QUALITY SYSTEM MANUAL

PART 4

CANADIAN ORGANIC REGIME STANDARDS

INTRODUCTION

I. Description

Organic production is a holistic system designed to optimize the productivity and fitness of diverse communities within the agroecosystem, 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 and products derived from organic agriculture 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 standard[11] nor organic products labelled 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.

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

Organic practices and this standard cannot assure that organic products are entirely free of residues of prohibited substances and 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.

Apart from a small portion of agricultural commodities marketed directly from the farm to consumers, most products find their way to consumers via established trade channels. To minimize deceptive practices in the marketplace, specific measures are necessary to ensure that trade and processing enterprises can be audited effectively. Therefore, the regulation of a process, rather than a final product, demands responsible action by all involved parties.

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 a diverse mix of mutually dependent life forms, recycling of plant and animal residues, crop selection and rotation, water management, tillage and cultivation.

1.2 This standard applies to the following products that carry or are intended to carry descriptive labelling referencing organic production methods:

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 derived from the items mentioned in par. 1.2 a.

1.3 A product will be regarded as bearing indications referring to organic production methods where, in the labelling or claims, including advertising material or commercial documents, the product or its ingredients are described by the terms organic, biodynamic, biological and ecological or by words of similar intent, including diminutives, which suggest to the purchaser that the product or its ingredients were obtained according to organic production methods.

1.4 Par. 1.3 does not apply where these terms clearly have no connection with the products mentioned in par. 1.2.

1.5 The requirements in this standard complement Canadian health, environmental, agricultural, feed and food regulatory requirements.

1.6 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.

1.7 All inputs used in organic production such as fertilizers, feeds, pesticides, soil amendments, veterinary treatments, processing

additives or aids, sanitizing and cleaning material, and any other production input shall be approved by the appropriate government regulatory agency for the products' intended use, where regulations govern the use of such inputs.

1.8 Prohibited Substances, Methods or Ingredients in Organic Production and Handling

1.8.1 When producing or handling organic products sold or labelled as being products whose content is partially or wholly organic, 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 principles of organic production (growing, preparing and selling) and therefore are not accepted under this standard

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

c. fertilizer or composted plant and animal material that contains a prohibited substance (not included in CAN/CGSB-32.311)

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

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

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, except as provided by this standard

1.8.2 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 Canadian Food Inspection Agency (CFIA)

Health of Animals Act (1990, c.21)

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

2.1.3 Health Canada

Pest Control Products Act (R.S. 1985, c. P-9)

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, unless otherwise specified by the authority applying this standard. The sources are given in the Notes section.

3. DEFINITIONS AND TERMINOLOGY

3.1 The following definitions and terms apply in this standard:

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.

Agroecosystem (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).

Audit (Audit)
A systematic and functionally independent examination to determine whether activities and related results conform with planned objectives.

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

Biodegradable (Biodégradable)
Capable of biological decomposition into simpler biochemical or chemical components.

Buffer Zone (Zone tampon)
A clearly defined and identifiable boundary area that borders an organic production unit and that may limit inadvertent application of, or contact with, prohibited substances from adjacent non-organic areas.

Certification (Certification)
The procedure whereby a (officially accredited) certification body provides written assurance that products or production systems conform to specified requirements. Certification of products may be based on a range of inspection activities including verification of management practices, auditing of quality assurance systems, and in/out production balances.

Certification Body (Organisme de certification)
The body directing the certification process. The certification body is responsible for verifying that a product labelled or sold as organic is prepared in accordance with this standard.

Certified Organic (Certifié biologique)
A designation that attests compliance with his standard.

Commercially Available (Offert 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.

Competent Authority (Autorité ompétente)
An official government agency having jurisdiction.

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.

Drift (Dérive)
The physical movement of prohibited substances from the intended target site onto all or part of an organic farm.

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)
A feed that is used with another feed to improve the nutritive balance of the total and that is intended to be fed undiluted as a supplement to other feeds; or offered free choice with other parts of the ration separately available; or diluted and mixed to produce a complete feed that is 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*. However, in the context of this standard, food additives are limited to those substances listed in par. 6.4.1 of CAN/CGSB-32.311.

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.

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.

Label (Étiquette**)**
Any legend, word or mark attached to, included in, belonging to, or accompanying any product or package containing a product.

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

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, plough-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.

Marketing *(Commercialisation)*
The holding or the display of a product for sale, such as offers for sale, selling, delivering or placing on the market in any form.

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.

Permitted Substances Lists (Listes des substances permises)
Lists of substances maintained by the competent authority meeting the criteria described in section 11 for permitted use in accordance with this standard.

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, 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.

Principal Display Panel (Support d'affichage principal)
That part of the label displayed or visible under normal or customary conditions of sale or use.

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)
A portion of an enterprise that produces an organic product under a specific management plan.

Prohibited Substance, Method or Ingredient (Substance, méthode ou ingrédient interdit)
A substance, method or ingredient proscribed by par. 1.8 of this standard.

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

Sewage Sludge (Boues d'épuration)
A solid, liquid or semisolid material formed as a precipitate from the treatment of liquid and solid human domestic waste, among other compounds, and accumulated predominantly in municipal and 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. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator, or grit and screenings generated during preliminary treatment of domestic sewage in treatment facilities.

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.

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 administrated 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.

4.2.1 An operator in the process of converting an enterprise or a production unit to this standard shall have a written organic transition plan. The transition plan shall specify a time to bring the enterprise into complete transition (e.g. five years). Certification bodies can make exceptions for farms with different types of production.

4.3 The organic plan shall include a description of the internal record-keeping system, with documents sufficient to meet audit trail 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, production, preparation and handling of crops, livestock and organic products that are or are intended to be sold, labelled or otherwise represented as organic in accordance with this standard. The operator shall guarantee the organic integrity of the product through a continuous audit trail, from the receipt of the raw material to release of the product.

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 and livestock (e.g. general appearance, colour, variety and types), and their products and labels.

5 CROP PRODUCTION

5.1 Land Requirements for Transition to Organic

5.1.1 Products shall not be labelled or marketed as organic until this standard has been fully applied on a production unit for at least 24 months before sowing or in the case of perennial crops, at least three years before the first harvest of products. Prohibited substances shall not have been used for at least 36 months before the harvest of any crop.

5.1.2 The certification body may decide in certain cases to reduce the required transition period to 12 months when an enterprise can document that a production unit has been managed in accordance with the standard for 24 months before seeking certification. The certification body may also decide in certain cases to extend the transition period depending on previous land use.

5.1.3 The enterprise shall be under the supervision and verification of a certification body for at least the last 12 months of the transition.

5.1.4 Land that has not been cultivated for three or more years and crops and harvests that consist of naturally growing plants in their natural habitat (no prohibited substances applied) can be exempted from a transition period.

5.1.5 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 pending its incorporation into the overall transition process. Parallel production (where the products of the organic and non-organic system are indistinguishable) is not allowed. The enterprise can be converted one unit at a time, and each converted unit shall respect the requirements of this standard.

5.1.6 All production units shall have distinct, defined boundaries.

5.1.7 To prevent unintended contact with prohibited substances, buffer zones or other features may be required:

a. Such features or areas are to be set on a case-by-case basis according to risk, as determined by the certification body.

b. When required, buffer zones shall be 8 m wide, or wider, depending on the nature of the risk of contamination.

c. Permanent hedgerows or plant windbreaks, artificial windbreaks, permanent roads or other features may be used instead of buffer zones.

5.1.8 Crops grown in buffer zones shall be considered non-organically grown products. If marketed, they shall be sold as non-organic. If brought onto the farm, they will also be considered non-organic.

5.1.9 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 risks from neighbouring areas, including spray drift and exposure to, or contact with, substances not in accordance with this standard.

5.2.2 Soil erosion shall be controlled by good management practices such as appropriate cultivation practices, reduced tillage, planned water drainage and other controls, in accordance with the soil type, local conditions and crop.

5.2.3 The use of posts or wood treated with materials other than those in CAN/CGSB-32.311 is prohibited.

a. Continued use and recycling of existing (prohibited) posts within the farm may be allowed with the permission of the certification body.

b. Acquisition of any additional material with these wood treatments is prohibited for new installations or replacement purposes. The certification body may grant exceptions 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 If the operator can demonstrate that an organically produced variety is not available from its enterprise or other sources (i.e. not commercially available), the certification body may authorize the use of non-organic untreated seed

and planting stock or seed only treated with substances in accordance with this standard.

5.3.2.2 Non-organic perennial planting stocks may be used provided that the products from such plants shall not be labelled, marketed or represented as organic until the plants have been maintained in accordance with this standard for at least one year.

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. 1.8.

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

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 prohibited substances.

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.

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 and restricted movement operation;
b. the source is approved for use by the operator's certification body;
c. if possible, the manure shall be composted before use.

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 and, where applicable, according to the relevant provincial requirements.

5.5.3 Timing of Manure Application

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

5.5.3.2 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.

5.5.3.3 The fresh 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 minimizing 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 may be applied. However, the conditions for using the substance shall be documented in the organic plan, in accordance with par. 1.8.

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. Herbivores shall have access to pasture, and all other animals to open-air runs; the certification body can approve exceptions when the physiological state, inclement weather conditions and state of the land so justify.

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 livestock products to be sold, labelled or represented as organic 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 except as follows:

i. Poultry used for edible poultry products shall have been from 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 antibiotic-free vaccines.

ii. Animals used for milk production shall have been under continuous organic management, in accordance with this standard, for at least one year before the milk can be sold, labelled or represented as organic.

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 sold as organic. Livestock from non-organic sources shall not be resold as organic breeding stock if raised as organic 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 sold, labelled, or marketed 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 feeding crops or pasture shall comply with par. 5.1.

6.3.3 The certification body may reduce the transition periods in the following cases:

a. For pasture, open-air runs and exercise areas used by non-herbivore species.

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

6.4 Livestock Feed

6.4.1 The operator of an organic livestock operation shall provide livestock with an organic feed ration balanced to meet their nutritional requirements. During an emergency (such as unforeseen severe events or extreme climatic conditions), an exception to this specification may be allowed so that the livestock are provided a balanced diet. In such cases, a request for exemption shall be submitted to and approved by the certification body. The request shall include specific dates and a plan for reversion to a ration produced in accordance with this standard. The maximum percentage of allowable non-organic feed and any conditions relating to this exception shall be set by the certification body. Non-organic feed shall conform to the requirements of par. 1.8.

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

b. for herbivores, that a substantial proportion of dry matter in daily rations consists of roughage, fresh/dried fodder or silage

c. for ruminant animals, when silage is fed, dry roughage is provided

d. for poultry, the need for grains in the fattening phase and for roughage and fresh/dried fodder or silage in daily rations

e. for pigs, the need for roughage, fresh/dried fodder or silage in daily rations

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;

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 prohibited substances;

e. mammalian or avian slaughter by-products;

f. synthetic preservation and colouring agents;

g. silage preservation products except for products listed in CAN/CGSB-32.311;

h. synthetic appetite-enhancers or synthetic flavour-enhancers;

i. feed formulas containing manure or other animal waste.

6.4.5 Animals shall be provided with clean fresh water on demand.

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.[2]

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 Surgical procedures, when absolutely necessary to improve the health, welfare or hygiene of animals, or for identification or safety reasons (e.g. tail docking, teeth trimming, beak trimming, castration [including banding], branding, ear tagging and dehorning) shall be performed at the youngest age possible (in most cases under two weeks) and by competent persons. Surgical procedures shall be undertaken in a manner that minimizes pain, stress and suffering, with consideration to the use of anesthetics and sedatives.

a. Beak trimming and de-toeing of birds is prohibited unless all other efforts to control problem behaviour have proven unsuccessful. When these procedures are necessary, farmers

shall obtain permission by making a written request to the certification body, outlining the measures taken to eliminate this behaviour.

b. Tail docking of pigs is prohibited except to control tail biting and shall be permitted only when all other efforts to eliminate this behaviour have proven unsuccessful. When tail docking is necessary, farmers shall obtain permission by making a written request to the certification body, outlining the measures taken to eliminate this behaviour.

c. Tail docking of cattle is prohibited except when necessary for veterinary treatment of injured animals.

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.

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 Milk from sick animals or those undergoing treatment with restricted substances cannot be sold as 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 veterinary drugs or antibiotics (not listed in CAN/CGSB-32.311)

may be administered under veterinary supervision; meat animals so treated are considered non-organic.

d. The use of chemical allopathic veterinary drugs (e.g. pharmaceuticals, antibiotics, hormones and steroids) for preventive treatments is prohibited.

6.7.7 Hormonal treatment shall only be used for therapeutic reasons and under veterinary supervision. The meat from animals so treated cannot be sold as organic meat.

6.7.8 The operator of an organic livestock operation shall not administer

a. veterinary drugs, other than vaccinations, in the absence of illness, with the exception of anaesthetics used in permitted surgical procedures;

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. veterinary drugs in violation of regulations;

e. antibiotics to meat animals.

6.7.9 Organic livestock operations shall have a comprehensive plan to minimize internal 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. Parasite control plans shall be approved by the certification body.

b. By way of derogation, when preventive measures fail (because of climatic conditions or other uncontrollable factors), the operator may use anthelmintics (parasiticides) not listed in CAN/CGSB-32.311 providing

i. fecal samples indicate the herd 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. the operator receives written permission from the certification body;

iv. withdrawal times shall be twice the legal requirement;

v. there shall be only one treatment for slaughter animals under a year old and a maximum of two treatments per year for older slaughter animals. Slaughter animals that require further treatment will lose certified organic status. Dairy

animals requiring more than two treatments per year (of combined antibiotics and parasiticides) will lose certified organic status and shall go through a 12-month transition. In this case, the dairy animal shall never be certified for slaughter purposes;

vi. under this derogation, a dam may be treated during gestation;

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

c. This derogation shall be in effect until December 31, 2008.

6.7.10 As a last resort, antibiotic treatment of dairy animals is permitted in emergencies under the following conditions:

a. The operator shall have written instructions from a veterinarian indicating the product used and the treatment method.

b. Such treatment shall result in a milk withdrawal time of at least 14 days or two times the specific medication's withdrawal period, whichever is longer.

c. Last resort antibiotic use shall be documented in herd health records.

d. 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.

e. Dairy animals with chronic conditions requiring repeated use of this practice shall be removed from the herd.

6.7.11 Except as provided in par. 6.7.9, no breeding or dairy animal treated with a parasiticide or veterinary drug (not listed in CAN/CGSB-32.311) shall be sold as an organic meat animal.

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

6.7.13 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. appropriate resting and bedding areas in accordance with the needs of the animal;

g. livestock housing shall have non-slip floors. The floor shall not be entirely of slatted or grid construction. 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. Where bedding material is typically consumed by the animal species, it shall conform to the feed requirements of this standard;

h. the outdoor stocking density of pasture and runs shall be low enough to prevent soil degradation by the livestock and overgrazing of vegetation.

6.8.2 Herbivores shall have access to pasture, weather permitting. The certification body may grant exceptions for access of bulls to pasture and for the final fattening phase.

6.8.3 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 cages is not permitted.

b. Poultry shall be reared in open-range conditions and have free access to pasture, open-air runs, waterways and other exercise areas subject to the species, weather, parasites, predators and

ground conditions and, whenever possible, shall have such access for at least one third of their life. Open-air runs shall;

i. be covered with vegetation and periodically left empty (and seeded if necessary) to allow vegetation to re-grow to prevent disease build-up;

ii. be provided with protective facilities;

iii. permit animals to have access to an adequate number of drinking and feeding troughs.

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

a. inclement weather;

b. animal's stage of production;

c. conditions where the health, safety or well-being of the animal could be jeopardized given its stage of production;

d. risks relating to soil, water or plant quality.

6.8.5 Housing, pens, runs, equipment and utensils shall be properly cleaned and disinfected to prevent cross infection and build-up of disease-carrying organisms.

6.8.6 The keeping of rabbits in cages is not permitted.

6.8.7 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 that

a. this land has not been treated with products other than those allowed in accordance with this standard for at least three years;

b. health care and feed products available to organic livestock on common land shall be in accordance with this standard;

c. identification permits clear distinction between organically raised animals and non-organically raised animals.

6.8.8 For poultry, buildings shall be emptied, cleaned and disinfected, and runs left empty to allow the vegetation to grow back between flocks.

6.8.9 Housing of Dairy Calves

6.8.9.1 The housing of calves in individual pens is not permitted without the approval of the certification body. When permitted,

a. calves may be housed in individual pens until three months of age, providing that they 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.

6.8.9.2 Calves shall be group-housed following weaning.

6.8.9.3 Calves over six months of age shall have access to the outdoors and pasture.

6.8.10 The continuous tethering of livestock is not permitted without the approval of the certification body.

6.8.11 Sows shall be kept in groups, except in the last stages of pregnancy and during the suckling period. Piglets shall not be kept on flat decks or in piglet cages. Exercise areas shall permit rooting by the animals.

6.8.12 All livestock in single production units shall be reared in accordance with this standard. Other non-organic livestock production units may be present in the establishment if they are clearly identified and kept separate from organic livestock production.

6.8.13 Table 1 specifies minimum indoor and outdoor space requirements for barns, pens, runs and exercise areas. It does not include pasture requirements.

Table 1

LIVESTOCK STOCKING RATE

Livestock	Indoor Space	Outdoor Runs and Pens
Adult cows	6 m^2/head	9 m^2/head
Calves	Incremental increase of 1.5 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 m2/head, depending on the size of animals
Sheep and goats	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
Sows and piglets to 40 days' old)	7.5 m^2 for each sow and litter	2.5 m^2 for each sow and litter
Growing pigs	Incremental increase from 0.6 m^2/head at weaning to 1.3 m^2/head at finishing or	Incremental increase from 0.4 m^2/head at weaning to 1 m^2/head at finishing or breeding size

Livestock	Indoor Space	Outdoor Runs and Pens
	breeding size	
Sows in group pens	3 m^2/head	3 m^2/head
Boars in individual pens	8 m^2/head	8 m^2/head
Laying hens	6 birds/ m^2	4 birds/ m^2
Broilers	10 birds/ m^2	4 birds/ m^2
Turkeys, geese and large birds	2 m^2/bird	7.4 m^2/bird over 10 weeks' old
Mobile poultry units moved daily) Laying hens Broilers Turkeys Ducks Geese		 6 birds/ m^2 10 birds/m^2 3 birds/ m^2 10 birds/ m^2 3 birds/ m^2
Young rabbits	0.3 m^2/head	2 m^2/head
Doe rabbits	0.5 m^2/head	2 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.

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 apiculture products (e.g. honey, pollen, propolis, royal jelly, beeswax and bee venom) to be sold, labelled or represented as organic, 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 diseaseresistant 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 before the extraction or removal of the first products from the hive.

7.1.7.2 During the transition period, non-organic wax shall be replaced by organically produced wax. In cases where no prohibited substances have previously been used within the hive in accordance with this standard, the replacement of wax is not necessary. In cases where all wax cannot be replaced during the transition period, the transition period may be extended.

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 **Origin of Bees**

7.1.8.1 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 nonorganic 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.

7.1.8.2 Honey and other apiculture products shall not be labelled or marketed as organic unless the bees were managed in accordance with this standard for at least 60 days.

7.1.9 **Location of Hives** — Apiaries shall be separated by a buffer zone of 3000 m where sources or zones of prohibited substances, or flower-bearing agricultural crops treated with substances prohibited in CAN/CGSB-32.311 (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 shall be the major foodstuff for adult bees. 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 if commercially available. If unavailable, the certification body may permit the use of non-organically produced honey or sugars for a specified time limit.

7.1.10.4 Organic sugar syrup shall not be provided less than 30 days before the harvest of honey to be sold, labelled or represented as organic, in accordance with this standard.

7.1.10.5 Honey and pollen shall be 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.

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. 1.8.

7.1.11.6 Annual destruction of bee colonies following honey 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 colonies and unite weaker, albeit healthy, colonies wherever possible, including renewal of queens if necessary; maintenance of adequate hive densities; systematic inspection of colonies; and relocation of 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 certified 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 honey 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.

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 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 a 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.

7.1.15.8 The operator, in accordance with this standard, shall not sell, label or represent as organic, honey or edible products that are produced from a hive or colony treated with prohibited substances.

7.2 Maple Products

7.2.1 For maple products to be sold, labelled or represented as organic, 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 each production run.

7.2.8 ***Transition —*** For maple products to be designated as organic, no prohibited substances, such as unapproved fertilizers or synthetic pesticides used in forest management, shall be used on the sugar bush or in production within 36 months preceding any harvest. The transition period may be reduced to one year if it is a managed wilderness area. There shall not be any parallel production within any area.

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.

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 reduced to the strict minimum as well as being well distributed throughout the sugar bush. For clearings larger

than those prescribed in this standard, the operator shall make use of professional services that will respect maple forest standards, as those applied to land on public property.

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.

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. When populations are too high, they may be hunted. Poisons of any kind are prohibited. Only products appearing in CAN/CGSB-32.311 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 2 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 2
MAXIMUM NUMBER OF TAPS

Diameter Measured at a Height of 1.3 m Above the Soil Surface	Maximum Number of Taps
Less tan 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.

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. If it is absolutely necessary to use a disinfectant during tapping, only food-grade ethyl alcohol, applied by sprinkling it on spouts and in notches, may be authorized by the certification body, as an exemption for an explicit reason.

7.2.10.4 *Over- and Under-tapping* — Double tapping, the practice of retapping a previously tapped tree during the same season, is a prohibited practice. Spouts shall be removed from the trees at the end of the production season, to allow the trees to heal.

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 may come in contact with the sap shall be made with materials suitable for use in the manufacture of an organic product. The vacuum level shall never exceed 677 hPa (20 in. of mercury) at any spout.

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. If soldered joints are made using tin-lead solder, the concentrate shall not remain in the pans for more than 24 hours. 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 if the enterprise possesses the necessary permits for this. Air and environmental quality shall be controlled in the evaporator room. Also, the use of air injection systems is prohibited.

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 because they can cause an allergic reaction. The certification body may approve, as an exception, the use of other products only if the operator is able to demonstrate that no authorized antifoaming agents above mentioned were commercially available and if so, the operator shall indicate the allergic potential on the label of his/her maple syrup products.

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

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 syrup can be packed in galvanized barrels for a maximum of 60 days if its Brix degree is lower or equal to 65, and for a maximum of 120 days if its Brix degree is superior to 65. 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 Cleaning or Disinfecting — When operators need to carry out cleaning or disinfecting operations in addition to washing, the products authorized include

a. in season, a filtrate for all equipment and sodium hypochlorite for all equipment except the piping;

b. out of season, filtrate, sodium hypochlorite and fermented sap for all equipment.

7.2.13.2 Prohibited Products — All other products are prohibited, including those based on phosphoric acid.

7.2.13.3 Osmosis Unit Membrane — Operators shall follow the manufacturer's recommendations for products used to maintain reverse osmosis unit membranes. They shall be rinsed using a filtrate having a volume equivalent to 40 times an apparatus' residual void volume, meaning the volume contained in the apparatus and its components once the apparatus has been drained. Daily effectiveness records and calculations shall be recorded in daily record books. The membrane flushing water shall be discarded in a manner that causes no harm to the environment.

7.2.13.4 Evaporators — Evaporators may be washed with drinking water at any time. Vinegar or fermented sap may be used at end of season.

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 sold 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 mushrooms or mushroom products to be sold, labelled or represented as organic, the operator shall manage production units in a manner that ensures the substrates and mushrooms are not in contact with prohibited substances. Substrates shall be produced in accordance with this standard or obtained from vegetation grown in areas free of prohibited substances 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 prohibited substances 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 prohibited substances, in accordance with this standard;

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 prohibited substances, in accordance with this standard, for at least three years and that have not been treated post-harvest with prohibited substances;

e. use organic spawn (seed), or if not commercially available, organic or non-organic spawn provided that it has not been

treated with a prohibited substance 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.

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.

7.4 **Sprout Production**

7.4.1 For sprouts or sprout products to be sold, labelled or represented as organic, the operator shall manage production units by using seed produced in accordance with this standard and water that meets or exceeds the quality guidelines for drinking water.

7.4.2 Seed and sprouts shall not be rinsed with or come in contact with prohibited substances, and the sanitation of equipment shall involve the use of substances listed in CAN/CGSB-32.311.

7.4.3 In the production of organic sprouts, the operator shall;

a. use only seed produced under organic production methods, in accordance with this standard;

b. 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;

c. assess water quality regularly by an analytical laboratory to assure standards of water quality.

7.4.4 Seed or growing sprouts shall not be rinsed or immersed in water with chemicals capable of releasing chlorine in solution, in excess of water quality guidelines.

7.4.5 The cleaning and maintenance of equipment and the use of sanitizers and disinfectants shall be limited to substances included in CAN/CGSB-32.311.

7.5 Greenhouse Crops Production

7.5.1 For greenhouse products to be sold, labelled or represented as organic, 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 prohibited substances. Construction materials shall not include biodegradable plastics or wood treated with prohibited substances. The growing medium shall be free of prohibited substances, and the soil shall be free of prohibited substances for at least three years before use.

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. However, composted animal manure shall be the primary source of nutrients.

7.5.3 Plants and soil, including potting soil, shall not be in contact with prohibited substances, 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 growing media and wetting agents selected from substances listed in CAN/CGSB-32.311;
c. disinfect holding or storage facilities and equipment using only substances listed in CAN/CGSB-32.311.

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 (CO_2)
b. clean and disinfect plant containers, pots and flats:
    i. substances listed in CAN/CGSB-32.311
    ii. steam-heat sterilization

c. stimulate growth or development:
   i. plant-based growth regulators
   ii. animal-based growth regulators
   iii. 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. methods and substances listed in CAN/CGSB-32.311
b. pruning
c. roguing
d. vacuuming
e. air filters, screens or other physical devices to exclude pests from the greenhouse environment

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, provided it is re-used outside the greenhouse for another crop.

7.5.9 For operations where the plants are not growing in the ground, a biologically active growing-medium shall be evident at the end of each growth cycle.

7.6 Wild Crops

7.6.1 A wild plant product that is intended to be sold, labelled or represented as organic in accordance with this standard shall be harvested from a clearly defined production area having documentation that no prohibited substances have been applied for a period of three years immediately preceding the harvest of the wild crop.

7.6.2 To be able to label and market organic wild plant products, 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 of wild crops shall be isolated from non-production zones by a clearly defined buffer zone.

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

7.6.6 Wild crops produced and harvested in accordance with this standard may be combined with organic products during preparation and may be identified and labelled as organic.

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, and elimination of pathogens or sanitation.

8.1.1 Processors importing organic ingredients shall ensure that the ingredients meet this standard.

8.1.2 By way of derogation to par. 8.1.1, the following will apply:

a. If the end product is destined for export only, the ingredients need not meet this standard.

b. If an organic ingredient is not produced in Canada, imported ingredients not meeting this standard that are certified by a certification body recognized by the Canadian competent authority are acceptable. Certification must be based on an organic standard approved by a government authority or by using a set of specifications approved by the Canadian competent authority.

8.2 **Pest Management**

8.2.1 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.

8.2.2 If the practices given in par. 8.2.1 are ineffective, the operation may use pest control substances listed in CAN/CGSB-32.311. The operator shall, however, ensure that any pest control substance used does not come in contact with the organic product, and shall record the use and disposition of all such substances.

8.2.3 The use of pesticides not listed in CAN/CGSB-32.311 for post harvest or quarantine purposes shall not be permitted on products

prepared in accordance with this standard and shall cause organic products to lose their organic status.

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.

8.3.2 Food additives and processing aids shall be of organic origin, wherever possible, in accordance with par. 11.2.4 and CAN/CGSB-32.311.

8.3.3 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;

   iii. they contain no other substances prohibited in accordance with this standard.

8.3.4 Organic products shall be packaged with materials that prevent commingling, contamination and pest infestation and do not cause a loss of organic integrity.

8.3.5 Any materials in contact with food shall be clean and of food-grade quality.

8.3.6 Washing and disinfecting operations for equipment and surfaces coming into contact with food shall be followed by double rinsing with potable water, to ensure that they are free from cleaning-product residues.

8.3.7 Organic products, in accordance with this standard, shall be segregated or otherwise protected at all times (i.e. storage, bulk and unbound stages) from non-organic products, to prevent commingling.

8.3.8 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.

8.3.9 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 **Transportation** — To avoid possible commingling of organic and non-organic products at any time during transportation, organic products shall be physically segregated or protected to prevent substitution of the content.

8.4.1 Equipment used in transporting organic products shall be free of

a non-organic product (or other) residues;

b. invertebrate and vertebrate pests.

8.4.2 Organic products sold, labelled or represented as organic, in accordance with this standard, and not in retail packaging shall be transported in a manner that shall prevent contamination or substitution of the content with substances or products not compatible with this standard. Packaging shall bear the following information, without prejudice to any other indications required by law:

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)

8.4.3 The party owning the product at the point of transport shall be responsible for maintaining the organic integrity in the transport

process unless transport operations are certified in their own capacity. Documentation shall be obtained to provide assurance that conditions meet the requirements of this standard.

9. EMERGENCY PEST OR DISEASE TREATMENT

9.1 When a prohibited substance is applied on an establishment because of a federal or provincial emergency program for the treatment of pests and diseases and when the establishment otherwise meets the requirements of this standard, the organic status shall not be affected provided the operator complies with the following conditions:

a. Any treated harvested crop or plant part shall not be sold, labelled or represented as organically produced.

b. Any livestock treated or any products derived from such treated livestock, shall not be sold, labelled or represented as organically produced with the exception of

i. milk or milk products produced more than 12 months after the last date that the dairy animal was treated with a prohibited substance;

ii. the offspring of gestating mammalian breeder stock treated with a prohibited substance shall be considered organic if the breeder stock was not in the last third of gestation on the date that the breeder stock was treated with the prohibited substance.

10. LABELLING AND CLAIMS

10.1 Products identified as being produced under an organic production system conforming to this standard may, for labelling purposes, use the terms *organic*, *organically grown*, *organically raised*, *organically produced*, or words of similar intent including diminutives as well as the symbols for, alternative spellings of, word sets of, and phonetic renderings of these words.

10.2 The labelling and claims of unprocessed plants and plant products, livestock and livestock products shall refer to organic production methods only where

a. such indications clearly show that they relate to a method of agricultural production;

b. the product was produced in accordance with this standard;

c. the product was produced or imported by an operator who is certified in compliance with this standard;

d. the labelling refers to the name of the certification body that governs the operator of the production or the most recent preparation (processing, packaging and labelling) operation.

10.3 The labelling and claims of processed agricultural crop and livestock products intended for human consumption (par. 10.1) shall refer to organic production methods only where

a. such indications clearly show that they relate to an organic method of agricultural production and are linked with the name of the organic product in question, unless this information is clearly given in the list of ingredients;

b. all the ingredients of agricultural origin of the product are, or are derived from, products conforming to this standard, except in cases of labelling claims of less than 95% organic ingredients, as in par. 10.7.3;

c. the product is free of any ingredient of non-agricultural origin not listed in CAN/CGSB-32.311;

d. the product does not contain both the non-organic and organic form of an ingredient;

e. the product or its ingredients have not been subjected during preparation to treatments involving the use of ionizing radiation or substances not listed in CAN/CGSB-32.311;

f. the product was prepared or imported by a certified operator;

g. the labelling refers to the name of the certification body that certified the operator of the production or the most recent preparation (processing, packaging and labelling) operation.

10.4 The percentage of all organically produced ingredients in an organic product that is sold, labelled or represented as organic or that includes organic ingredients, in accordance with this standard, shall be calculated by the following:

a. *Solid Products*: 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.

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

10.6 The total percentage of organically produced ingredients shall be determined by the operator who prepares the product and affixes the label on the consumer package and whose work has been verified by the certification body. In determining the percentage, the operator may use information provided by the organic operation that initially prepared the product.

10.7 Percentage of Organic Ingredients in a Multi-ingredient Product

10.7.1 The use of the term *organic*, and similar terms having the same meaning, is permitted on the principal display panel of a product, provided that

a. 95% or more (by mass or fluid volume, excluding water and salt) of the ingredients are obtained from sources of organic production in accordance with this standard;

b. the non-organic ingredients are allowed for use to within a maximum level of 5% (by mass or fluid volume, excluding water and salt) of the total ingredients in the final product if they are not commercially available in an organic form, and the cost of organic ingredient(s) is not to be used as a criterion for *commercially availabl*e.

10.7.2 All organic ingredients contained in the final composition of a product certified by a certification body shall have also been certified.

10.7.3 Products containing 70 to 95% or more (by mass or fluid volume, excluding water and salt) of agricultural ingredients that are organic in accordance with this standard shall be labelled on the principal display panel as “Contains X %

organic" (specify the ingredients), where the actual organic ingredient is in accordance with this standard.

10.7.4 Only products containing 70% or more of organic ingredients shall be eligible for certification.

10.7.5 Products containing less than 70% (by mass or fluid volume, excluding water and salt) of agricultural ingredients that are organic in accordance with this standard may have the organic ingredients labelled organic in the list of ingredients.

10.8 The name (corporate name) of the certification body shall be inscribed on the packaging in a clear, visible way for every certified product bearing a label that mentions the terms *organic* or *made with organic ingredients*. Any reference on a product's label that suggests the product was certified (e.g. *certified organic* or *certified by a third party*) is prohibited unless the product has been certified by a certification body whose name has been printed on the label.

10.9 Products containing less than 70% of organic ingredients must be subject to audit by a certification body. The labels of such products must not make any organic claims except in the list of ingredients.

11. REQUIREMENTS FOR ADDING OR AMENDING SUBSTANCES IN CAN/CGSB-32.311

11.1 All substances listed in or added by amendment to the Permitted Substances Lists in CAN/CGSB-32.311 shall be consistent with

a. criteria established in par. 11.2 and existing regulations;

b. other provisions and principles of this standard;

c. the general principles of organic production.

11.1.1 Each substance shall be reviewed concerning its necessity and the conditions of its envisioned use. Each substance reviewed shall be accompanied by a detailed description and by all information that demonstrates conformance with par. 11.2. All available alternatives, including substances and practices that may currently be in use in other production systems, may be included in the evaluation.

11.1.2 Substances required for primary production shall be reviewed with the knowledge that permitted substances may be subject to misuse and may negatively affect the agroecosystem and the environment surrounding the enterprise.

11.1.3 The system of review criteria detailed in section 11 shall be the primary determinant for accepting or rejecting the addition of substances to the Permitted Substances Lists.

11.2 To amend the Permitted Substances Lists, the criteria in par. 11.2.1 to 11.2.5 and in par. 11.3 of this standard shall be used.

11.2.1 Substances used for the amendment of soils in an organic production system (the Permitted Substances Lists) shall be

a. necessary for obtaining or maintaining soil fertility to fulfil specific nutritional requirements of crops, or specific soil conditioning and rotation practices that cannot be satisfied by the requirements and practices of this standard;

b. of plant, animal, microbial or mineral origin, in accordance with the Permitted Substances Lists, and may undergo the following processes:

   i. physical (e.g. mechanical or thermal)

   ii. enzymatic

   iii. microbial (e.g. composting or digestion)

c. manufactured and used in a manner that shall not result in, or contribute to, the damage or the contamination of the soil's microflora and microfauna, or the related agroecosystem, in accordance with the relevant regulatory authority.

11.2.2 Substances used in an organic production system for the management of plant growth, diseases, insects, pests and weeds or for cleaning and disinfecting facilities (the Permitted Substances Lists) shall be

a. necessary for the control of a detrimental organism or disease for which no other adequate biological, physical or plant breeding alternatives or management practices are available;

b. of plant, animal, microbial or mineral origin, in accordance with the Permitted Substances Lists, and may undergo the following processes:

   i. physical (e.g. mechanical or thermal)

   ii. enzymatic

   iii. microbial (e.g. composting or digestion)

c. used under conditions that shall not directly or indirectly result in the presence of unacceptable product residues in soils, plant or animal tissue, or products;

d. manufactured and used in a manner that shall not result in, or contribute to, the damage or to the contamination of the soil's

microflora and microfauna or the related agroecosystem, in accordance with the relevant regulatory authority.

11.2.3 Substances to promote health or nutrition of organically raised livestock or to ensure the quality of organically raised livestock products (the Permitted Substances) shall be

a. necessary for livestock health, with provisions that other organic treatments are not available;

b. necessary to correct documented essential nutrient deficiencies in the forage or feed ration;

c. exclusive of prohibited substances, in accordance with par. 1.8;

d. necessary for ensuring product quality, and allow for preservatives given that other biological, cultural or physical treatments are not available.

11.2.4 Substances added to or used in the preparation, handling and storage of organic products (the Permitted Substances Lists) shall be

a. necessary to correct documented essential nutrient deficiencies of the product (i.e. vitamins and minerals);

b. essential for ensuring the safety of the product;

c. used only when it is not possible to process and store such products without having recourse to such ingredients.

11.2.5 Substances for sanitizing production and processing equipment and facilities and for emergency pest control in such facilities (the Permitted Substances Lists) shall

a. be appropriate for the intended use;

b. not result in substance residues in food and feed or on food contact surfaces that exceed levels specified by government.

11.3 **Substance Origin** — 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. Substances of non-organic plant and animal origin may then be substituted if the enterprise has an action plan for procuring substances of organic origin within a reasonable time frame.

11.4 For all categories of substances, users of the Permitted Substances Lists shall read both the annotations on the lists and the label before using any substance. The certification body shall be consulted before using substances not on the lists. The permitted substances and the

accompanying annotation (if applicable) shall be approved for use in accordance with par. 11.1.

11.5 All crop protection substances, parasiticides and pest control products shall be registered under the federal *Pest Control Products Act* (administered by the Pest Management Regulatory Agency [PMRA]) and except when stated, the Permitted Substances Lists do not refer to substance registration.

12. NOTES

12.1 **Related Publications**

12.1.1 Certified Organic Associations of British Columbia (COABC) British Columbia Certified Organic Production Operation Policies and Management Standards.

12.1.2 Conseil des Appellations Agroalimentaires du Québec Québec Organic Reference Standards.

12.1.3 OCPP/Pro-Cert Canada Inc. Organic Agriculture and Food Standard.

12.1.4 Codex Alimentarius Commission

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

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

12.1.5 Council of the European Union Regulation (EC)

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.

12.1.6 International Federation of Organic Agriculture Movements (IFOAM) NORMS for Organic Production and Processing.

12.1.7 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.

12.1.8 U.S. Department of Agriculture, Agricultural Marketing Service, National Organic Program

NOP Regulations (Standards) & Guidelines, 7 CFR Part 205.

12.2 Sources of Referenced Publications

The following addresses were valid at the date of publication.

12.2.1 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 819-956-5644. E-mail ncr.cgsb-ongc@pwgsc.gc.ca. Web site www.ongc-cgsb.gc.ca.

12.2.2 The publications referred to in par. 2.1.2 and 2.1.3 may be viewed at canada.justice.gc.ca.

12.3 Sources of Related Publications

The following addresses were valid at the date of publication.

12.3.1 The publications referred to in par. 12.1.1 may be obtained from the Certified Organic Associations of British Columbia, 3402, 32nd Avenue, Vernon BC V1T 2N1. Telephone 250-260-4429. Fax 250-260-4436. E-mail office@certifiedorganic.bc.ca. Web site www.certifiedorganic.bc.ca.

12.3.2 The publication referred to in par. 12.1.2 may be obtained from the Conseil des appellations agroalimentaires du Québec, 35, rue de Port-Royal Est, 2nd floor, room 2.00, Montréal, Quebec H3L 3T1. Web site www.caaq.org.

12.3.3 The publication referred to in par. 12.1.3 may be obtained from OCPP/Pro-Cert Canada Inc., 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@ocpro.ca. Web Site www.ocpro.ca.

12.3.4 The publications referred to in par 12.1.4 may be obtained from Renouf Publishing Co. Ltd., 1-5369 Canotek Road, Ottawa, Ontario K1J 9J3. Web site www.renoufbooks.com;

or from the Codex Alimentarius Commission, Web site www.codexalimentarius.net/index_en.stm.

12.3.5 The publications referred to in par 12.1.5 may be obtained from the Office for Official Publications of the European Communities, 2, rue Mercier, L-2985, Luxembourg. Web site europa.eu.int/eur-lex.

12.3.6 The publication referred to in par. 12.1.6 may be obtained from the International Federation of Organic Agriculture Movements, Charles-de-Gaulle-Str. 5, 53113 Bonn, Germany. Telephone +49-228-92650-10. Fax +49-228-92650-99. E-mail headoffice@ifoam.org. Web site www.ifoam.org.

12.3.7 The publications referred to in par. 12.1.7 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. Fax 81-3-3502-8084. Web site www.maff.go.jp.

12.3.8 The publication referred to in par 12.1.8 may be obtained from USDA-AMS-TMP-NOP, Room 4008-South Building, 1400 Independence Avenue, SW, Washington, DC 202500020. Web site www.ams.usda.gov/nop/NOP/standards/FullText.pdf.

ORGANIC PRODUCTION SYSTEMS PERMITTED SUBSTANCES LISTS

1. SCOPE

1.1. This standard[2] provides additional information to CAN/CGSB-32.310, *Organic Production Systems — General Principles and Management Standards*. It consists of requirements for adding or amending permitted substances in the following lists, organized by category of use.

1.2 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.

2. REFERENCED PUBLICATIONS

2.1 The following publications are referenced in this standard:

2.1.1 Canadian General Standards Board (CGSB)

CAN/CGSB-32.310 — Organic Production Systems — General Principles and Management Standards.

2.1.2 Health Canada

Food and Drugs Act (R.S. 1985, c. F-27).

2.1.3 Canadian Food Inspection Agency (CFIA)

Feeds Regulations, 1983 (SOR/83-593).

[2] *References throughout this document to "this standard" refer to CAN/CGSB-32.311*, Organic Production Systems — Permitted Substances Lists.

3. REQUIREMENTS FOR ADDING OR AMENDING SUBSTANCES ON THE LISTS

3.1 Section 11 of CAN/CGSB-32.310 outlines the requirements for adding or amending substances in the lists.

4. PERMITED SUBSTANCES LISTS FOR CROP PRODUCTIONS

4.1 Classification — Crop production substances are classified according to the following uses and applications:

a. **Soil Amendments** are substances applied to the soil to improve fertility and tilth and to correct soil problems. Fertilizers, plant foods and soil amendments are primarily used for their plant nutrient content and may be applied to the soil or to the foliage of plants.

b. **Crop Production Aids and materials** are substances used in conjunction with other substances, which may or may not be directly applied to the crop or soil, or substances used to control diseases or pests. Examples include

   i. adjuvants, equipment cleaners, insect traps and plastic mulch

   ii. vertebrate animal pest management substances

   iii. plant disease management substances

   iv. insect pest management (invertebrates), mites, mollusks and crustacean substances

   v. nematode management substances.

c. **Weed management**

4.2 Soil Amendments

Common Name(s)	Origin and usage
Agar	For use in initial mushroom spawn production.
Alfalfa meal and pellets	Use organic alfalfa unless commercially unavailable. Ensure non-organic alfalfa is not a product of genetic engineering.
Algae	*See* Aquatic plant products.
Amino acids, non-synthetic	Amino acids produced by plants, animals and micro-organisms that are not from genetic engineering and that are extracted or isolated by hydrolysis or by physical or other non-chemical means are considered non-synthetic. Non-synthetic amino acids may be used as plant growth regulators or chelating agents.
Animal manure	*See* sections 5 and 6 of CAN/CGSB-32.310.
Animal manure, processed	Heat-treated, mechanical and physical processed manures may be acceptable but shall be reviewed on a case-by-case basis.
Aquatic plant products	Natural (non-synthetic) extracts are allowed. Extraction with synthetic solvents is prohibited except for potassium hydroxide or sodium hydroxide, provided the amount of solvent used does not exceed the amount necessary for extraction. Of the two products, potassium hydroxide is the preferred choice; the manufacturer shall prove the need to use sodium hydroxide. Aquatic plant products are prohibited if they contain other synthetic preservatives, such as formaldehyde, or are fortified with other prohibited plant nutrients.
Ash	Ash from plant and animal sources only. Ash from burning minerals, manure or prohibited substances is prohibited. Wood-stove ash is allowed only if not contaminated with coloured paper, plastics or other synthetic substances. Document non-contamination of ash obtained from off-farm sources including arsenic, cadmium, chromium and lead. (Manure ash is prohibited because burning manure wastes organic matter and nutrients.)
Basalt	Mined or quarried volcanic rock minerals.

Common Name(s)	Origin and usage
Bentonite	*See* Mined minerals and unprocessed mined minerals.
Biodynamic preparations for soil and plants	Horn manure spray (Prep 500) or horn silica (Prep 501). *See also* par. 4.3 for other biodynamic preparations.
Biotite (iron, magnesium or aluminum silicates)	
Blood meal	Allowed only if sterilized.
Bone meal	Permitted only if guaranteed free of specific risk materials.
Borate	Shall only be used for a documented deficiency relative to the type of crop. *See also* Boron products.
Borax (sodium tetraborate)	*See* Boron products.
Boron products	The following soluble boron products may be used: sodium tetraborate (borax and anhydrous) and sodium octaborate. Shall only be used for a documented deficiency relative to the type of crop. *See also* Trace elements (micronutrients) for documentation requirements.
Calcium chloride	Natural sources and food-grade quality only. Shall be used to adjust nutrient deficiencies and physiological disorders.
Calcium, natural sources	Sources include shells from aquatic animals.
Calcium sulphate (gypsum)	*See* Gypsum (calcium sulphate).
Cannery wastes	Use only if certified as organically grown or documented to be uncontaminated by pesticides or thoroughly composted before use.
Cardboard	Cardboard that is not waxed or impregnated with fungicide or substances not on these lists; may be used as mulch or compost feedstock.
Cardboard, waxed	Paraffin contained in waxed cardboard used as a mulch or compost ingredient shall not exceed 0.75% by mass of the total feedstock.

Common Name(s)	Origin and usage
Clay	Bentonite, perlite and zeolite as a soil amendment or seed pellet additive. These are also listed individually in this standard. *See also* Mined minerals and unprocessed mined minerals.
Compost	Composting refers to the carefully managed process whereby organic substances are thermophilically digested. In order to stabilize the nutrients in compost effectively, reduce some pesticide residues, and kill weed seeds and pathogens, aerobic compost piles shall reach a temperature of 55 to 60°C (130 to 140°F) for a period of several days and then finish decomposing for about six weeks. During the decomposition period, compost should remain moist and aerobic but never water-logged. Written documentation of the source of off-farm substances is required. Organic waste substances derived from industrial processing (e.g. abattoir waste, yeast fermentation waste, whey, hatchery waste, fish-farm waste, mushroom compost, and paper and wood products) are restricted products. Documentation, appropriate laboratory analysis for the absence of contamination by substances prohibited in this standard, or both shall be required. Acceptable feedstocks include animal manure, by-products of the processing of agricultural products, and source-separated yard debris. The following are prohibited in compost: sewage sludge, synthetically fortified compost starter, glossy paper and coloured ink. Paraffin from waxed cardboard cannot exceed 0.75% of total feedstock by mass. *See* Microbial products for information on compost starters. Spent mushroom and vermiculite substrate: Natural substances or those derived from natural substances, without the addition of chemically synthesized substances or chemical treatment. Composted animal excrements, including poultry: Natural substances or those derived from natural substances, without the addition of chemically synthesized substances or chemical treatment.

Common Name(s)	Origin and usage
	Compost tea: Compost shall be made from substances that meet compost standards. *See* definition for *Compost Tea* in section 3 of CAN/CGSB-32.310. Compost from off-enterprise, organic or non-organic sources; on-enterprise, organic or non-organic: Natural substances or those derived from natural substances, without the addition of chemically synthesized substances or chemical treatment, in accordance with this standard.
Gypsum (calcium sulphate)	Mined source; for correcting calcium and sulphur deficiencies and for amending soil salinity problems documented by soil and plant tissue testing. Sulphates produced using sulphuric acid are prohibited.
Humic acid	Dilute potassium hydroxide extracts of mined sources
Humus from worms and insects (vermi-compost)	Allowed if made with materials in accordance with this standard.
Hydrated magnesium sulphate	Epsom salts and kieserite. Sulphates produced using sulphuric acid are prohibited.
Inoculants	*See* Microbial products.
Iron products	Ferric oxide, ferric sulphate, ferrous sulphate, iron citrate, iron sulphate or iron tartrate may be used where a soil or plant nutrient-deficiency is documented by soil or tissue testing.
Iron sulphates	Sulphates produced using sulphuric acid are prohibited. *See also* Iron products.
Kelp and kelp products	*See* Aquatic plant products.
Kieserite	*See* Mined minerals and unprocessed mined minerals.
Leaf mould	
Limestone	Magnesium carbonate and calcium carbonate. May cause build-up of magnesium. Use with caution. Shall be from a natural source. Oyster shell flour, limestone, dolomite (not slaked), aragonite, eggshell meal, lime from sugar processing and mined calcium carbonate are acceptable. Calcium products that have been used in controlled

Common Name(s)	Origin and usage
	atmosphere storage are prohibited.
Magnesium carbonate	Naturally occurring in dolomite and magnesite.
Magnesium chloride	Natural sources only.
Magnesium rock	Natural substances or those derived from natural substances, without the addition of chemically synthesized substances or chemical treatments. *See also* Mined minerals and unprocessed mined minerals.
Magnesium sulphate, mined	As kieserite or epsom salts. *See also* Mined minerals and unprocessed mined minerals. Allowed if mined. Sulphates produced using sulphuric acid are prohibited. From natural sources as a soil or plant amendment included with micronutrients; for use as a soil amendment where there is evidence of documented magnesium deficiency.
Magnesium sulphate, synthetic	As synthetically produced epsom salts. Allowed for use with a documented magnesium deficiency. Sulphates produced using sulphuric acid are prohibited.
Manganese products	Manganous oxide and manganese sulphate may be used to correct documented manganese deficiencies. *See* Trace elements (micronutrients).
Manure, composted	*See* Compost.
Manure, non-organic manure source	*See* conditions in par. 5.5 of CAN/CGSB-32.310.
Mica	*See* Mined minerals and unprocessed mined minerals.
Microbial products	Allowable microbial products include rhizobium bacteria, mycorrhizal fungi, azolla, yeast and other micro-organisms on compost, plants, seeds, soils and other components of the organic operation. Ionizing radiation is allowed for use on peat moss carrier only, before the addition of microbial inoculants. Radiation is otherwise prohibited.
Micronutrients, synthetic	*See* Trace elements (micronutrients).
Milk	Shall not contain prohibited substances.

Common Name(s)	Origin and usage
Mined minerals and unprocessed mined minerals	A mined mineral shall not have undergone any change in its molecular structure through heating or by combining with other substances. Acceptable if the substance is not processed or fortified with synthetic chemicals. Mined minerals are regarded as supplements to a balanced, organic soil-building program. Some of the minerals that are mined can also be made synthetically or are by-products of industry; investigate the source of any new substance. Sodium nitrate is prohibited.
Molasses	Shall be organic molasses unless not commercially available.
Molybdenum products	To correct documented molybdenum deficiencies. *See also* Trace elements (micronutrients).
Mulch	Non-organic forms of straw, leaves, grass clippings or hay shall be free of pesticides and other contaminants. Wood chips and sawdust shall be from untreated wood. Organic matter in the form of plant residues from organic sources is allowed for mulching.
Mushroom compost	*See* Compost.
Naturally occurring biological organisms (e.g. worms) and their products	Worm castings (vermi-compost) from organic or non-organic manure sources in accordance with this standard. *See also* Worm castings.
Oyster shell lime	Ground shells from oysters. *See also* Limestone.
Peat moss	Shall not contain synthetic wetting agents.
Perlite	
Phosphate rock	Shall not be fortified or processed with synthetic chemicals. Cadmium shall not exceed 90 mg/kg P2O5.
Plant (vegetative) by-products	Those derived from natural substances without the addition of chemically synthesized substances or chemical treatment. Organic sources shall be used unless commercially unavailable.
Plants	Includes plant preparations of aquatic or terrestrial plants or parts of plants, such as cover crops, green manures, crop wastes, hay, leaves and straw. Parts of plants used

Common Name(s)	Origin and usage
	as soil amendments and foliar feeds are permitted. Crop wastes that potentially contain significant levels of pesticide contaminants are prohibited.
Pomaces	Feedstocks shall be from certified organically grown fruits or vegetables, or the material shall be aerobically composted before use.
Potassium chloride (muriate of potash and rock potash)	Mined potassium salts (e.g. sylvinite and kainite).
Potassium rock powders	Includes basalt, biotite, mica, feldspars, granite and greensand.
Potassium sulphate	Only if from langbeinite or other natural sources. *See also* Mined minerals and unprocessed mined minerals.
Potassium sulphate magnesia	Langbeinite.
Potting soil	Shall not contain synthetic wetting agents or synthetic fertilizers.
Pumice	
Rock dusts (stone meal), unprocessed	*See* Mined minerals and unprocessed mined minerals.
Sand	Shall not contain prohibited substances.
Sawdust and wood chips	Shall be from untreated and unpainted wood. Derived from natural substances, or those derived from natural substances shall be from wood that has not been treated with prohibited substances.
Seaweed and seaweed products	Aquatic plant products are prohibited if they contain other synthetic preservatives, such as formaldehyde, or are fortified with other prohibited plant nutrients. *See also* Aquatic plant products.
Shells from aquatic animals	
Soil	From organic sources in accordance with this standard for 36 months.

Common Name(s)	Origin and usage
Soybean meal	Use organic soybean sources unless not commercially available. Shall not be from genetically engineered soybeans.
Sphagnum moss	Shall not contain synthetic wetting agents.
Stillage and stillage extract	Ammonium stillage is prohibited.
Sulphate of potash magnesia	From langbeinite. *See also* Mined minerals and unprocessed mined minerals. Natural substances or those derived from natural substances, without the addition of chemically synthesized substances or chemical treatment.
Sulphates of zinc or iron	May be used only to correct for deficiencies determined by soil or plant tissue testing. Sulphates produced using sulphuric acid are prohibited. *See also* Iron products.
Sulphur, elemental	Sulphur may be used as a soil amendment where more buffered sources of sulphur are not appropriate, and as a foliar application. Natural substances or those derived from natural substances without the addition of chemically synthesized substances or chemical treatment.
Trace elements (micronutrients)	Includes micronutrients from natural sources that are unchelated or chelated by substances listed as allowed. To be used when soil and plant deficiencies are documented by soil and plant testing.
Vermicasts	*See* Worm castings.
Vermiculite	
Vitamins	Non-synthetic sources of all vitamins and synthetic sources of vitamins B1, C and E may be used in organic crop production.
Wood ash	Wood ash shall be produced exclusively from untreated and unpainted wood. Wood-stove ash shall be free of contaminants, such as coloured paper plastic and other synthetic substances. Excessive applications of ash can cause pH and nutrient imbalances. *See also* Ash. Natural substances from plant and animals sources only,

Common Name(s)	Origin and usage
	and those derived from natural substances, without the addition of chemically synthesized substances or chemical treatment. Ash from burning minerals, manure or prohibited substances is prohibited.
Wood chips and shavings	From untreated and unpainted wood only. Shall be free of prohibited substances.
Worm castings	Allowed if made from organic manure. Compost made from non-organic manure by worms shall be demonstrated to be free of antibiotics.
Yeast	*See* Microbial products.
Zeolite	*See* Mined minerals and unprocessed mined minerals.
Zinc products	Zinc oxide and zinc sulphate may be used to correct a documented zinc deficiency.

4.3 Crop Production Aids and Materials

Common Name(s)	Origin and usage
Acetic acid, non-synthetic	Used as a drip irrigation cleaner, an equipment cleaner and an adjuvant to adjust the pH of sprays.
Adhesives for sticky traps and barriers	Shall not contain prohibited pesticides or other prohibited substances.
Alcohol	Non-synthetic ethyl alcohols are allowed. Synthetic sources of ethyl and isopropyl alcohols may be used only as disinfectants or formulant ingredients. Alcohol, ethyl (ethanol) used as a cleaning agent for equipment used in maple syrup production shall be unadulterated food-grade quality.
Alcohol, ethyl (ethanol)	Permitted for use as a disinfectant. *See also* Alcohol.
Alcohol, isopropyl	Permitted for use as a disinfectant. *See also* Alcohol.
Alkali carbonates and bicarbonates	For disinfecting greenhouse facilities.
Amino acids, non-synthetic	Amino acids produced by plants, animals and micro-organisms that are not from genetic engineering and that are extracted or isolated by hydrolysis or by physical or other non-chemical means are considered non-synthetic. Nonsynthetic amino acids may be used as plant growth regulators or chelating agents once it is registered for this use in Canada.
Ammonium carbonate	For use as bait in insect traps and for monitoring purposes only. Shall not be in contact with crop or soil.
Arthropod pathogens	*See* Biological organisms.
Arthropod predators and parasitoids	*See* Biological organisms.
Arthropods	*See* Biological organisms.
Ascorbic acid, non-synthetic	Used for cleaning irrigation lines, adjusting the pH of sprays, and promoting natural growth. The synthetic form of this substance has not been reviewed.
Baits for rodent traps	Baits shall not contain synthetic substances.

Common Name(s)	Origin and usage
Baking soda (potassium or sodium bicarbonate)	Allowed for pest and disease control in greenhouses. Allowed for other crops once it is approved for use by the PMRA2. Permitted for use as a cleaning agent for equipment used in the production and processing of food.
Bentonite	*See* Mined minerals and unprocessed mined minerals.
Biodynamic preparations for compost	Chamomile (Prep 503), dandelion (Prep 506), oak bark (Prep 505), stinging nettle (Prep 504), valerian (Prep 507) and yarrow flowers (Prep 502).
Biological organisms	Living organisms that benefit plant production by reducing pest populations, such as *Bacillus thuringiensis*, spinosad, granulosis (e.g. viruses, bacteria, protozoa, fungi, insects and nematodes). No organisms from genetic engineering.
Bleach	Calcium hypochlorite, chlorine dioxide or sodium hypochlorite used for disinfecting and sanitizing facilities and equipment. Flush water from cleaning irrigation equipment shall not exceed the maximum limits set by the federal and provincial governments. Allowed for disinfecting and sanitizing food contact surfaces, including equipment used in the production and processing of maple syrup as set out in clause 7.2.13.1 b. of CAN/CGSB-32.310. Residual chloride levels for wash water in direct contact with crops or food, and in flush water from cleaning irrigation systems that is applied to crops or fields shall not exceed the maximum limits under federal and provincial regulations.
Borate	Sodium tetraborate and octaborate may be used as wood preservatives. Only mined sources acceptable.
Boric acid	May be used for structural pest control (i.e. ants). No direct contact with food or crops that will be organic is allowed.
Botanical pesticides	Botanical pesticides shall be used in conjunction with a biorational pest management program but shall not be the primary method of pest control in the farm plan. The least toxic botanicals shall be used in the least ecologically disruptive way possible. All label restrictions and directions shall be followed including restrictions concerning crops, livestock, target pests, safety precautions, pre-harvest intervals and worker re-entry.

Common Name(s)	Origin and usage
	The only botanical pesticides registered for use in Canada and in a form that could be used by organic growers are some rotenone and pyrethrum products registered for domestic use.
Calcium chloride	Natural sources and food-grade quality only. Can be used to adjust nutrient deficiencies and physiological disorders
Calcium lignin sulphonate	*See* Lignin sulphonates.
Calcium polysulphide	*See* Lime sulphur.
Carbon dioxide	For soil and greenhouse use and for controlled atmosphere storage.
Caustic potash (potassium hydroxide)	For disinfecting greenhouse facilities only.
Chelates	Natural chelates (e.g. amino acids, citric acid, tartaric acid and other di- and triacid chelates) and lignin sulphonate are allowed (*see* Lignin sulphonates). Synthetic chelating agents are not allowed with micronutrients unless they are specifically listed for such use. Some synthetic chelates are allowed on a case-by-case basis for use only with micronutrients sprays, for a documented deficiency. Prohibited chelating agents include DTPA, EDTA, HEDTA, NTA, glucoheptonic acid and its salts, and synthetic amino acids.
Chloride of lime	*See* Calcium chloride.
Chlorine	*See* Bleach.
Citric acid	Used as a drip irrigation cleaner, an equipment cleaner, a chelating agent and a pH adjuster.
Citric acid, synthetic	May be used to remove mineral residues on osmosis membranes used in maple syrup production.

Common Name(s)	Origin and usage
Copper products	These include; copper hydroxide for use as a wood preservative (copper hydroxide is an active ingredient in products currently registered for use as wood preservatives) or for disease control; copper sulphates for use as a fungicide; Bordeaux mix, and copper oxychloride, fungicides or wood treatments, where there are PMRA[2] registrations, for fruits and vegetables. These products shall be used in a manner that prevents excessive copper accumulation in the soil. Buildup of copper in soil may prohibit future use. Use with caution. No visible residue shall be allowed on harvested crops. Basic copper sulphate, copper oxide, copper sulphate and copper oxysulphate may be used to correct documented copper deficiencies. Copper ammonia base, copper ammonium carbonate, copper nitrate and cuprous chloride are prohibited as sources of copper for plant nutrients.
Cytokinins	*See* Growth regulators for plants.
Detergents	Includes soaps — biodegradable only (whose biodegraded components are not more harmful than the original components). Allowed for use as equipment cleaners, including equipment used in the production and processing of food. Includes natural wetting agents; *see also* Wetting agents. Evaluated on a caseby-case basis.
Diatomaceous earth	Only non-heated forms may be used. Make sure no synthetic pesticides or synergists are added.
Dormant oils	Allowed for use as a dormant spray on woody plants only. Shall not contain any prohibited insecticides or other prohibited ingredients.
Drip irrigation cleaners	Preferred drip irrigation cleaners include vinegar, citric acid and other naturally occurring acids. *See also* Bleach; Detergents.
Fibre row covers	Shall not be incorporated into the soil or left in the field to decompose; shall be removed at the end of the growing season.

Common Name(s)	Origin and usage
Gibberellic acid	Acceptable if made from a fermentation process and not fortified with prohibited synthetic substances. Fermentation process shall not use organisms from genetic engineering. *See also* Growth regulators for plants.
Growth regulators for plants	Natural plant hormones, such as gibberellic acid, indoleacetic acid and cytokinins, are allowed. Shall not contain prohibited synthetic substances. *See also* Gibberellic acid.
Hormones	*See* Growth regulators for plants.
Hydrogen peroxide	Hydrogen peroxide as a cleaning agent for equipment used in maple syrup production shall be food-grade quality only. Allowed for use as a fungicide once approved by the PMRA2 .
Indoleacetic acid	*See* Growth regulators for plants.
Iodine	Non-elemental and not to exceed 5% solution by volume.
Kaolin clay	
Latex paint	Latex paint is allowed as a tree seal and on tree trunks to protect against southwest disease.
Lignin sulphonates	Lignosulphonic acid, calcium lignosulphate and sodium lignosulphate. Allowed as a chelating agent, as a formulant ingredient and as a dust suppressant. Ammonium lignosulphate is prohibited.
Lime sulphur	Foliar application as a fungicide is allowed on a restricted basis. May be used as an insecticide only if there are no feasible alternatives. Includes calcium polysulphide.
Lye, sodium hydroxide	For disinfecting greenhouses only. Prohibited for use in crop production, such as for adjusting the pH. Allowed as a cleaner, including the maintenance of reverse osmosis membranes used in maple syrup production. Prohibited for use in lye peeling of fruits and vegetables.
Magnesium chloride	Natural sources only.
Nitrogen	For controlled atmosphere storage.
Oxygen	For controlled atmosphere storage.

Common Name(s)	Origin and usage
Peracetic acid	For use in controlling fire blight bacteria, once it is registered for that use in Canada.
pH buffers	Shall be from a natural source, such as citric acid or vinegar. Lye and sulphuric acid are prohibited.
Pheromones	Allowed for use in pheromone traps or dispensers. Pheromones shall be non-synthetic and shall not be combined with prohibited materials.
Plant extracts, oils and preparations	Allowed for use a production aids unless otherwise specifically restricted or prohibited. Allowed extractants include cocoa butter, lanolin, animal fats, alcohols and water. Allowed for disease and pest control once approved by PMRA2. Extraction with synthetic solvents is prohibited except for potassium hydroxide or sodium hydroxide, provided the amount of solvent used does not exceed the amount necessary for extraction. Of the two products, potassium hydroxide is the preferred choice; the manufacturer shall prove the need to use sodium hydroxide.
Plant protectants, natural	Substances that protect plants from harsh environmental conditions such as frost and sunburn, infection, the buildup of dirt on leaf surfaces, or injury by a pest. Natural substances are allowed, including diatomaceous earth, kaolin clay, pine oil, pine resin and yucca. Interior latex paint and white wash are allowed for use on trees to protect against sunburn and southwest disease.
Plastic for row covers and solarization	Shall not be incorporated into the soil or left in the field to decompose; shall be removed at the end of the growing season. Use of polyvinyl chloride plastic is prohibited.
Pyrethrum	There are currently no pyrethrum products registered in Canada that do not contain synthetic contaminates. Pyrethrin is the active ingredient in products licensed for use as insecticides. Currently the only pyrethrin product (without the prohibited adjuvant piperonyl butoxide) is allowed for use in mushroom production only.
Quick lime	Also known as calcium oxide. Prohibited as a fertilizer.
Repellents	Acceptable if derived from a natural source, such as sterilized blood meal, rotten eggs, hair or predator scents, provided synthetic additives are not used.

Common Name(s)	Origin and usage
Rotenone	Shall not be combined with unacceptable formulants. There are only a few domestic products registered for use in Canada. *See also* Botanical pesticides for restrictions.
Seaweed and seaweed products	Aquatic plant products are prohibited if they contain other synthetic preservatives such as formaldehyde or are fortified with prohibited plant nutrients. *See also* Aquatic plant products in par. 4.2.
Seed treatments	Non-synthetic and allowed synthetic substances, such as microbial products, kelp, yucca, gypsum and various clays, are allowed.
Semiochemicals	Semiochemicals shall be non-synthetic and shall not be combined with prohibited materials.
Soap-based algaecide/demisters	Algaecide, disinfectants and sanitizers including irrigation cleaning systems that do not contain prohibited or restricted substances.
Soaps	Insecticidal soaps consisting of fatty acids derived from animal or vegetable oils are allowed.
Soaps, ammonium	For use as a large animal repellent only; no contact with soil or edible portion of crop allowed.
Sodium bicarbonate (baking soda)	*See* Baking soda (potassium or sodium bicarbonate).
Sodium metabisulphite	May be added to the filtrate to prevent mould growth during storage of osmosis membranes used in maple syrup production. *See also* par. 7.2 of CAN/CGSB-32.310.
Sodium silicate	For tree fruit and fibre processing.
Sterile insects	*See* Biological organisms.
Straw	If organic, allowed for use as mulch or in compost. If from a non-organic source, ensure any straw used is uncontaminated.
Sugar	Organic sugar may be used as an ingredient in a crop production aid.
Sulphur (smoke bombs)	Sulphur smoke bombs used for rodent control shall be used in conjunction with other methods and only when a full pest control program is maintained but temporarily

Common Name(s)	Origin and usage
	overwhelmed.
Sulphur, elemental	Allowed for foliar use only.
Summer oils	Allowed for use in organic production as suffocating or stylet oils on foliage once they are registered for that use in Canada.
Surfactants	*See* Detergents; Soaps.
Transplant and potting media	Shall be composed entirely of allowed substances.
Treated seed, non-synthetic agents	Seed treated with naturally occurring biological management agents are allowed. Organisms from genetic engineering are prohibited. Seed pelletized with clay, gypsum or other non-synthetic coating is allowed. For rhizobial bacteria coatings, pelletized seeds are allowed unless pelletizing substance contains prohibited substances. Plastic polymer pelletization of seed is prohibited. *See also* Seed treatments.
Tree seals	Plant or milk-based paints are recommended but interior latex paints may be used. Other petroleum substances may be used if there is no alternative. Shall not be combined with fungicides or other synthetic chemicals.
Vegetable oils	Spreader-stickers, surfactants and carriers. Plant oils shall not contain synthetic pesticides.
Vinegar	Allowed as a cleaning agent for equipment used in production and processing.
Virus sprays	Shall be evaluated on a product specific basis. Codling moth granulosis virus is acceptable. No viruses from genetic engineering are allowed.
Water	
Water, reclaimed	Reclaimed water shall comply with federal, provincial and local standards and shall be used only on non-edible parts of food crops and on crops not for human consumption. Use on edible plant parts and root crops is prohibited.
Wetting agents	Natural wetting agents, including soaps, saponins and microbial wetting agents, are allowed. *See also* Detergents; Soaps.

4.4 Weed Management

Common Name(s)	Origin and usage
Biological organisms	Living organisms that benefit plant production by reducing pest populations (e.g. viruses, bacteria, protozoa, fungi, insects, nematodes, nematode-repelling cover crops and animals). No organisms from genetic engineering.
Mulches	Organic matter in the form of plant residues from organic sources is allowed for mulching. Non-organic forms of straw, leaves, grass clippings, wood chips, sawdust or hay shall be free of pesticides and other contaminants. Newspaper mulch: Glossy paper and coloured ink are prohibited. Paper: Glossy paper and coloured ink are prohibited. Plastic mulches: Shall not be incorporated into the soil or left in field to decompose; shall be removed at the end of the growing season. Plastic mulches in perennial crops may be left for more than one season but shall be removed before the plastic decomposes. Use of polyvinyl chloride as plastic mulch or row cover is prohibited.
Plant extracts	Allowed once they are registered for that use in Canada.
Plant oils	Allowed once they are registered for that use in Canada.
Sawdust and wood chips	Shall be from untreated and unpainted wood. Derived from natural substances, or those derived from natural substances shall be from wood that has not been treated with prohibited substances.
Straw	If organic, allowed for use as mulch or in compost. Restricted if from a nonorganic source to ensure any straw used is uncontaminated.
Vinegar (acetic acid)	Non-synthetic sources unless commercially unavailable.
Wood chips and shavings	From untreated and unpainted wood only. Shall be free from prohibited

5. PERMITED SUBSTANCES LISTS FOR LIVESTOCK PRODUCTION

5.1 Classification — Livestock production substances are classified according to the following uses and applications:

a. **Feed, Feed Additives and Feed Supplements**

b. **Health Care Products** include medications, remedies, parasiticides and other substances used to maintain or restore the well-being of an animal. Many of these substances are considered farm animal drugs under the *Food and Drugs Act*. As such, they shall be used with the degree of care that animal drugs require. All substances to be used for livestock shall be approved by the Veterinary Drugs Directorate at Health Canada or by the Veterinary Biologics Section or the Feed Section at the Canadian Food Inspection Agency (CFIA).

c. **Production Aids** include all other substances used on animals and their living areas, such as bedding, cleaners, disinfectants and dips.

5.2 Feed, Feed Additives and Feed Supplements[3]

Common Name(s)	Origin and usage
Diatomaceous earth	Approved as an anti-caking agent in feed to a maximum of 2% of the total diet.
Forage concentrates (grains) and roughages (hay, silage, fodder, straw) and energy feeds	Shall be obtained from enterprises certified organic in accordance with this standard and may include silage preservation products (e.g. bacterial or enzymatic additives derived from bacteria, fungi and plants and food by-products [e.g. molasses and whey]). Note that if weather conditions are unfavourable to fermentation, lactic, propionic and formic acid may be used with approval of the certification body.
Milk replacer	Only without antibiotics and animal fats, and for emergency use only.
Molasses	May be used as a flavouring agent; shall be organic unless commercially unavailable.

[3] *Feed must meet minimum nutritional standards described in table 4 of the* Feeds Regulations. *Ingredients used in feed must be approved in Schedule IV or V of the* Feeds Regulations. *Some ingredients and products require registration (e.g. enzymes and milk replacers).*

Common Name(s)	Origin and usage
Pre-mixes	Concentrated mixture of minerals and vitamins; all ingredients shall be organically sourced, where applicable, and shall be essential for animal nutrition.
Protein feeds	Shall be from organic sources.
Seaweed meal	
Trace minerals, elements (mineral products)	Non-synthetic chelated or sulphated minerals that are registered for use in livestock feed. Synthetic nutrient minerals may be used when non-synthetic sources are unavailable. Minerals may not be used to stimulate growth or production. Minerals from any source are allowed for medical use.
Vitamins, natural	Used for enrichment or fortification of livestock feed. Synthetic vitamins may be used if non-synthetic sources are unavailable. Vitamins from any source are allowed for medical use.

5.3 Health Care Products

Common Name(s)	Origin and usage
Acetylsalicylic acid	Aspirin.
Alcohol, ethyl (ethanol)	Allowed as a disinfectant and sanitizer only.
Alcohol, isopropyl	Allowed as a disinfectant only.
Antibiotics	Refer to par. 6.7 of CAN/CGSB-32.310 for conditions on antibiotic use in livestock. *See also* Antibiotics, oxytetracycline.
Antibiotics, oxytetracycline	For emergency use for bees. The equipment shall be destroyed, in accordance with par. 7.1.14.7 of CAN/CGSB-32.310, but the bees need not be destroyed if they are taken out of organic production and treated with oxytetracycline.

Common Name(s)	Origin and usage
Anti-inflammatories	For health care use, to reduce inflammation. Preference shall be given to natural alternatives. Anti-inflammatories shall be approved by the Veterinary Drugs Directorate at Health Canada.
Biologics, including vaccines	Organisms from genetic engineering or their products (e.g. recombinant gene technology) are not allowed. All biologics shall be approved by the Veterinary Biologics Section at the CFIA.
Botanical compounds	Botanical preparations registered for use and according to label specifications. Botanical compounds shall be approved by the Feed Section at the CFIA or by the Veterinary Drugs Directorate at Health Canada.
Chlorohexidine	For surgical procedures conducted by a veterinarian. Allowed for use as a teat dip when alternative germicidal agents and physical barriers have lost their effectiveness.
Colostral whey	Probiotic.
Colostrum	Shall be organic unless commercially unavailable.
Copper sulphate	For use as an essential nutrient (source of copper and sulphur) and for topical use (foot baths). Sulphates produced using sulphuric acid are prohibited.
Diatomaceous earth	For use in control of external parasites once it is registered for that use in Canada.
Electrolyte solutions	With no added active ingredients.
Electrolytes	Without antibiotics.
Formic acid	For apicultural use to control parasitic mites. This substance may be used after the last honey harvest of the season and shall be discontinued 30 days before the addition of honey supers.
Glucose	
Glycerin	For use as a livestock teat dip; shall be produced through the hydrolysis of fats or oils.
Homeopathic and	Shall be registered with the Veterinary Drugs Directorate at

Common Name(s)	Origin and usage
biotherapies	Health Canada.
Honey	Organic honey is allowed.
Hydrogen peroxide	Food-grade quality only; for external use as a disinfectant. May be added to livestock's drinking water as a disinfectant.
Iodine	For use as a topical disinfectant. Sources include potassium iodide and elemental iodine. As a cleaning agent, shall be followed by a hot-water rinse. Nonelemental only; not to exceed 5% solution by volume (e.g. iodophors).
Iron products	May be supplied by ferric phosphate, ferric pyrophosphate, ferrous lactate, ferrous sulphate, iron carbonate, iron gluconate, iron oxide, iron phosphate, iron sulphate or reduced iron.
Lime, hydrated	Not permitted to cauterize physical alterations or deodorize animal wastes.
Local anesthetics	Use requires a withdrawal period of 90 days after administering to livestock intended for slaughter, and 7 days after administering to dairy animals. Preference shall be given to natural alternatives.
Magnesium sulphate	Mined sources only. A source of magnesium and sulphur. Sulphates produced using sulphuric acid are prohibited.
Mineral oil	For topical use and as a lubricant.
Oxalic acid	For the control of mites in honeybee colonies.
Oxytocin	For postparturition therapeutic applications.
Parasiticides and anti-microbials	*See* par. 6.7 of CAN/CGSB-32.310 for conditions regarding the use of internal parasiticides.
Plant oils	To control external parasites.
Rotenone	For external parasites, rotenone shall not be combined with unacceptable formulants. There are only a few domestic products registered for use in Canada. *See also* Botanical pesticides in par. 4.3 for restrictions.

Common Name(s)	Origin and usage
Selenium products	May be derived from sodium selenate or sodium selenite. *See* Trace minerals, elements (mineral products). May be used where documented deficiencies in the stock, soils or feed supplies exist.
Trace minerals, elements (mineral products)	Non-synthetic chelated or sulphated minerals that are registered for use in livestock feed. Synthetic nutrient minerals may be used when non-synthetic sources are unavailable. Minerals may not be used to stimulate growth or production. Minerals from any source are allowed for medical use.
Vaccines	*See* Biologics, including vaccines.
Vitamins, natural	Used for enrichment or fortification. If allowed by federal regulation, synthetic vitamins may be used if non-synthetic sources are unavailable. Vitamins from any source are allowed for medical use.

5.4 Production Aids

Common Name(s)	Origin and usage
Chlorine	Calcium hypochlorite, chlorine dioxide or sodium hypochlorite used for disinfecting and sanitizing facilities and equipment. Residual chlorine levels in water shall not exceed the maximum residual disinfectant limit under federal and provincial regulations. *See also* Bleach in par. 4.3.
Hydrogen peroxide	Food-grade quality only; for external use as a disinfectant.
Iodine	As a cleaning agent, shall be allowed by a hot water rinse. Non-elemental only, not to exceed 5% solution by volume (e.g. iodophors).
Phosphoric acid	As an equipment cleaner for the dairy industry only, provided no direct contact with organically managed livestock or land occurs.

6. PERMITTED SUBSTANCES LISTS FOR PROCESSIGN AND SANITATION

6.1 **Classification** — Processing and sanitation substances are classified according to the following uses and applications:

a. **Organic Ingredients** are agricultural commodities that shall be organically produced to be included in a product labelled organic, to be identified as organic in the ingredient panel, or both. The vast majority of agricultural commodities used in organic products fall into this category.

b. **Non-organic Ingredients** (NOI) are in most cases considered non-agricultural, although some of the fundamental ingredients may have originated from agricultural-based commodities. Non-organic ingredients may be used only when an acceptable alternative, non-synthetic ingredient is commercially unavailable.

   i. **Food Additives** — See the definition of *food additive* in section 3 of CAN/CGSB-32.310.

   ii. **Other Non-organic Ingredients** — These non-organic ingredients are not considered food additives.

c. **"With Organic Ingredients"** — Substances prohibited in products labelled "organic" but allowed in food products labelled "contains X% organic ingredients."

6.2 **Other Categories of Substances** — Other categories of substances are classified according to the following uses and applications:

a. **Processing Aids** are substances or ingredients that are added to a product for a technological effect during processing. They are not present in the finished product or are present at insignificant or non-functional levels.

b. **Cleaners, Disinfectants and Sanitizers** are used to remove dirt, filth and foreign matter from products and product-handling operations. These substances are also used to control micro-organisms that may contaminate products.

c. **Pest Control Substances** are used to disinfect or prevent infestation of stored commodities, prevent postharvest decay, and control losses from insects, diseases, rodents and other organisms.

6.3 Organic Ingredients

Common Name(s)	Origin and usage
Alcohol, ethyl (ethanol)	Alcohol used as an ingredient shall be from an organic source.
Vegetable extracts	Shall be obtained from organic sources without the use of synthetic solvents.

6.4 Non-organic Ingredients

6.4.1 Food Additives

Common Name(s)	Origin and usage
Acids	Including a) alginic, b) citric — produced by microbial fermentation of carbohydrate substances, and c) lactic.
Agar	Water extracts only, for livestock and bee products.
Alginates (alginic acid, sodium alginate, potassium alginate)	
Ammonium bicarbonate	For use as a leavening agent only.
Ammonium carbonate	For use as a leavening agent only.
Ascorbic acid, non-synthetic	
Ascorbic acid, synthetic	Synthetic form is allowed in fruits and vegetables only if the natural form is not available.
Calcium carbonate	For milk products. Prohibited as a colouring or anti-caking

Common Name(s)	Origin and usage
	agent.
Calcium chloride	Not allowed as a food additive in any (standardized) milk products.
Calcium citrate	
Calcium phosphates (monobasic, dibasic, and tribasic forms)	
Carageenan	
Carbon dioxide	For controlled atmosphere storage.
Citric acid	From fruit and vegetable products.
Ferrous sulphate	For iron enrichment or fortification of products when recommended or required by regulation. Sulphates produced using sulphuric acid are prohibited.
Glycerides (mono and diglycerides)	For use only in drum drying of products. Organisms from genetic engineering are excluded. Documentation is required. Shall be produced from organic sources unless not commercially available.
Glycerine	Shall be produced by hydrolysis of natural (vegetable or animal) fats and oils.
Gums	Water-extracted only (includes arabic, guar, karaya, tragacanth, locust bean and carob bean). For milk products: fat, confectionery, canned meat and egg products. For canned meat: gelatine, agar and carrageen.
Kelp and kelp products	For use only as a thickener and dietary supplement.
Lactic acid	For fermented vegetable products or in sausage casings.
Lecithin	Bleached form is allowed when unbleached form is not suitable. From organic sources only.
Magnesium	Derived from seawater, for soybean products.

Common Name(s)	Origin and usage
chloride (nigari)	
Magnesium sulphate	From non-synthetic sources only. Sulphates produced using sulphuric acid are prohibited.
Malic acid	
Ozone	
Pectin (low-methoxy)	
Pectin (high-methoxy)	
Potassium acid tartrate (potassium hydrogen tartrate)	
Potassium carbonate	Allowed in cereal products, baked goods, confectionary, dairy products, fruit and vegetable products, and wine production.
Potassium chloride	For canned fruits and vegetables, frozen fruit and vegetables, vegetable sauces, ketchup and mustard.
Potassium citrate	
Potassium tartrate made from tartaric acid	For cereals, cakes and confectionery. Allowed as a food additive in cider and several dairy products.
Silicon dioxide	
Sodium bicarbonate (baking soda)	As a NOI, allowed in baked goods and confectionery.
Sodium carbonate	For cakes and biscuits or for confectionery.
Sodium chloride	With or without calcium carbonate as an anti-caking agent.
Sodium citrate	For sausages and milk products.
Sodium hydroxide	Allowed as a cleaner, including the maintenance of reverse osmosis membranes used in maple syrup production. Prohibited for use in lye peeling of fruits and vegetables.
Sodium phosphates	For use in dairy products only.
Tocopherols and mixed natural concentrates	Derived from vegetable oil when rosemary extracts are not a suitable alternative.

Common Name(s)	Origin and usage
Xanthan gum	Water extracts, for fat products, fruit and vegetables, cakes and biscuits, and salads.

6.5 With Organic Ingredients
(Substances only permitted when the product contains less than 95% organic ingredients)

Common Name(s)	Origin and usage
Magnesium carbonate	For use only in agricultural products labelled “Contains X% organic ingredients”; prohibited in agricultural products labelled “organic” and as an anti-caking agent in non-standardized dry mixes (e.g. seasonings) used in meat products.
Magnesium stearate	For use only in agricultural products labelled “Contains X% organic ingredients”; prohibited in agricultural products labelled “organic.”
Potassium iodide, synthetic	For use in agricultural products labelled “Contains X% organic ingredients” only; prohibited in agricultural products labelled “organic.”
Potassium metabisulphite	For use for alcoholic beverages as a preservative only, and labelled “Contains X% organic ingredients.”
Potassium phosphate	For use in agricultural products labelled “Contains X% organic ingredients” only; prohibited in agricultural products labelled “organic.”
Sulphurous acid	For use only in wine products labelled “Contains X% organic ingredients,” provided that total sulphite concentration does not exceed 100 ppm. For use in winemaking as a preservative only; minimum use of sulphur dioxide (SO2) is recommended. The maximum allowable level of SO2 is 100 parts per million and 30 parts per million for total sulphites and free sulphites, respectively. The use of sulphites from SO2 bottled gas or liberated from the ignition of asbestos-free sulphur wicks is acceptable.

Common Name(s)	Origin and usage
	Once it is registered for that use in Canada

6.6 Processing Aids

Common Name(s)	Origin and usage
Activated charcoal	Shall be of plant origin.
Alcohol, ethyl (ethanol)	Alcohol used as an ingredient shall be from an organic source.
Calcium sulphate, (gypsum)	As a carrier for cakes and biscuits, soybean products and bakers' yeast. Sulphates produced using sulphuric acid are prohibited.
Carbon dioxide	For controlled atmosphere storage.
Casin	
Caustic potash (potassium hydroxide)	For pH adjustment only. Prohibited for use in lye peeling of fruits and vegetables.
Diatomaceous earth	As a food filtering aid or as a clarifying agent only.
Egg white	Albumen and albumin, as a clarifying agent; a non-organic source may be used if an organic source is not available.
Ethylene	For postharvest ripening of tropical fruit and degreening of citrus only.
Isinglass	As a fining agent (fish-based).
Kaolin	As a clarifying agent.
Nitrogen gas	Only oil-free grades.
Oxygen	For controlled atmosphere storage.
Ozone	

Common Name(s)	Origin and usage
Perlite	For use as a filter aid in food processing only.
Powdered milk	As a desiccant.
Rice hulls	As a filtering agent.
Talc	As a filtering agent.
Vegetable fat and oil	Obtained without the use of synthetic solvents.
Waxes	Non-synthetic only: a) carnauba wax and b) wood resin (processing product of resin component).

6.7 Cleaners, Disinfectants and Sanitizers

Common Name(s)	Origin and usage
Acetic acid, synthetic	May be used postproduction as a cleaning agent to remove mineral residues in evaporators used in maple syrup production.
Alkali carbonates and bicarbonates	For disinfecting greenhouse facilities.
Bleach	Residual chlorine levels in the water of the following substances shall not exceed the maximum residual disinfectant limit under federal and provincial regulations: a) calcium hypochlorite, b) chlorine dioxide, c) sodium hypochlorite, d) ozone, and e) hydrogen peroxide. Not to exceed 10% solution by volume.
Caustic potash (potassium hydroxide)	For disinfecting growing facilities and structures.
Chlorine	*See* Bleach.

Common Name(s)	Origin and usage
Detergents	Includes soaps — biodegradable only (whose biodegraded components are not more harmful than the original components). Allowed for use as equipment cleaners, including equipment used in the production and processing of food.
Hydrogen peroxide	Shall be a hydrogen-peroxide-based solution for food use (hydrogen water).
Lime	
Lye	For disinfecting greenhouses only. Prohibited for use in crop production, such as for adjusting the pH.
Peracetic acid	For use in disinfecting equipment, seed and asexually propagated planting material. Once it is registered for that use in Canada.
Phosphoric acid	As a dairy equipment cleaner, only in accordance with the manufacturer's written instructions, provided no direct contact with organically managed livestock or land occurs.
Potassium permanganate	Not to exceed 1% solution by volume.
Soaps	*See* Detergents.
Sodium bicarbonate (baking soda)	Permitted for use as a cleaning agent for equipment used in the production and processing of food.
Sodium borate	
Vinegar	Cider and maple vinegars are permitted as a cleaning agent for equipment used in production and processing. Vinegar used as an ingredient shall be from an organic source. Acetic acid used for sanitations can be from a non-organic source but shall be food-grade quality.

6.8 Pest Control Substances

Common Name(s)	Origin and usage
Carbon dioxide	For controlled atmosphere storage.
Cholecalciferol (vitamin D3)	
Diatomaceous earth	
Pyrethrins	Without piperonyl butoxide as a carrier.

7. NOTES

7.1 Sources of Referenced Publications

7.1.1 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 819-956-5644. E-mail ncr.cgsb-ongc@pwgsc.gc.ca. Web site www.ongc-cgsb.gc.ca.

7.1.2 The publications referred to in par. 2.1.2 and 2.1.3 may be viewed at the Department of Justice Canada's Web site canada.justice.gc.ca.