be adopted to prevent pests. Pest management practices shall first involve the removal of pest habitat and food; second, the prevention of access and environmental management (light, temperature and atmosphere) to prevent pest intrusion and reproduction; and third, mechanical and physical methods (traps), lures and repellents listed in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*.

8.4.2 If the practices given in par. 8.4.1 are ineffective, the operator may use pest control substances listed in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*. The operator shall record the use and disposition of all such substances.

8.4.3 If the practices given in par. 8.4.1 and 8.4.2 are ineffective, the operator may use pest control substances not listed in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*. In situations in which pest control substances not listed in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*, are used indoors, the operator shall ensure that no organic products or packaging materials for those products are present. Documentation shall be maintained showing the movement of organic products in order to avoid contact with these substances and to record the use and disposition of all such substances.

8.4.4 Organic products shall be exposed only to pesticides or pest control substances listed in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*, during any stage of production, transit, storage or border crossing.

8.5 **Transportation**

8.5.1 Every measure shall be taken to ensure that the integrity of organic products is not compromised during transportation. Products shall be physically segregated or protected to avoid possible commingling or substitution of contents with non-organic products.

Note: The party owning the product at the point of transport is responsible for maintaining organic integrity in the transport process unless the transport operations are certified in their own capacity.

8.5.2 Organic products in transit to or from an off-site unit to undergo any activity as defined in the preparation definition shall be transported in a manner that shall prevent contamination or substitution of the content with substances or products not compatible with this standard. The following information shall accompany the product:

- a. The name and address of the person or organization responsible for the production, preparation or distribution of the product
- b. The name of the product
- c. The organic status of the product
- d. Information that ensures traceability (e.g. lot number).

9. EMERGENCY PEST OR DISEASE TREATMENT

9.1 Operators shall monitor and document the application of substances, prohibited by par. 1.4.1, applied under any governmental program for the treatment of pests and diseases.

Note: In the event of an emergency pest or disease treatment, the reader should be aware that in Canada the operator is required to notify the certification body without delay of any change that may affect the certification of organic products.

10. REQUIREMENTS FOR ADDING OR AMENDING SUBSTANCES IN CAN/CGSB-32.311, ORGANIC PRODUCTION SYSTEMS — PERMITTED SUBSTANCES LISTS

Note: The criteria in this section do not apply to packaging materials, equipment surfaces, or other non-reactive substances. In creating and maintaining these lists, generic substances are not to be confused with brand name substances which may have added formulants, surfactants or wetting agents, the impact of which should be evaluated under a different process on a product-by-product basis.

10.1 Substance List Review Procedures

10.1.1 Substances to be added to or deleted from CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*, shall be evaluated for compliance with the criteria outlined in par. 10.2 to 10.5 inclusive.

10.1.2 The system of review criteria detailed in this standard shall be the primary determinant for accepting or rejecting the addition of a substance to CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*.

10.1.3 In evaluating substances for inclusion in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substance Lists*, all stakeholders shall have an opportunity to be involved.

10.2 Permitted Substance Criteria

10.2.1 Substances included in the lists, with exceptions as noted, shall be consistent with

a. the general principles of organic production as set out in this standard:

- i. Protect the environment, minimize soil degradation and erosion, decrease pollution, optimize biological productivity and promote a sound state of health.
- ii. Maintain long-term soil fertility by optimizing conditions for biological activity within the soil.
- iii. Maintain biological diversity within the system.
- iv. Recycle materials and resources to the greatest extent possible within the enterprise.
- v. Provide attentive care that promotes the health and meets the behavioural needs of livestock.
- vi. Prepare organic products, emphasizing careful processing, and handling methods in order to maintain the organic integrity and vital qualities of products at all stages of production.
- vii. Rely on renewable resources in locally organized agricultural systems.

b. the prohibitions set out in par. 1.4.1 of this standard.

10.2.2 Each substance shall be reviewed concerning its necessity, origin and mode of production, and the impacts of its production and envisioned use. These criteria are intended to be evaluated as a whole in order to protect the integrity of organic production. Each review shall include a detailed description and all information that demonstrates conformance to par. 10.3, 10.4 and 10.5. All available alternatives, including substances and practices that may currently be in use in other production systems, must be included in the evaluation.

- 10.2.3 After a decision on inclusion of a substance in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*, has been made, any conditions governing its origin and usage shall be specified according to par. 10.6.
- 10.3 **Necessity of a Substance**
- 10.3.1 **Soil Amendments** — Substances used on soils and plants as amendments and listed in par. 4.2 of CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*, shall be necessary for obtaining or maintaining soil fertility or to fulfil specific requirements of crops, or specific soil conditioning and rotational purposes that cannot be satisfied by the requirements and practices of this standard.
- 10.3.2 **Crop Production Aids and Materials** — Substances used for the management of diseases, insects, weeds and other pests of plants and listed in par. 4.3 of CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*, shall be necessary for that purpose and shall be included when no other adequate biological, physical or plant breeding alternatives or effective management practices are available.
- 10.3.3 **Livestock Production Substances**
- 10.3.3.1 Substances used as livestock feed additives and supplements and listed in par. 5.2 of CAN/CGSB-32.311, *Organic Production System — Permitted Substances Lists*, shall be
- a. necessary to correct documented essential nutrient deficiencies in the forage or feed ration, given that other biological, cultural or physical treatments are not available; or
 - b. necessary for ensuring and preserving product quality, given that other biological, cultural or physical treatments are not available.
- 10.3.3.2 Substances used as livestock health care products and production aids and listed in par. 5.3 of CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*, shall be necessary to prevent or treat livestock health problems provided that other organic treatments are not available.
- 10.3.4 **Food Ingredients and Processing Aids** — In the absence of other available technology or substances that satisfy this standard, substances added to, or used in, the preparation, handling and storage of organic food products and listed in par. 6.3 to 6.6 of CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*, shall be
- a. necessary to correct documented essential nutrient deficiencies of the product (i.e. vitamins and minerals); or when required by regulations; or
 - b. essential for ensuring the safety of the product; or
 - c. used only when it is not feasible/practical to produce or store such products without having recourse to such ingredients and processing aids; or
 - d. necessary to achieve a technological effect during processing (e.g. filtration) or an organoleptic effect in the final product (e.g. colouring and flavouring) while respecting the principle in par. 10.2.1 a. vi.
- 10.3.5 **Sanitation and Pest Control Substances** — Substances used for sanitizing production and processing equipment and facilities and for emergency pest control in such facilities that are listed in par. 6.7, 7.3 and 7.4 of CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*, shall be necessary and appropriate for the intended use.
- 10.4 **Origin and Mode of Production of a Substance**
- 10.4.1 **Soil Amendments and Crop Production Aids** — Substances used in soil conditioning and crop production (par. 4.2 to 4.3 of CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*) shall be of plant, animal, microbial or mineral origin and may undergo the following processes during production:

- a. Physical (e.g. mechanical or thermal)
- b. Enzymatic
- c. Microbial (e.g. composting, fermentation or digestion).

10.4.1.1 Substances of plant and animal origin shall be derived from crops and livestock produced in accordance with this standard unless such substances are not commercially available.

Exceptions: Substances produced by chemical processes or processes that chemically alter substances of plant, animal, microbial or mineral origin (i.e. synthetic compounds) may be considered for inclusion in par. 4.2 to 4.3 if all of the following conditions are met:

- a. They meet the criteria for necessity in par. 10.3 and take into consideration the impacts described in par. 10.5.
- b. Non-synthetic forms of these substances are not available in sufficient quality or quantity.
- c. They are annotated and reviewed as required by par. 10.6 and 10.7.

10.4.2 ***Livestock Production Substances***

10.4.2.1 Substances of plant origin used as or added to livestock feed (par. 5.2 of CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*) shall be obtained from organic sources in accordance with this standard or from sources occurring in nature such as for marine products. Substances of mineral origin shall only be used if they are of natural origin.

Exceptions: Synthetic substances may be included if they meet all of the following conditions:

- a. They meet the criteria for necessity in par. 10.3 and take into consideration the impacts described in par. 10.5.
- b. Non-synthetic forms of these substances are not available in sufficient quality or quantity.
- c. They are annotated and reviewed as required by par. 10.6 and 10.7.

10.4.2.2 Substances used for livestock health care and production aids (par. 5.3 of CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*) shall be of organic or non-synthetic origin whenever possible. Synthetic substances may be included subject to the annotation and review requirements in par. 10.6 and 10.7.

10.4.3 ***Food Ingredients and Processing Aids*** — Substances used as food ingredients or processing aids (as listed in par. 6.3 to 6.6 of CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*) shall be found in nature and may have undergone the following processes during production:

- a. Mechanical/physical (e.g. extraction, precipitation)
- b. Enzymatic
- c. Microbial (e.g. fermentation).

10.4.3.1 Substances of plant and animal origin shall be derived from crops and livestock produced in accordance with this standard. Substances of microbial origin shall be obtained using organic substrate.

Exceptions: Substances that are not from organic sources or that have been chemically synthesized may be considered for inclusion under the following conditions:

- a. They meet the criteria for necessity in par 10.3 and take into consideration the impacts described in par. 10.5.

- b. Organic sources or, as applicable, non-synthetic sources of these substances are not available in sufficient quality or quantity.
 - c. They are annotated and reviewed as required by par. 10.6 and 10.7.
- 10.4.4 ***Sanitation and Pest Control Substances*** — Substances used for facility sanitation and emergency pest control in such facilities (as listed in par. 6.7, 7.3 and 7.4 of CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*) may be of synthetic origin under the following conditions:
- a. They meet the criteria for necessity in par. 10.3 and take into consideration the impacts described in par. 10.5.
 - b. Non-synthetic forms of these substances are not available in sufficient quality or quantity.
 - c. They are annotated and reviewed as required in par. 10.6 and 10.7.
- 10.5 **Impact of a Substance** — Consideration shall be given to the following impacts when evaluating a substance for inclusion in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*.
- 10.5.1 ***All Substances***
- a. The impact of a substance's manufacture and disposal after use on the environment including impacts on ecology, surface and ground water, and soil and air quality including substance persistence, degradation and concentration effects.
 - b. The impact on equivalency and harmonization of this standard with standards and regulations of other jurisdictions.
- 10.5.2 ***Substances Used in Primary Crop and Livestock Production*** — The on-farm impact of the use and potential misuse of the substances listed in par. 4.2 to 5.3 of CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*, on
- a. soil quality including biological diversity and activity, structure, salinity, sodicity, erodability and tilth;
 - b. surface and ground water quality;
 - c. ecosystems (in particular non-target organisms) including wildlife and wildlife habitat;
 - d. animal and human health, when applicable.
- 10.5.3 ***Food Ingredients and Processing Aids*** — The impact of the use and potential misuse of the substances listed in par. 6.3 to 6.6 of CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*, on
- a. human health through both food and non-food exposure, including acute and chronic toxicity, allergenicity and metabolites;
 - b. product quality, including nutrition, flavour, taste, appearance and storage, when applicable;
 - c. consumer perception of the nature, substance and quality of a food product.
- 10.6 **Origin and Usage Annotation** — When applicable, the annotation accompanying a substance shall include
- a. any restrictions concerning its origin and mode of production,
 - b. any restrictions concerning its composition and usage.

- 10.7 **Exceptions** — All substances included in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*, under exception criteria shall be
- a. identified as exceptions to the criteria;
 - b. re-evaluated for compliance according to the procedures set out in par. 10.1 each time this standard and CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*, are subject to full review.

Informative note: In accordance with the Canadian General Standards Board's policy, standards are subject to a full review every five years.

11. NOTES (Informative)

11.1 Related Publications

11.1.1 Canadian Food Inspection Agency (CFIA)

Health of Animals Act (1990, c.21)

Health of Animals Regulations (C.R.C., c. 296).

11.1.2 Certified Organic Associations of British Columbia (COABC)

British Columbia Certified Organic Production Operation Policies and Management Standards.

11.1.3 Conseil des appellations réservées et des termes valorisants (CARTV)

Quebec Organic Reference Standards.

11.1.4 Health Canada

Pest Control Products Act (2002, c. 28).

11.1.5 Pro-Cert Organic Systems Ltd.

Organic Agriculture and Food Standard.

11.1.6 Codex Alimentarius Commission

CAC/GL 20-1995 — Principles for Food Import and Export Certification and Inspection

CAC/GL 32-1999 — Guidelines for the Production, Processing, Labelling and Marketing of Organically Produced Foods.

11.1.7 Council of the European Union

Council Regulation (EC) No. 1804/1999 of 19 July 1999 supplementing Regulation (EEC) No. 2092/91 on organic production of agricultural products and indications referring thereto on agricultural products and foodstuffs to include livestock production

Council Regulation (EEC) No. 2092/91 of 24 June 1991 on organic production of agricultural products and indications referring thereto on agricultural products and foodstuffs.

11.1.8 International Federation of Organic Agriculture Movements (IFOAM)

IFOAM Norms for Organic Production and Processing.

- 11.1.9 Japan, Ministry of Agriculture, Forestry and Fisheries
Notification No. 59, January 20, 2000 — Japanese Agricultural Standard of Organic Agricultural Products
Notification No. 60, January 20, 2000 — Japanese Agricultural Standard of Organic Agricultural Product Processed Foods.
- 11.1.10 U.S. Department of Agriculture, Agricultural Marketing Service, National Organic Program
NOP Regulations (Standards) & Guidelines, 7 CFR Part 205.
- 11.2 **Sources of Referenced Publications**
The following addresses were valid at the date of publication.
- 11.2.1 The publication referred to in par. 2.1.1 may be obtained from the Canadian General Standards Board, Sales Centre, Gatineau, Canada K1A 1G6. Telephone 819-956-0425 or 1-800-665-2472. Fax 819-956-5740. E-mail ncr.cgsb-ongc @tpsgc-pwgsc.gc.ca. Web site www.tpsgc-pwgsc.gc.ca/ongc-cgsb/index-eng.html.
- 11.2.2 The publication referred to in par. 2.1.2 may be viewed at canada.justice.gc.ca.
- 11.3 **Sources of Related Publications**
The following addresses were valid at the date of publication.
- 11.3.1 The publications referred to in par. 11.1.1 may be viewed at canada.justice.gc.ca.
- 11.3.2 The publications referred to in par. 11.1.2 may be obtained from the Certified Organic Associations of British Columbia, 202 3002, 32nd Avenue, Vernon, British Columbia V1T 2L7. Telephone 250-260-4429. Fax 250-260-4436. E-mail office@certifiedorganic.bc.ca. Web site certifiedorganic.bc.ca.
- 11.3.3 The publications referred to in par. 11.1.3 may be obtained from the Conseil des appellations réservées et des termes valorisants, 35, rue de Port-Royal Est, 5^e étage, bureau 5.26, Montréal, Québec H3L 3T1. Telephone 514-864-8999. Fax 514-873-2580. E-mail info@cartv.gouv.qc.ca. Web site www.cartv.gouv.qc.ca.
- 11.3.4 The publication referred to in par. 11.1.4 may be viewed at canada.justice.gc.ca.
- 11.3.5 The publication referred to in par. 11.1.5 may be obtained from Pro-Cert Organic Systems Ltd., Box 100A, R.R. #3 100 A, 475 Valley Road, Saskatoon, Saskatchewan S7K 3J6. Telephone 306-382-1299. Fax 306-382-0683, E-mail info@pro-cert.org. Web Site ocpro.ca.
- 11.3.6 The publications referred to in par 11.1.6 may be obtained from Renouf Publishing Co. Ltd., 1-5369 Canotek Road, Ottawa, Ontario K1J 9J3, Web site renoufbooks.com, or from the Codex Alimentarius Commission, Web site www.codexalimentarius.net/index_en.stm.
- 11.3.7 The publications referred to in par 11.1.7 may be obtained from the Publications Office of the European Union, 2, rue Mercier, 2985 Luxembourg, LUXEMBOURG. Telephone +352 2929-1. E-mail info@publications.europa.eu. Web site publications.europa.eu.
- 11.3.8 The publications referred to in par. 11.1.8 may be obtained from the International Federation of Organic Agriculture Movements, Charles-de-Gaulle-Str. 5, 53113 Bonn, Germany. Telephone +49 (0) 228 926 50-10. Fax +49 (0) 228 926 50-99. E-mail headoffice@ifoam.org. Web site ifoam.org.
- 11.3.9 The publications referred to in par. 11.1.9 may be obtained from the International Policy Planning Division, Ministry of Agriculture, Forestry and Fisheries of Japan, 1-2-1 Kasumigaseki, Chiyoda-ku, Tokyo 100-8950, Japan. Web site www.maff.go.jp.
- 11.3.10 The publication referred to in par 11.1.10 may be obtained from USDA-AMS-TMP-NOP, Room 4008, South Building, 1400 Independence Avenue, SW, Washington, DC 20250-0020. Web site www.ams.usda.gov/nop/NOP/standards/ FullText.pdf.