Organic Production Systems
General principles and management standards

ICS 75.160.20

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General principles and management standards

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Introduction (Informative)

I. Description

Organic production is a holistic system designed to optimize the productivity and fitness of diverse communities within the agro-ecosystem, including soil organisms, plants, livestock and people. The principal goal of organic production is to develop operations 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 standard 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 is the case for all products sold in Canada, organic inputs, such as but not limited to, fertilizers, feed supplements, pesticides, soil amendments, veterinary treatments, processing additives or aids, sanitizing and cleaning material; and products derived from organic agriculture, such as but not limited to, feed and food; should comply with all applicable regulatory requirements.

II. General Principles of Organic Production

Organic Agriculture is based on:

Principle of Health - Organic Agriculture should sustain and enhance the health of soil, plant, animal, human and planet as one and indivisible.

Principle of Ecology - Organic Agriculture should be based on living ecological systems and cycles, work with them, emulate them and help sustain them.

Principle of Fairness - Organic Agriculture should build on relationships that ensure fairness with regard to the common environment and life opportunities.

Principle of Care - Organic Agriculture should be managed in a precautionary and responsible manner to protect the health and well-being of current and future generations and the environment.¹ ²

III. Organic Practices

Neither this standard³ nor organic products produced 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

² For the previous Organic Principles refer to Annex B.
³ References throughout this document to “this standard” refer to CAN/CGSB-32.310, Organic Production Systems — General Principles and Management Standards.
biological activity within the soil and conservation of soil resources. Weeds, pests and diseases are managed using biological and mechanical control methods, and cultural practices, including minimized tillage. Crop selection and rotation are important for managing nutrient cycling, recycling of plant and animal residues, water management, augmentation of beneficial insects to encourage a balanced predator–prey relationship, and the promotion of biological diversity, and ecologically based pest management.

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

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

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

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

This standard is intended for certification and regulation to prevent deceptive practices in the marketplace. The certification process assesses operational compliance. Certification is granted to compliant product.
Organic Production Systems
General Principles and Management Standards

1 Scope and Application

1.1 Scope of this document

This reference manual outlines the style and format (text format, page layout, language usage (grammar) and appearance) of the standards and related documents published by the Standards Division of the Canadian General Standards Board (CGSB). It is based on the CGSB Style Guide, September 2002, CAN-P-1, ISO/IEC Directives Part 2; and related CGSB templates.

The intended users of the CGSB Style Manual are CGSB Standards Specialists, CGSB editorial staff, CGSB Technical Committee (TC. members and others who prepare draft standards on their behalf.

1.2 Application of the Standard

1.2.1 This standard applies to the following products:

a. Unprocessed plants and plants products, livestock and livestock products, to the extent that the principles of production and specific verification rules for them are described in the standard;
b. Processed agricultural crop and livestock products intended for human consumption or use and derived from the items mentioned in 1.2.1a);
c. Livestock feed;
d. Processed agricultural crop and livestock products intended for animal consumption or use and derived from the items mentioned in 1.2.1a).

1.3 Units of Measure

Quantities and dimensions in this standard are given in metric units with yard/pound equivalents, mostly obtained through soft conversion, given in parentheses. The metric units shall be regarded as official in the event of dispute or unforeseen difficulty arising from the conversion.
1.4 Prohibited substances, materials or techniques in organic production and preparation

If producing or preparing organic products, the following substances, materials or techniques are prohibited since they are incompatible with the general principles of organic production:

a) all products of and materials from genetic engineering (GE), as defined in this standard, with the following exceptions:
   i) substrates and other growth media as specified in CAN/CGSB-32.311;
   ii) contact surfaces, such as equipment, work surfaces, or packaging, where transference of GE traits to organic crops, livestock or products is unintended and unlikely to occur;

b) all products or materials intentionally manufactured using nanotechnology, as defined in this standard, with the following exceptions:
   i) naturally occurring nano-sized particles or those produced incidentally through processes such as grinding flour;
   ii) contact surfaces, such as equipment, work surfaces, or packaging, where transference of nano-sized particles to organic crops, livestock or products is unintended and unlikely to occur;

c) irradiation, as defined in this standard, for the treatment of organic products and inputs used in the production of organic products, except as specified in CAN/CGSB-32.311;

d) soil amendments, such as fertilizer or composted plant and animal material, that contain a substance not listed in CAN/CGSB-32.311;

e) sewage sludge, as defined in this standard, in any form;

f) synthetic crop production aids and materials, except as specified in CAN/CGSB-32.311;

g) synthetic growth regulators;

h) cloned farm animals and their descendants;

i) synthetic allopathic veterinary drugs, including antibiotics and parasiticides, except as permitted by this standard;

j) synthetic substances used in processing, such as ingredients, food additives and processing aids, including sulphates, nitrates and nitrites, except as specified in CAN/CGSB-32.311;

k) equipment, harvest and storage containers, storage facilities and packaging materials treated with synthetic fungicides, preservative, fumigants and pesticides;

l) substances that are not listed in CAN/CGSB-32.311, except as permitted in this standard.
2 Normative references

The following normative documents contain provisions that, through reference in this text, constitute provisions of this standard. The referenced documents may be obtained from the sources noted below.

Note The addresses provided below were valid at the date of publication of this standard.

An undated reference is to the latest edition or revision of the reference or document in question, unless otherwise specified by the authority applying this method. A dated reference is to the specified revision or edition of the reference or document in question.

2.1 Canadian General Standards Board

CAN/CGSB 32.311 – Organic production systems – Permitted substances lists.

2.1.1 Source

The above 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@tpsgc-pwgsc.gc.ca. Web site www.tpsgc-pwgsc.gc.ca/ongc-cgsb.

2.2 Health Canada

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

2.2.1 Source

The above may be obtained from Health Canada, www.hc-sc.gc.ca or http://laws-lois.justice.gc.ca

2.3 Canadian Food Inspection Agency (CFIA)

Health of Animals Act (1990, c.21)

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

Safe Food for Canadians Act (S.C, 2012, c. 24)

2.3.1 Source

The above may be obtained from CFIA, http://www.inspection.gc.ca/ or http://laws-lois.justice.gc.ca
2.4 International Federation of Organic Movements (IFOAM)

Principles of Organic Agriculture

2.4.1 Source

The above may be obtained from http://www.ifoam.bio/sites/default/files/ifoam_poa.pdf

2.5 Codes of Practice

Code of Practice for the Care and Handling of Farm Animals: Dairy Cattle

Code of Practice for the Care and Handling of Farm Animals: Transportation
3 Terms and Definitions

For the purposes of this standard the following terms and definitions apply.

3.1 aeroponics (aéroponie)

a soil-free cultivation method whereby plants are suspended with their roots exposed to the air.

3.2 agriculture 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.

3.3 agro-ecosystem (agro-écosystème)

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.

3.4 allopathy (allopathie)

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

3.4.1 allopathic (allopathique)

the use of allopathy.

3.5 annual seeding (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.

3.6 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.

3.7 apiculture (apiculture)

the management and production of honeybees and queens and their products. Examples are honey, beeswax, pollen, royal jelly, propolis and bee venom.

3.8 biodegradable (biodégradable)

Capable of being decomposed by the action of micro-organisms into simpler substances with minimal impact on the environment. Materials other than plant biomass shall be considered biodegradable if they are capable of decomposing rapidly, that is, in soil, within 2 years under natural conditions and within aqueous environments, within one to two months for aerobic and anaerobic conditions, respectively.

3.9 buffer zone (zone tampon)
a clearly defined and identifiable boundary area that separates an organic production unit from adjacent non-organic areas.

3.10 cloned animals (animaux clonés)
an identical animal resulting from human manipulation of embryos and embryo transfer, using techniques such as somatic cell nuclear transfer, embryonic cell nuclear transfer or embryo splitting.

3.11 commercially available (disponible sur le marché)
the documented ability to obtain a production input or an ingredient in an appropriate form, quality, quantity or variety in order to fulfil an essential function in organic production or preparation.

3.12 commingling (mélange)
mixing of or physical contact between bulk, unbound or unpackaged organic products and non-organic products during production, preparation, transportation, or storage.

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

3.14 compost tea (thé de compost)
a soil amendment or foliar feed used to promote beneficial bacterial growth that is created by steeping mature compost.

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

3.16 derogation
an exemption from the standard.

3.17 exception
an instance that does not comply with the standard. For example, by exception or as a special case, a substance otherwise prohibited by the organic production standard might be permitted.

3.18 feed additive (additif pour alimentation animale)
a substance added to feed in small quantities to fulfil a specific nutritional need. Examples are essential nutrients in the form of amino acids, vitamins and minerals.
3.19 feed supplement (supplément alimentaire)
a feed that is used in conjunction with other feed to improve the nutritive balance of the total and that is intended to be:
a) fed undiluted as a supplement to other feeds,
b) available separately and offered free choice, along with other parts of the ration, or
c) further diluted and mixed to produce a complete feed.

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

3.20 fertilizer (engrais)
a single or blended substance composed of one or more recognized plant nutrient(s).

3.21 filtrate (filtrat)
the liquid that passes through a reverse osmosis membrane, in the production of maple or other tree sap syrup.

3.22 food additive (additif alimentaire)
has the same meaning as in B.01.001 of The Food and Drug Regulations.

3.23 food-grade
a designation used to identify that a substance, (for example, a cleaning material, gas, etc.) or material (for example, a counter, containers, a conveyor, etc.) may come in contact with food, food contact surfaces and/or is safe for human consumption.

3.24 forage (fourrage)
vegetative material in fresh, dried or ensiled state that is fed to livestock, for example, pasture, hay or silage.

3.25 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;
polyplody induction;
cell fusion (including protoplast fusion) or hybridization techniques where the donor cells/protoplasts are in the same taxonomic family.

3.26 herbivore (herbivore)
an animal that feeds chiefly on plants.

3.27 homeopathy (homéopathie)
a treatment 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.

3.27.1 homeopathic (homéopathique)
the use of homeopathy.

3.28 hydroponics (hydroponie)
the cultivation of plants in aqueous nutrient solutions without the aid of soil.

3.29 incidental additives
substances used in organic processing facilities that have the potential to remain present in organic products as residues. Examples are, hand products (cleaners, antiseptics, lotions, barrier creams), boiler water treatment compounds, water treatment compounds, lubricants (release agents, solvents), antifoaming agents and non-food chemicals (sanitizers, disinfectants, cleaning agents and detergents).

3.30 ingredient (ingrédient)
a 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.

3.31 input (intrant)
a substance used in production or preparation, for example, fertilizers, feed supplements, pesticides, soil amendments, veterinary treatments, processing aids, sanitizing and cleaning materials.

3.32 irradiation (irradiation des aliments)
treatment with ionizing radiation (see B.26.001 of The Food and Drug Regulations).

3.33 livestock (animaux d’élevage)
livestock means any domestic or domesticated animal including bovine, ovine, porcine, caprine, equine, poultry and bees raised for food or used in the production of food. The products of hunting or fishing of wild animals are not included in this definition.

3.34 manure (déjections animales)
livestock feces, urine and other excrement, including bedding, used or soiled by livestock.

3.35 _microgreens (micro-pousses)_

edible young plants that are harvested later than sprouts, generally when cotyledons are fully formed or when 2 or 4 true are present.

3.36 _nanotechnology (nanotechnologie)_

refers to engineered materials, structures and systems that operate at the atomic, molecular, or macromolecular levels. Nanotechnology involves one or more of the following:

– Ability to control or manipulate matter on the atomic scale, and or at a scale of 100 nanometres or less measured in any direction [one nanometre (nm) is one billionth of a metre]; and

– Creating and using structures, materials, devices, and systems that have novel properties and new functions as a result of their small and/or intermediate size, that is, they may behave differently from their macroscale counterparts, exhibiting different mechanical, optical, magnetic, and electronic properties.

3.37 _non-synthetic (non synthétique)_

a substance derived from mineral, plant or animal matter that has not been chemically altered.

3.38 _nutrient management plan (plan de gestion des nutriments)_

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

3.39 _operation_

an entire farm, company or organization that produces or prepares an organic product.

3.40 _operator (exploitant)_

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

3.41 _organic integrity (intégrité biologique)_

maintenance of the inherent organic qualities of a product from the receipt of ingredients through to the end consumer.

3.42 _organic product (produit biologique)_

any commodity or output produced by a system compliant with this standard.

3.43 _organic production (production biologique)_

a method of agricultural production in compliance with this standard.
3.44 parallel production (production parallèle)
the simultaneous production or preparation of organic and non-organic crops, including transitional crops, livestock and other organic products of the same or similar, visually indistinguishable varieties.

3.45 perennial crop (culture vivace)
a 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.

3.46 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.

3.47 pesticide (pesticide)
substances used, directly or indirectly, to attract, prevent, destroy, repel or mitigate pests; or to alter the growth, development or characteristics of plants. Includes any organism, substance or mixture of substances and devices such as lures or traps.

3.48 planting stock (matériel de reproduction végétale)
a plant or plant tissue, other than annual seedlings, used in plant production or propagation. Examples are rhizomes, shoots, leaf or stem cuttings, roots or tubers, bulbs or cloves.

3.49 prebiotics (prébiotique)
fiber food and potential carriers for bacteria. Examples of prebiotic substrates are inulin, lactulose, various galacto, fructo, or xylo-oligosaccharides and sugar alcohols.

3.50 preparation (préparation)
includes, with respect to an organic product, post-harvest handling, manufacturing, processing, treatment, preservation, and slaughter.

3.51 probiotics (probiotiques)
micro-organisms that provide health benefits when consumed. Probiotics are administered orally, as dietary supplements, via pharmaceutical preparations in the form of capsules, tablets, alginate gels, or dry powder.

3.51.1 symbiotics
a combination of prebiotics and probiotics. Many contain a combination of probiotic culture with a prebiotic substrate that favors its growth.

3.51.2 paraprobiotics
“non-viable microbial cells” that are inactivated or dead microorganisms which can prevent pathogen growth.

3.52 processing aids (auxiliaires de production)
substances added to food during processing, for a technological effect, but are not present in the finished product or at insignificant and non-functional levels.

3.53 production unit (unité de production)

an identifiable portion of an operation in which production or preparation of organic products occur.

3.54 prohibited substances

substances prohibited by Section 1.4 and/or are not listed in CAN/CGSB-32.311.

3.55 records (registres)

information in written, visual or electronic form that documents the activities undertaken by an operator engaged in the production or preparation of organic products.

3.56 removal event

a procedure performed prior to organic production runs, batches or loads, to prevent organic product from coming into contact with prohibited substances or commingling with non-organic products. Examples of removal events are rinsing with potable water, letting surfaces drip-dry and purging a system with organic product.

3.57 salt

sodium chloride; or low-sodium and sodium-free substitutes, that serve the purpose of providing salt flavour, nutrition or microbial control in a product.

3.58 sewage sludge (boues d’épuration)

solid, liquid or semisolid residues generated by municipal or industrial sewage treatment facilities. 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.

3.59 soil (sol)

a mixture of minerals, organic matter and living organisms.

3.60 split production–split operation (production fractionnée–exploitation fractionnée)

an operation that produces or prepares organic and non-organic agricultural products, including transitional products.

3.61 synthetic substance (substance synthétique)

a manufactured substance formulated 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.

3.62 traceability (traçabilité)

the capacity to track products backwards and forwards along the supply and value chains.
3.63 transitional period (période de conversion)
the period of time between the start of an organic management program and the attainment of organic status by a production unit or operation.

3.64 transplant (plant repiqué)
a seedling that has been removed from its original place of production, transported and replanted.

3.65 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.

3.66 veterinary drug (médicament vétérinaire)
a 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.

3.67 wild crop (plante sauvage)
plants collected or harvested in their natural habitat.

3.68 yeast (levure)
Single celled microorganisms that produce enzymes, carbon dioxide (CO2), and other metabolites from carbohydrates, whose functional roles are frequently used in the processes of fermentation, baking, flavouring foods, adding nutritional value, and providing health benefits.

3.69 yeast autolysate (extract)
the water-soluble components of the yeast cell, generally produced by autolysis, a process in which the rupture of cell wall is induced mechanically or chemically.
4 **Organic plan**

4.1 The operator shall prepare an organic plan outlining the details of transition, production, preparation and management practices.

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

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

4.4 **Record keeping and identification**

4.4.1 The operator shall maintain records and relevant supporting documentation such as visual aids (for example, maps, work-flow charts) concerning inputs and the details of their use, production, preparation and transport of organic crops, livestock and products. The operator shall maintain the organic integrity of products and shall fully record and disclose all activities and transactions in sufficient detail to be easily understood and sufficient to demonstrate compliance with this standard.

4.4.2 Records shall make it possible to trace:

a) the origin, nature and quantity of organic products that have been delivered to the production unit or operation;

b) the nature, quantity and consignees of products that have left the production unit;

c) any other information, such as the origin, nature and quantity of ingredients, additives and manufacturing aids delivered to the unit, and the composition of processed products, for the purposes of verification.

d) Activities or processes that demonstrate compliance with this standard.

4.4.3 An identification system shall be implemented to distinguish organic and non-organic crops, livestock (for example, general appearance, colour, variety and types) and products.

4.5 Records shall be maintained for at least five years beyond their creation.
5 Crop production

5.1 Land requirements for organic crop production

5.1.1 This standard shall be fully applied on a production unit for at least 12 months before the first harvest of organic products. Substances prohibited by 1.4 and substances not in CAN/CGSB-32.311, shall not have been used for at least 36 months before the harvest of any organic crop.

5.1.2 When new production units are added to existing organic operations that were not part of the organic plan, the operator shall provide records to show that substances prohibited by the standard have not been used for at least 36 months before harvest and a verification shall be conducted before the first harvest of product from this new production unit.

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

5.1.3 The enterprise shall aim at a complete transition of its production. During the transition period, the enterprise can maintain, in addition to the production in transition, a non-organic system of production (split operation) that shall be entirely separate and identified separately, pending its incorporation into the overall transition process. The enterprise can be converted one unit at a time, and each converted unit shall respect the requirements of this standard. All parallel crop production shall adhere to the following conditions:

a. The production of any genetically engineered crop variety shall be prohibited when the same crop is being grown organically within the split operation.

b. The operator shall clearly demonstrate that the identity of the crops so produced can be maintained during their production, harvesting, storage, processing, packaging and marketing.

c. The operator shall maintain verifiable, accurate records of both non-organic and organic produce and product storage, transportation, processing and marketing.

5.1.4 All production units shall have distinct, defined boundaries.

5.1.5 When unintended contact with substances prohibited by 1.4 is possible, distinct buffer zones or other features sufficient to reasonably prevent contamination shall be required:

a. Buffer zones shall be at least 8 m wide.

b. Permanent hedgerows or plant windbreaks, artificial windbreaks, permanent roads or other physical barriers may be used instead of buffer zones.
5.1.6 Crops grown in buffer zones shall not be considered organic products whether they are used on the farm or not.

5.1.7 Production units shall not be alternated between organic and non-organic production methods.

5.2 Environmental factors

5.2.1 Measures shall be taken to minimize the physical movement of substances prohibited by 1.4. from neighbouring areas onto organic farmland and crops. Similarly, measures shall be taken to minimize the contamination of land and crops with such substances.

5.2.2 The use of posts or wood treated with materials permitted in CAN/CGSB-32.311 is allowed.

a. Continued use and recycling of existing posts within the farm are allowed.

b. The use of posts treated with prohibited substances for new installations or replacement purposes is not allowed unless alternatives such as metal, plastic, concrete, and protective sleeves, are not commercially available.

5.3 Seeds and planting stock

5.3.1 The operator shall use organic seed, bulbs, tubers, cuttings, annual seedlings, transplants and other propagules.

5.3.2 Exceptions or conditions

5.3.2.1 A variety of non-organic untreated seed and planting stock or seed treated only with substances in accordance with this standard may be used provided that the organically produced seed or planting stock variety:

a. is not available from the enterprise;

b. is not commercially available, and a reasonable search involving potential, known organic suppliers has been conducted.

5.3.2.2 Non-organic perennial planting stock treated by substances prohibited by 1.4f),1.4d),1.4e) or 1.4g) may be used provided that the organic products were harvested after such plants have been maintained in accordance with this standard for at least one year. The land on which the stock is planted shall meet the requirements in 5.1.1

5.3.2.3 Plant varieties, seeds, seed inoculant, germplasm, scions, rootstocks or other propagules developed through the use of genetic engineering are prohibited, in accordance with 1.4.

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:
5.4.6 crop rotations, which shall be as varied as possible and include plough-down, legumes, catch crops or deep-rooting plants;

5.5.1.1b incorporating plant and animal matter 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 substances prohibited by 1.4.

5.4.5 Except as provided in 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. However, burning may be used for documented pest, disease or weed problems (see 5.6.1) or to stimulate seed germination.

5.5 Manure management

5.5.1 Manure sources

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

a. the non-organic operation is not a fully caged system where livestock are not able to turn 360°;

b. livestock are not permanently kept in the dark;

c. the source of manure, type of livestock, evaluation of the criteria mentioned in 5.5.1.1a and 5.5.1.1b, and quantity shall be recorded.

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

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

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

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

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

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

a. does not contribute to the contamination of crops by pathogenic bacteria;

b. minimizes the potential for run-off into ponds, rivers and streams;

c. does not significantly contribute to ground and surface water contamination.

5.5.2.5 The non-composted solid or liquid manure shall be:

a. incorporated into the soil at least 90 days before the harvesting of crops for human consumption that do not come into contact with soil;

b. incorporated into the soil at least 120 days before the harvesting of crops having an edible part that is directly in contact with the surface of the soil or with soil particles.

*Note: If livestock are used as part of the cropping or pest control program, a management plan must be in place to ensure that the livestock are controlled and that their manure or manure related contamination does not reach the harvested portion of the crop.*

5.5.3 Animal manures that have been processed using physical (e.g. dehydration), biological or chemical treatment only with substances listed in CAN/CGSB-32.311 are permitted. Techniques for processing animal manure shall minimize the loss of nutritional elements.

5.6 **Crop pest, disease and weed management**

5.6.1 Pest, disease and weed control shall be centred on organic management practices aimed at enhancing crop health and reducing losses caused by weeds, disease and pests. Organic management practices include cultural practices (e.g. rotations, establishment of a balanced ecosystem, and use of resistant varieties), mechanical techniques (e.g. sanitation measures, cultivation, traps, mulches and grazing) and physical techniques (e.g. flaming against weeds, heat against diseases).

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 Section 4.
5.6.3 Application equipment (e.g. spray equipment) used for soil nutrient supplements, disease or pest management on the enterprise shall be cleaned thoroughly between applications to remove residues of applied substances prohibited by 1.4.

5.7 Irrigation

5.7.1 Irrigation of organic crops is permitted provided that the operator documents precautions taken to prevent contamination of land and products with substances not included in CAN/CGSB-32.311.
6 Livestock production

*Note: Excludes apiculture which is covered in Subsection 7.1.*

6.1 General

6.1.1 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.

6.1.2 Organic livestock products shall be from livestock raised according to this standard.

6.1.3 Livestock production is a land-related activity.

a) Herbivores shall have access to pasture, during the grazing season, and access to the open air at other times whenever weather conditions permit:

i) calculated on the basis of dry matter intake, the consumption of grazed forage by ruminants that have reached sexual maturity shall represent a minimum of 30% of the total forage intake.

ii) consumption of grazed forage shall rise above 30% during high growth periods in spring and summer.

iii) a minimum of 0.13 ha (0.33 ac)/animal unit shall be devoted to grazing. [One animal unit = one cow or one bull, or two calves, each 225 to 500 kg (551 to 1102 lb) or five calves, each less than 225 kg (551 lb), or four ewes and their lambs or, six does and their kids].

b) Other livestock, including poultry, shall have access to the outdoors whenever weather conditions permit.

c) Winter-only production of poultry is restricted to operations that are able to comply with land-related requirements for the specific livestock type, regardless of the time of year.

d) Derogations in Subsections 6.7.2 and 6.10.1 may apply.

6.1.4 Livestock stocking rates shall correspond to local agri-climatic conditions and take into consideration feed production capacity, stock health, nutrient balance and environmental impact.

6.1.5 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.

6.1.6 The operator shall demonstrate their commitment to animal welfare. When an animal welfare issue is identified, the operator shall develop a corrective action plan. The operator shall document demonstrated improvements in animal welfare practices and shall make available upon request any documents or assessments mandated by industry associations.

6.2 Origin of livestock

6.2.1 Livestock breeds, strains and types shall be:
Livestock breeders shall:

a) use natural methods of reproduction; however, artificial insemination is permitted, including the use of sexed semen, if it is mechanically separated.

b) not use embryo transfer techniques or breeding techniques using genetic engineering or related technology;

c) not use reproductive hormones to trigger and synchronize estrus.

Livestock used for organic livestock products shall:

a) be born or hatched on organic production units;

b) be the offspring of organic parents;

c) be managed organically throughout their life-time.

d) exceptions to a), b), and c) apply to poultry:

i) poultry products shall be from poultry that has been under continuous organic management, beginning no later than the second day of life; and

ii) neither day-old chicks nor the fertilized eggs they hatched from, shall be given medication other than vaccines.

e) an exception to a), b) and c) applies when herds and individual animals are converted to organic production:

i) animals used for milk production shall have been under continuous organic management for at least 12 months; and

ii) animals used for meat shall have been under continuous organic management from the beginning of the last third of the dam’s gestation period.

Animals purchased for breeding shall be organic; however:

a) if suitable organic breeding stock is not commercially available, non-organic, non-gestating breeder animals and breeding males may be brought onto an organic operation and integrated into the organic system. Meat from such animals shall be non-organic;

b) livestock obtained from non-organic sources shall not be considered to be organic, either for breeding or slaughter, outside the organic operation;

c) when expanding a herd and increasing the land-base, breeding stock brought on to the operation, may graze third-year transitional pasture until the end of the second trimester.

Livestock or livestock products removed from an organic operation and subsequently managed on a non-organic operation, shall be considered non-organic.

Transition of livestock production units to organic production

If an entire dairy herd is under conversion to organic production, the operator shall:
provide, in the first nine months of the 12-month transition period, a minimum of 80% feed, calculated in terms of dry matter intake, that is either organic or raised on land included in the organic system plan and that is managed in accordance with Section 5 of this standard;

b) provide only organic feed during the final three months of the 12-month transition period.

6.3.2 Transition of land intended for feed crops or pasture shall comply with Subsection 5.1.

6.3.3 When a production unit and entire herds, or flocks of sheep, are in transition to organic production simultaneously, feed from and pasture on the production unit may be considered organic during the final 12-month of the land transition period. This feed and forage shall not be considered organic outside the production unit.

6.4 Livestock feed

6.4.1 The operator shall provide an organic feed ration that is balanced to meet the nutritional requirements of the livestock.

6.4.2 Livestock feed shall consist of substances that are necessary and essential for animal 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 the following into account:

a) calves, lambs and kids may be taken from their mothers at the age of 24 hours, provided they receive colostrum. If contagious diseases are present in the herd, an exception to colostrum feeding is permitted;

b) calves shall be given fresh, whole, organic milk or reconstituted organic milk, until the age of 3 months;

c) lambs and kids shall be given fresh, whole, organic milk or reconstituted organic milk, until the age of 2 months or a weight of 18 kg (39.7 lb);

d) if they are not nursing, young animals shall be fed to meet their nutritional requirements and to achieve optimal growth and health, using artificial teats to satisfy their motivation to suck;

e) dairy calves shall have access to solid food at all times;

Note: Refer to the Code of Practice for the Care and Handling of Farm Animals: Dairy Cattle for recommendations on colostrum feeding and the quantity of milk to be fed to dairy calves.4

f) for ruminants, at least 60% of daily dry matter rations shall consist of hay, fodder that is fresh or dried, or ensiled forage (for example, fermented grass, legumes, and corn plants), [see Subsection 6.4.1 c];

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4 In this standard, Codes of Practice or Code of Practice refers to Canada’s best practices for the care and handling of livestock (https://www.nfacc.ca/codes-of-practice).
g) if ensiled forage is fed to ruminants, at least 15% of the total dry matter in daily rations shall consist of long-fiber forage, that is, greater than 10 cm (4 in) stem length. If ensiled corn is fed, it shall be considered 40% grain/60% forage. The proportion of grain in the ensiled corn shall be included in the calculation in Subsection 6.4.3 f);

h) in the finishing phase poultry shall be given grain.

i) poultry and pigs, shall be given vegetable matter other than grain.

j) poultry shall be fed daily. A "skip-a-day" feeding regime for breeding birds is prohibited.

k) rabbits shall be given forage, such as, grass and hay, and have access to material that keeps teeth healthy, for example, gnawing blocks, root vegetables, and tree branches. Substances in gnawing blocks shall be listed in Table 5.2 of CAN/CGSB 32.311.

6.4.4 The following feed, feed additives and supplements are prohibited:

   a) feed and feed additives, including amino acids and feed supplements, that contain substances not listed in Table 5.2 of 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 that are chemically extracted or defatted with prohibited substances;

   e) feed that contains mammalian or avian slaughter by-products;

   f) feed that contains synthetic preservatives;

   g) silage preservation products, unless they are listed in Table 5.2 of CAN/CGSB-32.311;

   h) synthetic appetite- or flavour-enhancers;

   i) feed formulas that contain manure or other animal waste; and

   j) feed that contains synthetic colouring-agents.

6.4.5 Livestock, of all ages, shall be given clean, fresh water on demand. The main water source shall be tested initially for potential livestock toxins, for example, heavy metals, ions, and bacteria, according to livestock drinking water quality guidelines. Thereafter, the water source shall be tested annually, for bacterial contamination. If colony forming unit (CFU) levels are higher than 100/100 ml, remedial action shall be taken.

6.4.6 Force feeding of ducks and geese is prohibited.

6.4.7 By derogation, non-organic feed is permitted under the following circumstances:

   a) if organic feed is unobtainable as the result of a catastrophic event with direct impact on the production unit (for example, fire, flood, or extraordinary weather conditions), non-organic feed may be used for a maximum of 10 consecutive days, to ensure a balanced livestock ration. Non-organic feed from land in transition to organic production and free of prohibited substances, shall be used in preference to non-organic feed;

   b) in the event of regional shortages, breeding herds may be given non-organic forage, provided that the animals are segregated, visually distinguishable (for example, have ear tags and age verification records) and record keeping is maintained. Forage from land in transition to organic...
production and free of prohibited substances shall be used in preference to non-organic forage. Genetically engineered forage crops are prohibited at all times. In all other respects, breeding herds whose offspring is intended for organic products shall be under organic management at all times. The breeding herd shall be re-transitioned when an organic forage supply becomes available. Subsection 6.2.23 e). applies to any offspring. The organic status of other livestock on the operation is not affected;

c. an increased grain ration is permitted to ensure that nutritional requirements are met during uncommonly cold periods or when forage quality is compromised due to extraordinary weather events.

6.5 Transport and handling

6.5.1 Livestock shall be managed responsibly, with care and respect. Stress, injury and suffering shall be minimized in all livestock handling practices, including transport and slaughter.

6.5.2 Stocking density, within transport vehicles, shall conform to recommendations in the Code of Practice for the Care and Handling of Farm Animals: Transportation. The use of electrical stimulation or allopathic tranquilizers is prohibited.

6.5.3 While in transit and before slaughter, animals shall have shelter against inclement weather, such as, wind, rain, excessive heat and cold.

6.5.4 If possible, animals shall be transported directly from the operation to their final destination.

6.5.5 The duration of transportation shall be as short as possible. If animals are in transit for more than 5 hours, recommendations regarding maximum transit times and minimum feed requirements, and water and rest times, as provided in the Code of Practice for the Care and Handling of Farm Animals: Transportation, shall apply. If these recommendations are not followed, justification shall be provided.

6.5.6 Fitness for transport shall be assessed before loading. Sick or unfit animals shall not be transported, for example, those that are injured, lame, sick, emaciated, in late gestation or heavily lactating.

6.5.7 If livestock is unfit for transport and euthanasia is necessary, it shall be performed by competent personnel with appropriate equipment. The method used shall be quick and cause the least possible pain and distress.

Note: In Canada, see also the Health of Animals Regulations under the Health of Animals Act (Canadian Food Inspection Agency). For guidance, refer to the transportation requirements in the Code of Practice for each animal type.

6.6 Livestock health care

6.6.1 The operator shall establish and maintain preventative livestock health care practices, including:

a) the choice of appropriate breeds or strains of livestock, as specified in Subsection 6.2.1;
b) a feed ration sufficient to meet the nutritional requirements of the livestock, including vitamins, minerals, protein, fatty acids, energy sources, and fibre;

c) housing, pasture conditions, space allowance and sanitation practices, that minimize crowding and the occurrence and spread of disease and parasites;

d) conditions appropriate to the species that allow for exercise, freedom of movement, and minimal stress;

e) prompt treatment for animals with detectable disease, lesions, lameness, injury and other physical ailments;

f) vaccines, in accordance with this standard and Table 5.3 of CAN/CGSB-32.311, if it has been documented that the targeted diseases are communicable to livestock on the production unit and/or operation and cannot be combated by other means.

6.6.2 The operator shall not administer:

a) veterinary drugs, in the absence of illness, other than vaccines. Anaesthetics and analgesics are permitted, subject to the requirements for physical alterations in Subsection 6.6.4;

b) synthetic substances to stimulate or retard growth or production, including hormones for growth promotion;

c) synthetic parasiticides, except by way of derogations provided in Subsection 6.6.11;

d) antibiotics to meat animals or to birds for meat or egg production;

e) chemical allopathic veterinary drugs for preventative treatments, for example, pharmaceuticals, antibiotics, hormones and steroids.

6.6.3 Hormonal treatment shall only be used for therapeutic reasons and under veterinary supervision. The meat from treated animals shall not be organic unless the treatment is listed in Table 5.3 of CAN/CGSB-32.311.

6.6.4 Physical alterations are prohibited, unless they are essential for animal health, welfare or hygiene, for identification or for safety reasons.

a) The following physical alterations are permitted; restrictions in Subsection 6.6.4 c) apply:

i) castration of piglets, lambs, kids and calves;

ii) tail docking of lambs;

iii) branding and ear tagging; and

iv) dehorning and debudding.

b) If they are the only remaining option, the following physical alterations are permitted; restrictions in Subsection 6.6.4 c) apply:

i) beak trimming and de-toeing of birds;

ii) trimming of needle teeth in piglets; and

iii) tail docking of pigs and cattle.

c) Restrictions on physical alterations:

i) physical alterations shall be carried out in a manner that minimizes pain, stress and suffering;
ii) regardless of age or method, consideration shall be given to the use of anaesthetics, sedatives and non-steroid anti-inflammatory analgesics, such as, lidocaine, xylaxine, and ketoprofen;

iii) for castration, tail docking, dehorning and branding, operators shall consult the applicable Code of Practice for age restrictions and methods. In most cases pain control medications are required by the Code;

iv) beak trimming and de-toeing of birds, tail docking of pigs and trimming of needle teeth in piglets are permitted when they are necessary to control problem behaviour that has a negative impact on the welfare of other livestock. Operators shall document the measures taken to control or eliminate problem behaviour;

v) tail docking of cattle is permitted only when necessary for veterinary treatment of injured animals;

vi) castration of piglets shall take place in the first two weeks of life. Castration of cull boars is prohibited; and

vii. spaying of female beef cattle is prohibited.

6.6.5 Biological, cultural, and physical treatments and practices provided in Table 5.3 of CAN/CGSB-32.311, are permitted:

a) if preventative practices and vaccines are inadequate to prevent sickness or injury; and
b) when disease and health problems require treatment.

6.6.6 Medical treatment shall not be withheld from sick or injured livestock to preserve their organic status. If methods acceptable to organic production fail, all appropriate medications shall be used to restore livestock to health.

6.6.7 If the presence of injured or diseased livestock presents a health risk to individual animals or birds, they shall be separated from the herd or flock, and/or euthanized, if necessary (see Subsection 6.6.13).

6.6.8 Shipping diseased livestock to slaughter is prohibited, if the end product is intended for human consumption.

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

6.6.10 The use of veterinary medicinal substances shall comply with the following:

a) if no alternative treatments or management practices exist, veterinary biologics, including vaccines, parasitcides or the therapeutic use of synthetic medications may be administered provided that such medications are permitted by this standard and Table 5.3 of CAN/CGSB-32.311, or are required by law.

b) phytotherapeutic medicines, that is, botanical substances, such as atropine, butrophanol and other medicines from herbaceous plants, excluding antibiotics; and homeopathic or similar products, shall be used in preference to chemical, allopathic veterinary drugs or antibiotics, provided they are effective for the species and the condition for which the treatment is intended.
c) if the products permitted by a) and b) are ineffective in combating illness or injury, prescribed veterinary drugs, not enumerated in this standard and/or in Table 5.3 of CAN/CGSB-32.311, may be administered with written authorization by a veterinarian. If meat animals are treated, some restrictions apply (see Subsections 6.6.1, Error! Reference source not found. e) and 6.6.11);

d) if a veterinary drug is administered and it does not have specific withdrawal requirements, a withholding period twice the label requirement or 14 days, whichever is longer, shall be observed before livestock products from treated animals may be considered organic.

e) In emergencies, antibiotic treatment of dairy animals is permitted under the following conditions:
   i) the operator shall have written instructions from a veterinarian indicating the product and the treatment method to be used;
   ii) treatment shall result in a milk withdrawal period of at least 30 days, after the last day of a course of treatment, or a withholding period that is twice the label requirement, whichever is longer;
   iii) antibiotic use shall be documented in herd health records;
   iv) if dairy animals receive more than two treatments of veterinary drugs annually, whether of antibiotics, or parasiticides, or one of each, they shall lose their organic status and go through a 12-month transition period;
   v) dairy animals with chronic conditions that require repeated use of antibiotics, shall be removed from the herd.

6.6.11 Organic livestock operations shall have a comprehensive plan to minimize parasite problems. The plan shall include preventative measures, such as pasture management, fecal monitoring, and emergency measures in the event of a parasite outbreak. By way of derogation, if preventative measures fail due to climatic conditions, for example, or other uncontrollable factors, the operator may use parasiticides that are not listed in Table 5.3 of CAN/CGSB-32.311, provided that:

a) observation of the animal or fecal test results, as appropriate for the species, indicate that livestock is infected with parasites;

b) the operator has written instructions from a veterinarian indicating the product and method to be used;

c) withdrawal times are twice the label requirement or 14 days whichever is longer;

d) meat animals less than 12 months old, receive only one treatment. Older meat animals shall receive a maximum of two treatments. Meat animals that require additional treatment shall lose their organic status;

e) dairy animals that receive more than two treatments in a 12-month period, whether of parasiticides, antibiotics or one of each, shall lose their organic status and go through a 12-month transition period. Meat products from dairy animals that receive more than two treatments, shall never be organic;

f) a dam may be treated during gestation;

g) laying hens that receive more than one treatment in a 12-month period, shall lose their organic status. Treatment of the flock rather than individual hens is permitted;

h) the operator provides a written action plan, with a timeline, describing how they will amend their parasite control plan, to avoid similar emergencies.
6.6.12 Breeding livestock or poultry treated with a parasiticide or veterinary drug not listed in Table 5.3 of CAN/CGSB-32.311, shall be considered non-organic meat animals. Exceptions pertaining to parasiticide use may apply (see Subsection 6.6.11).

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

6.6.14 Forced moulting of poultry is prohibited.

6.7 Livestock living conditions

6.7.1 The operator shall establish and maintain animal living-conditions that accommodate the health and natural behaviour of animals, including:

a) access to the outdoors; shade; shelter; rotational pasture; exercise areas; fresh air and daylight, suitable for the species and stage of production; and the climate and the environment;
b) access to fresh water (see Subsection 6.4.5) and high-quality feed that meets the needs of the animal;
c) sufficient space and freedom to lie down in full lateral recumbence, stand up, stretch limbs and turn freely, and to express normal patterns of behaviour;
d) space allowances in proportion to local conditions, feed production capacity of the operation, livestock health, nutrient balance of livestock and soils, and environmental impact;
e) production techniques that foster the long-term health of livestock, especially when high levels of production or growth rates are required of animals;
f) good air quality. Humidity, dust particles and ammonia levels shall not impair the well-being of animals. Ammonia levels shall not exceed 25 ppm. If levels exceed 25 ppm, remedial action shall be taken;
g) appropriate resting and bedded areas that meet the needs of the animal. Indoor areas shall be large enough, solidly built, comfortable, clean and dry. Resting areas shall be covered with a thick layer of dry bedding that absorbs excrement. If organic bedding is commercially unavailable, non-genetically engineered bedding material that is free of prohibited substances for at least 60 days prior to harvest may be used;
h) housing with non-slip floors. Solid flooring is preferable. Where non-slip slatted floors exist, the floor shall not be entirely of slatted or grid construction. The floor design shall ensure that the feet of the smallest animal cannot get caught in a void. Areas between voids shall be at least as wide as the feet of the animals;
i) animals that give birth indoors shall be provided with sufficient space and a clean, dry, well bedded space with stable footing. Birthing facilities must allow for separation from other animals and all the mother’s needs shall be accommodated, including milking and nursing, until the mother is recovered from the birthing process. Animals shall not be tied or tethered when giving birth;
j) management of outdoor runs and pasture so that soil degradation, long term damage to vegetation and the contamination of water are avoided.
Access to the outdoors and freedom of movement may be restricted for the following reasons, provided that confinement is temporary:

a) inclement weather;
b) conditions in which livestock health or safety is jeopardized, given the stage of production; and
c) soil, water or plant quality is compromised.

The continuous tethering of livestock is prohibited, with an exemption for dairy cattle under conditions specified in Subsection 6.10.3.

Housing, pens, runs, equipment and utensils shall be cleaned and disinfected to prevent cross infection and build-up of disease-carrying organisms. Appropriate cleaning and disinfection products shall be used, giving preference to substances listed in Tables 5.3, 7.3 and 7.4 of CAN/CGSB-32.311. In the event of a reportable disease, any effective disinfectant may be used to clean housing, pens and runs. For equipment that comes into contact with food products, the requirements of Subsections 8.3.7 and 8.3.8 apply, and substances listed in Tables 7.3 and 7.4 of CAN/CGSB-32.311 are permitted.

All livestock in a production unit shall be managed organically. If they are clearly identified and managed organically, individual, non-organic animals may be present in the production unit. Non-organic livestock production units may be present on an operation, if they are clearly identified and kept separate from organic livestock production units.

Organic animals may graze with non-organic animals on common land, that is, crown range or community pasture, provided that documentation:

a) confirms that the land has not been treated with prohibited substances for at least 36 months;
b) confirms that healthcare and feed products available to organic livestock while on common land, are in accordance with this standard;
c) identification permits clear distinction between organically and non-organically raised animals.

Manure management

Manure management practices used to maintain areas in which livestock is housed, penned or pastured shall be implemented in a manner that minimizes soil and water degradation.

Manure storage and handling facilities, including composting facilities, shall be designed, constructed and operated to prevent contamination of ground and surface water.

Pest management

Pest management in and around livestock facilities shall conform to the criteria specified Subsection 8.3.

Additional requirements for cattle, sheep and goats

Herbivores shall have access to pasture during the grazing season. At other times, they shall have access to the open air or an outdoor exercise area, weather permitting. The pasture requirement does not apply to:
a) breeding males;
b) cattle that are confined to outdoor lots during the final finishing phase. Lots shall provide at least 23 m²/animal (75.5 ft²) for 363-kg (800-lb) finishers and increase to 46.5 m²/animal (152.6 ft²) for 545-kg (1200-lb) finishers;
c) young animals, when their health and welfare are jeopardized.

6.10.2 Cattle
Minimum indoor and outdoor space requirements are as follows:

<table>
<thead>
<tr>
<th></th>
<th>Indoor Space</th>
<th>Outdoor Runs and Pens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult beef cows</td>
<td>6 m² (19.7 ft²)/head</td>
<td>9 m² (29.5 ft²)/head</td>
</tr>
<tr>
<td>Dairy cows – bedded pack barns</td>
<td>11 m² (36 ft²)/head</td>
<td>--</td>
</tr>
<tr>
<td>Dairy cows – individual</td>
<td>15 m² (49 ft²)/head</td>
<td>--</td>
</tr>
<tr>
<td>maternity pens (Note: 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>maternity pen per 35 cows is</td>
<td></td>
<td></td>
</tr>
<tr>
<td>recommended.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dairy cow – group maternity</td>
<td>11 m² (36 ft²)/head</td>
<td>--</td>
</tr>
<tr>
<td>pens</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calves &amp; young cattle</td>
<td>2.5 m²/head for young calves; increasing to 5 m² (16.4 ft²)/head for growing steers and heifers (12 month old)</td>
<td>5 m² (16.4 ft²)/head to 9 m² (29.5 ft²)/head, depending on the size of animals</td>
</tr>
</tbody>
</table>

With justification, space requirements may be reduced for small breeds of cattle.

6.10.3 Dairy cattle housing

6.10.3.1 Tie stalls, in existing dairy barns, may be used for lactating dairy cows, and for the training of heifers raised in loose housing, for a period of one month. Tie stalls are prohibited in new construction and major renovations.

a) If tie stalls are used during the winter season, dairy cows shall have an exercise period every day whenever possible, or at least twice a week.

b) If construction of new infrastructure is required in order to comply with Subsection 6.10.3.1, operators are granted an exemption that permits the use of existing infrastructure until August 1, 2021, provided that a plan for the new construction or renovation is in place by August 1, 2016 and,

i) tethered cows shall have an exercise period every day, whenever possible, but at least twice a week, OR

ii) there shall be no tethering of heifers or dry cows.
6.10.3.2 In a free stall system, the ratio of cows to stalls shall not exceed 1:1.

6.10.3.3 The use of electric cow trainers is prohibited. The tails of cows in stalls may be tied to prevent the tail from lying in the gutter, provided the tying allows for natural behaviour, free movement of the tail and quick release when necessary.

6.10.3.4 If milking parlours are in use:
a) operators shall minimize animal waiting time between the time they are moved to the holding area and the time they return to the barn or pasture;
b) portable milking units shall be available for sick or weak animals that are unable to make it to the milking parlour;
c) electric crowd gates are prohibited;
d. non-slip flooring shall be used in the holding area, parlour and alleys.

6.10.3.5 Calves may be housed in individual pens and hutches, up to three months of age, provided the following conditions are met:
a) they are not tethered and have enough room to turn around, lie down, stretch out when lying down, get up, rest and groom themselves;
b) individual pens are designed and located so that each calf can see, smell and hear other calves;
c) individual pens have an area of at least 2.5 m² (8 ft²) and a minimum width of 1.5 m (5 ft);
d) outdoor hutches shall have access to an enclosed yard or run.

6.10.3.6 Calves shall be group-housed after weaning.

6.10.3.7 Dairy replacement calves over nine months of age shall have access to pasture, as appropriate for the season.

6.10.4 Sheep and goat housing

6.10.4.1 Minimum indoor and outdoor space requirements are as follows:

<table>
<thead>
<tr>
<th>Indoor Space</th>
<th>Outdoor Runs and Pens</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5 m² (5 ft²)/head + 0.35 m² (1.15 ft²)/head for each additional lamb/kid</td>
<td>2.5 m² (8 ft²)/head + 0.5 m² (1.6 ft²)/head for each additional lamb/kid</td>
</tr>
</tbody>
</table>

6.11 Additional requirements for poultry

6.11.1 The operator shall establish and maintain poultry living conditions that accommodate the health and natural behaviour of poultry as follows:
a) the keeping of poultry in row, battery, enriched or colony cages, is prohibited;
b) flock size shall be limited to 10,000 birds. More than one flock may be in the same building if flocks are separated by a solid wall and have separate runs;
c) If major renovation of barns on existing operations is required in order to comply with Subsection 6.11.1 b), operators are granted an exemption that permits the use of existing infrastructure until August 1, 2021, provided that a plan for the new construction or renovation is in place by August 1, 2016.

d) Poultry shall be reared in open-range conditions and have free access to pasture, open-air runs, and other exercise areas, subject to weather and ground conditions. Outdoor areas shall:

i) be free of prohibited substances for 36 months prior to their use;

ii) be covered with vegetation, seeded if necessary, and periodically left empty to allow vegetation to re-grow and to prevent disease build-up. To facilitate rodent control, a vegetation-free perimeter, around poultry houses, is permitted;

iii) provide protection from predators and be managed in a way that encourages use by the birds.

e) In an emergency situation, when outdoor access results in an imminent threat to the health and welfare of poultry, access may be restricted. Outdoor access shall resume when the imminent threat ends. Producers shall document periods of confinement.

f) Operators shall have an organic plan that describes outdoor access and how they will protect birds from disease and predators.

g) Layers may be confined during onset of lay, that is, until peak production is reached. The laying flock shall have outdoor access for a minimum one-third of its laying life.

h) Pullets may be kept indoors until they are fully immunized.

i) Barn-raised meat chickens shall have outdoor access on a daily basis by 25 days of age. If meat chickens are placed on pasture, in shelters without indoor access, they shall be on pasture by 4 weeks of age, unless weather conditions endanger the health or safety of the birds. Turkeys shall have outdoors access by 8 weeks of age.

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

6.11.3 Layers shall have access to an adequate number of nests as recommended by best management practices.

6.11.4 Perch area of at least 18 cm (7 in)/hen shall be provided for layers. Perch area may include raised perches, nest rails and raised floors.

6.11.5 Birds shall have sufficient exits to ensure that all birds have ready access to the outdoors. Exits shall:

a) allow passage for more than one bird at a time; and

b) be distributed along the length of the barn with a minimum total combined width equivalent to the number obtained by calculating 0.25% of the area of all useable floor levels. [For example, the minimum total combined exit width required for a facility of 2000 m² (6562 ft²) is 5 m (16.4 ft), when the width of all exits are added up].

6.11.6 Litter shall be provided and kept dry. Houses with slatted floors shall have a minimum of 30% solid floor area with sufficient litter for dust bathing, scratching and foraging.

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6.11.7 Poultry shall have access to an adequate number of waterers and feeders as recommended by best management practices.

6.11.8 Natural light shall be provided for poultry housed indoors. The total window area shall be no less than 1% of the total ground-floor area. If day length is artificially prolonged, the total duration of light shall not exceed 16 hours, followed by 8 hours of continuous darkness, and shall be terminated by gradual reduction of light intensity. The following exceptions are permitted and shall be documented:

a) periods of increased lighting are permitted due to stage of production, for example, arrival of chicks and turkey poults;

b) decreased lighting intensity is permitted due to animal welfare concerns, for example, outbreaks of cannibalism.

6.11.9 The maximum indoor and outdoor densities are as follows:

<table>
<thead>
<tr>
<th></th>
<th>Indoors</th>
<th>Outdoor runs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Layers</td>
<td>6 birds/m² (3.3 ft²)</td>
<td>4 birds/m² (3.3 ft²)</td>
</tr>
<tr>
<td>Pullets 0-8 weeks</td>
<td>24 birds/m² (3.3 ft²)</td>
<td>--</td>
</tr>
<tr>
<td>Pullets 9-18 weeks</td>
<td>15 birds/m² (3.3 ft²)</td>
<td>--</td>
</tr>
<tr>
<td>Broilers</td>
<td>21 kg/m² (3.3 ft²)</td>
<td>21 kg/m² (3.3 ft²)</td>
</tr>
<tr>
<td>Turkeys/large birds</td>
<td>26 kg/m² (3.3 ft²)</td>
<td>17 kg/m² (3.3 ft²)</td>
</tr>
</tbody>
</table>

6.11.10 Multi-level aviary systems for layers shall have no more than three levels or tiers above ground level. Total floor space, for calculation of solid-floor area and bird density requirements, shall include all usable floor levels (see Subsections 6.11.6 and 6.11.9). If winter gardens are used to provide required scratching areas, they shall be accessible year-round.

6.11.11 For pasture-based operations with mobile units, stocking density shall be no more than 2000 layers/ha (800 layers/ac), 2500 broilers/ha (1000 broilers/ac) or 1300 large birds (turkeys/geese)/ha (540 large birds/ac) based on the total amount of land used for rotational poultry pasture. Mobile units shall be moved daily, whenever possible, and at least once every 4 days taking into consideration the impact on the birds and on the land. Density within the mobile unit shall correspond to the indoor densities in Subsection 6.11.9.

6.11.12 Buildings shall be emptied, cleaned and disinfected, between flocks, and runs shall be left empty to allow the vegetation to grow back.

6.12 Additional requirements for rabbits

6.12.1 If required for comfort and security, rabbits may be temporarily confined, overnight, for example, in cages or hutches. Continuous confinement is prohibited.
6.12.2 The use of mobile pasture pens is permitted, provided pens do not restrict natural behaviour and they are moved at least once every 3 days.

6.12.3 Rabbits shall have space to run, hop and dig, and to sit upright on their back legs with ears erect. The minimum indoor and outdoor space requirements are as follows:

<table>
<thead>
<tr>
<th></th>
<th>Indoor Space</th>
<th>Outdoor – runs and concrete exercise areas</th>
<th>Outdoor – pasture</th>
<th>Mobile Pens</th>
</tr>
</thead>
<tbody>
<tr>
<td>From Weaning to slaughter</td>
<td>0.3 m² (1 ft²)/head</td>
<td>2 m² (6.5 ft²)/head</td>
<td>5 m² (16.4 ft²)/head</td>
<td>0.4 m² (1.3 ft²)/head</td>
</tr>
<tr>
<td>Pregnant does</td>
<td>0.5 m² (1.6 ft²)/head</td>
<td>2 m² (6.5 ft²)/head</td>
<td>5 m² (16.4 ft²)/head</td>
<td>0.5 m² (1.6 ft²)/head</td>
</tr>
<tr>
<td>Does and litters</td>
<td>0.7 m² (2.3 ft²)</td>
<td>2 m² (6.5 ft²)</td>
<td>--</td>
<td>0.4 m² (1.3 ft²)/head in shelter 2.4 m² for grazing area</td>
</tr>
<tr>
<td>Bucks</td>
<td>0.3 m² (1 ft²)/head</td>
<td>2 m² (6.5 ft²)/head</td>
<td>5 m² (1.6 ft²)/head</td>
<td>0.4 m² (1.3 ft²)/head</td>
</tr>
</tbody>
</table>

6.12.4 Rabbits shall not be subjected to continuous lighting or kept in permanent darkness. During the day, rabbits shall be able to clearly see each other and their surroundings.

6.12.5 Does about to give birth shall be given secluded individual burrows or nest boxes for kindling (birthing).

6.12.6 The doe and litter shall have free access to range and foraging areas once the kits reach 21 days of age.

6.12.7 Weaning before the kits are 30 days of age is prohibited. However, if the welfare of the doe or kits is compromised, earlier weaning is permitted.

6.13 Additional requirements for pigs and farm-raised wild boar

6.13.1 The number of animals on a production unit shall reflect the size of the available land-base, that is, land that is owned, leased and available for spreading their manure; based on a balance between animal units, feed production and manure management. Farrow to finish operators shall not exceed 2.5 sows/ha (2 sows/ac).

6.13.2 Pigs shall have access to outdoor exercise areas. Outdoor areas may include woodlands, or other natural environments. Access to pasture is recommended but not mandatory. Pasture management guidelines apply to all outdoor areas [see Subsection 6.7.1 j)].

6.13.3 Sows and gilts shall be kept in groups, with the following exceptions:
a) individual pens are permitted for the protection of females during estrus, or for other health reasons, for a period of up to 5 days;
b) sows may be individually housed in a pen [7.5 m²/sow (24.6 ft²/sow) with litter] for up to 5 days prior to farrowing and during the suckling period;
c) if needed for piglet protection during the suckling period, sow restraint is permitted for a maximum of 3 days. Sows may be restrained for a shorter period to protect the operator during piglet processing or pen cleaning;
d) the use of farrowing crates as a means of restraint is prohibited.

6.13.4 Piglets shall not be weaned before 4 weeks of age. However, if the welfare of the sow and piglets is compromised, earlier weaning is permitted.

6.13.5 Piglets shall not be kept on flat decks or in cages.

6.13.6 If there is visual and tactile contact with other pigs, boars may be housed in individual enclosures.

6.13.7 Indoor and outdoor exercise areas shall permit rooting.

6.14 The use of nose rings is prohibited.

6.14.1 The minimum indoor and outdoor space requirements are as follows:

<table>
<thead>
<tr>
<th></th>
<th>Indoor Space</th>
<th>Outdoor Runs and Pens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sow and piglets (up to 40 days old.)</td>
<td>7.5 m² (24.6 ft²) for each sow and litter</td>
<td>Not required</td>
</tr>
<tr>
<td>Growing pigs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. up to 30 kg (66 lb)</td>
<td>0.6 m² (2 ft²)/head</td>
<td>0.4 m² (1.3 ft²)/head</td>
</tr>
<tr>
<td>b. 30–50 kg (66–110 lb)</td>
<td>0.8 m² (2.6 ft²)/head</td>
<td>0.6 m² (2 ft²)/head</td>
</tr>
<tr>
<td>c. 50–85 kg (110–187 lb)</td>
<td>1.1 m² (3.6 ft²)/head</td>
<td>0.8 m² (2.6 ft²)/head</td>
</tr>
<tr>
<td>d. &gt;85 kg (187 lb)</td>
<td>1.3 m² (4.3 ft²)/head</td>
<td>1.0 m² (3.3 ft²)/head</td>
</tr>
<tr>
<td>Sows in group pens</td>
<td>3 m² (10 ft²)/head</td>
<td>3 m² (10 ft²)/head</td>
</tr>
<tr>
<td>Boars in individual pens</td>
<td>9 m² (30 ft²)/head</td>
<td>9 m² (30 ft²)/head</td>
</tr>
</tbody>
</table>
Specific production requirements section

7.1 Apiculture

7.1.1 An operator may introduce and manage bees on the enterprise for production benefits, such as the pollination of organic crops. If managed as a livestock species yielding organic apiculture products (e.g. honey, pollen, propolis, royal jelly, beeswax and bee venom), the operator shall manage bees in accordance with this standard.

7.1.2 The treatment and management of colonies shall respect the principles of organic production.

7.1.3 The sources of nectar, honeydew and pollen shall consist mainly of organically produced plants, spontaneous (wild) vegetation and non–genetically engineered crops not treated with substances prohibited by 1.4.

7.1.4 The management of bee health shall be based on appropriate measures such as selection of stock with disease-resistant traits, availability of suitable forage, and good apiary management practices.

7.1.5 When bees are placed in wild areas, impact on the indigenous insect population shall be considered.

7.1.6 An operator of an organic apicultural enterprise shall prepare an organic plan providing a detailed description of the sources of bees and production methods. The plan shall include a description of colony management for diet, disease, pests, breeding and related problems with production, in accordance with this standard. The operator shall also outline the details of crop management practices, where applicable.

7.1.7 Transition

7.1.7.1 Products from an organic apiculture operation in accordance with this standard shall be from colonies that have been under continuous organic management for not less than one year. During this period all non-organic wax shall be replaced by organically produced wax.

7.1.7.2 When no substances prohibited by 1.4, and no substances not listed in CAN/CGSB-32.311, are used in the hive the year before the colonies are under continuous organic management, the replacement of wax is not necessary. However all products, such as wax, that are produced before the colonies are under continuous organic management, shall be considered non-organic.

7.1.7.3 Colonies and hives shall not be rotated between organic and non-organic management systems, except for colonies that have undergone a one-year transition after isolation and antibiotic treatment as described in 7.1.14.7.

7.1.8 Introduced 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. Replacement colonies for the organic beekeeping operation shall be produced
within that operation or shall be established organic colonies supplied from another established organic beekeeping operation.

7.1.9 Location of hives

7.1.9.1 Apiaries shall be separated by a buffer zone of 3000 m where sources or zones of substances prohibited by 1.4, or agricultural crops treated with substances not listed in CAN/CGSB-32.311 (i.e. genetic engineering or environmental contamination), are present.

a. fertilizers, with the exception of sewage sludge are allowed within the buffer zone.
b. the 3000 m buffer zone may be reduced if the hives are separated from prohibited substances by natural features, such as forest, hills or waterways, that would restrict the likelihood of bee travel, and if there is sufficient organic forage available to the hives.

7.1.10 Forage and feeding

7.1.10.1 Organic honey and pollen shall be the major foodstuff for adult bees, and maintained in adequate supplies in the colony, including leaving colonies, with reserves of honey and pollen sufficient for the colony to survive the dormancy period.

a. The feeding of colonies can be undertaken to overcome temporary feed shortages owing to climatic or other exceptional circumstances. Feeding shall be carried out only between the last honey harvest and 15 days before the start of the next nectar or honeydew flow-period.
b. In such cases, organically produced honey or sugars shall be used. Non-organic refined sugars may be used when the health of the colony cannot be maintained with the use of organically produced honey or sugars.

7.1.10.2 Organically and non-organically produced honey or sugars shall not be provided less than 30 days before the harvest of honey.

7.1.11 Colony management

7.1.11.1 Hives shall be individually identifiable (marked) and shall be monitored regularly (i.e. at one- to two-week intervals, depending upon the colony, weather conditions and time of year).

7.1.11.2 Records shall be maintained in accordance with this standard that document all apiary management activities, including removal of supers and extraction of honey.

7.1.11.3 Clipping of wings on queen bees is prohibited.

7.1.11.4 Bees shall be removed from hives with bee escape-boards, shaking, brushing and forced-air blowers.

7.1.11.5 Synthetic materials in bee smokers are prohibited in accordance with 1.4.

7.1.11.6 Annual destruction of bee colonies following nectar flows is prohibited.

7.1.12 Hive construction
7.1.12.1 Hives shall be constructed of natural materials, including wood and metal. Pressure-treated lumber or particleboard, wood preservatives and lumber treated with substances not in accordance with this standard shall not be used in hive construction or maintenance.

7.1.12.2 Exterior surfaces of the hive shall be painted only with non-lead-based paints.

7.1.12.3 Plastic foundation, if dipped in organic beeswax, is permitted.

7.13 Health care

7.13.1 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.

7.13.2 The operator shall promote strong healthy colonies, including uniting weaker albeit healthy colonies, renewing queens if necessary, maintaining adequate hive density, inspecting colonies systematically and relocating diseased colonies to isolated areas.

7.14 Disease and pest management

7.14.1 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.

7.14.2 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.

7.14.3 Comb foundation shall be obtained from beeswax of the enterprise apiary or from other organic sources in accordance with this standard, where commercially available.

7.14.4 The operator shall use management methods or modified equipment to control pests and diseases.

7.14.5 Botanical compounds may be introduced into the hive provided that such remedies are in accordance with this standard and are not used within 30 days of nectar flow or whenever honey supers are on the hive.

7.14.6 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.

7.14.7 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 7.1.14.8. Treated hives shall be placed in isolation and undergo a one-year transition period. All the wax shall be replaced with wax that is in accordance with this standard, and all veterinary treatments shall be clearly documented. Before such treatments,
the hive shall be removed from the foraging area and taken out of organic production to prevent the spread of antibiotics within the apiary.

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

7.1.15 Extraction, processing and storage

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

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

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

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

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. Reference to Section 8.2.

7.1.15.8 Organic honey products shall not be produced from a hive or colony treated with substances prohibited by 1.4.

7.2 Maple products

7.2.1 The standards for maple production also apply to birch syrup production.

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

7.2.3 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.

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

7.2.6 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.

7.2.7 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.

7.2.8 The cleaning of equipment used in syrup production including the collection system, pipes and tanks shall take place before and after every production season.

7.2.9 Transition

7.2.9.1 This standard shall be fully applied on a production unit for at least 12 months before the harvest of maple sap can be considered organic. Substances prohibited by 1.4. and substances not listed in CAN/CGSB-32.311 Section 4, such as unapproved fertilizers or synthetic pesticides used in forest management, shall not have been used in the sugar bush for at least 36 months preceding the first harvest. Any parallel production is prohibited.

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

7.2.10 Sugar bush development and maintenance

7.2.10.1 Plant diversity — Producers shall encourage species diversity in the sugar bush, in particular companion species to the sugar maple. Companion species should represent a minimum of 15% of the volume of wood within the sugar bush. The growth of these companion species shall be encouraged if they represent less than 15% of the volume of wood. It is prohibited to systematically clear undergrowth and brush, even when they are very abundant. This vegetation may however be cut in order to clear paths and to facilitate movement.

7.2.10.2 Thinning — When it is necessary, or when required by the administrator of the forest, thinning of the sugar bush shall be performed according to good forest management practices currently existing both in private and public forest and be well distributed throughout the sugar bush.

7.2.10.3 Tree protection — To preserve plant diversity and the growth of young trees, access to the sugar bush by farm animals that could harm the trees (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.
7.2.10.4 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.

7.2.10.5 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.

7.2.11 Tapping

7.2.11.1 Tree diameter and number of taps — Table 1 indicates the maximum number of taps that a healthy maple can support, based on its chest height diameter (C.H.D.). C.H.D. is the tree's diameter measured at a height of 1.3 m above the soil surface. No maple can receive more than three tapholes.

<table>
<thead>
<tr>
<th>Diameter Measured at a Height of 1.3 m Above the Soil Surface</th>
<th>Maximum Number of Taps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 20 cm</td>
<td>0</td>
</tr>
<tr>
<td>20 to 40 cm</td>
<td>1</td>
</tr>
<tr>
<td>40 to 60 cm</td>
<td>2</td>
</tr>
<tr>
<td>60 cm or greater</td>
<td>3</td>
</tr>
</tbody>
</table>

7.2.11.2 Depth and diameter of tapholes — The depth of tapholes shall be no more than 4 cm, not counting the bark, or 6 cm, if the measurement is made from the surface of the bark. Taphole diameters shall not be greater than 11 mm. When a tree is diseased, has been attacked, is decaying or when its tapholes are healing badly, taphole standards shall then be stricter. The number of taps per tree shall then be reduced to 2 when this standard allows 3, and to 1 when 2 are allowed, and it is prohibited to make tapholes when the C.H.D. is less than 25 cm (~9 7/8 in.). If the trees in the sugar bush are largely affected, then the regular tapping standards apply but with using spouts of a reduced diameter or by not tapping the trees in the affected area.

7.2.11.3 Disinfection of tapholes and tapping equipment — The use of any type of germicide, including paraformaldehyde tablets, or denatured alcohol (a mixture of ethanol and ethyl acetate), in tapholes and on tapping equipment, is prohibited. Only food-grade ethyl alcohol may be used as a disinfectant during tapping by sprinkling it on spouts and on drill bits only.
7.2.11.4 Over tapping and removal of spouts — Double tapping — the practice of retapping a previously tapped tree during the same season — is prohibited. Spouts shall be removed from the trees no later than 60 days following the year's final sap flow in order to allow the trees to heal. Renewing the tap, — retapping the same hole during the production season —, is allowed if the taphole diameter is not changed. The tapping of maple trees at any other time than the sugar bush operation period (maple syrup season) is forbidden.

7.2.12 **Collection and storage of maple syrup**

7.2.12.1 Spouts — Only the use of spouts made of food-grade materials is permitted.

7.2.12.2 Vacuum collection system— All parts of the collection system that might come in contact with the sap shall be made with materials suitable for use in the manufacture of a food product. Pumps shall be well maintained and their used oil shall be collected and disposed so as to not contaminate the environment.

7.2.12.3 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. For new installations or replacement purposes, stainless steel storage tanks with tin-lead soldered joints are prohibited.

7.2.12.4 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.

7.2.13 **Conversion of sap to syrup**

7.2.13.1 Sap filtration — Sap shall be filtered before processing. This filtration shall not take away the sap's inherent qualities.

7.2.13.2 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.

7.2.13.3 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.

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

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

7.2.13.5 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 that have an allergenic potential.

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

7.2.13.7 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, fiberglass, food-grade plastic or metal with a food-grade coating inside. The reuse of single-use barrels is prohibited. All barrels shall carry a unique number, with a corresponding entry appearing in the record books of the producer. The date of fill-up shall also be recorded.

7.2.14 Cleaning of equipment intended for use with syrup production

7.2.14.1 Maple sap collection system, tubing and tanks — Cleaning of the collection system, tubing and tanks shall take place before or after each production season. When operators need to carry out sanitizing operations in addition to cleaning, the products authorized include:

a. in season: sodium hypochlorite followed by rinsing with potable water or a filtrate for all equipment except the tubing;

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

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

7.2.14.2 Osmosis Extraction and Membranes — The reverse osmosis unit and membranes shall first be cleaned using filtrate, according to the time and temperature recommended by the unit’s manufacturer.

a. Cleaning during production season

i. If a Pure Water Permeability (PWP) test indicates that the membrane’s controlled efficiency is less than 85% of the controlled efficiency recorded at the beginning of the season, a biodegradable caustic soda-based soap (NaOH) recommended by the unit’s manufacturer for membrane cleaning is allowed.

ii. If after the use of a biodegradable NaOH-based soap the PWP test stays below 75% of the efficiency recorded at the beginning of the season, the use of citric acid is authorized for cleaning.
iii. At the end of a cleaning or a sequence of cleaning with authorized substances, the volume of clean water used to rinse the unit shall be greater than or equal to 40 times the dead (residual) volume of the unit, meaning the total volume of the unit and its components once drained.

iv. The daily efficiency readings and calculations shall be recorded in a logbook. The membrane flushing water shall be disposed of in a manner that causes no harm to the environment.

b. Cleaning after production season

Off-season treatment of membranes with citric acid is permitted. Following the citric acid treatment, the use of acetic acid, peracetic acid, and hydrogen peroxide is allowed.

7.2.14.3 Evaporators — Evaporators may be cleaned with potable water or with filtrate at any time. Vinegar or fermented sap may be used at end of season.

7.2.14.4 Prohibited products — Products other than those specified in 7.2.14.1 and 7.2.14.3 are prohibited, including those with phosphoric acid content.

7.2.15 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.

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

7.3 Mushroom production

All relevant paragraphs of CAN/CGSB-32.310, shall apply where this standard has no specific requirement including Section 0(5.1.2, 0, 5.1.5, and for outdoor production 5.1.3 and 5.1.4).

7.3.1 Production sites and structures

7.3.1.1 For organic mushrooms or mushroom products, the operator shall manage production units in a manner that ensures the substrates and mushrooms are not in contact with substances prohibited by 1.4. Substrates shall be produced in accordance with this standard:

a. The operator shall ensure that no substances prohibited by 1.4. will come into contact and compromise the integrity of the organic crop for indoor facilities especially when coming into organic production;

b. For mushrooms grown in soil, The operator shall ensure that substances prohibited by 1.4. and substances not listed in CAN/CGSB-32.311, have not been used for at least 36 months before the harvest of any organic crop,
c. For new installations or replacement purposes, the operator shall ensure that only lumber that has not been treated with substances prohibited by 1.4. is used in structures or containers or other surfaces in contact with growth substrate or mushrooms.

7.3.2 Substrates and growth medium

7.3.2.1 Wood substrates - Logs, sawdust or other wood-based materials used as substrates in mushroom production shall be derived from wood originating from trees or logs that have not been treated with substances prohibited by 1.4. and that have not been treated post-harvest with substances prohibited by 1.4.

7.3.2.2 Manure - Manure used in a growth substrate (including any non-organic agricultural substances that this manure contains) shall come from sources in accordance with this standard (i.e. 5.1.1), and shall be composted according to the composting requirements for soil amendments as outlined in CAN/CGSB-32.311 before being used in mushroom production.

7.3.2.3 Other agricultural substances - Agricultural substances such as straw, hay or grains used as growth substrate shall come from sources in accordance with this standard. When organic straw or other organic agricultural substances are not commercially available, the operator may use non-organic forms of these substances provided that they are composted according to the composting requirements for soil amendments as outlined in CAN/CGSB-32.311. If they are to be used in the production without being composted first, only organic sources of these substances are permitted.

7.3.3 Spawn

7.3.3.1 The operator shall use organic spawn (seed). Spawn grown or treated only with substances in accordance with the standard may be used provided that organically produced spawn:

a. is not available from that enterprise;

b. is not commercially available, and a reasonable search involving potential, known organic suppliers has been conducted.

7.3.4 Pest control and sanitation

7.3.4.1 Precautions shall be taken to prevent disease including the removal of diseased materials and sanitation using substances included in CAN/CGSB-32.311. As preventive measures, where applicable, the operator shall ensure:

a. That cultivation sites are free of debris from understorey and diseased trees;

b. That diseased mushroom strains are either burned, moved at least 50 m from a production site (e.g. if the diseased logs are kept for study), or moved to an acceptable disposal area.

b. 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 Sprouts shoots and micro-greens production (references to 7.5?)

7.4.1 Section 7.4 pertains to crops that are harvested generally within 30 days after imbibition, either with their roots attached (i.e. sprouts) or cut from their roots (i.e. shoots and micro-greens).
7.4.2 Sprouts, shoots and micro-greens produced in water

7.4.2.1 The operator shall use only organic seeds.

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

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

7.4.2.4 Fertilizers shall not be added at any stage of growing and harvest.

7.4.2.5 Substances used for cleaning or sanitizing seeds and harvested products shall be limited to the substances for this purpose in CAN/CGSB-32.311.

7.4.2.6 Substances used for cleaning and maintenance of equipment shall be limited to the substances included in CAN/CGSB-32.311 Tables 7.3 and 7.4.

7.4.3 Shoots and micro-greens produced in soil

7.4.3.1 Subsections 7.4.2.2, 7.4.2.3, 7.4.2.5, and 7.4.2.6 also apply to the production of shoots and micro-greens produced in soil.

7.4.3.2 All of section 7.5 apply to shoot and micro-greens produced in soil, whether then are grown in a growth chamber, a greenhouse or other sheltered structure, or outdoors.

7.5 Greenhouse crops production

7.5.1 The operator shall manage soil and crop production units with an in-ground permanent soil system or with a container system with soil free of substances prohibited by 1.4. In-ground permanent soil systems shall be free of substances prohibited by 1.4. for 36 months before use. The operator shall totally abstain from using hydroponics and aeroponics.

Note The Canadian Organic Products Regulations require operators to document that they have not used substances prohibited by this standard and substances not listed in CAN/CGSB-32.311. The Organic Products Regulations also require that, in the case of an initial application for an organic certification of crops grown in greenhouses with an in-ground permanent soil system, the application for certification must be filed 15 months before the day on which the product is expected to be marketed. During that period of time, compliance to (or with) this standard will be assessed by the certification body, and this assessment must at least include one inspection of the production unit during production in the year before crops grown in greenhouses with an in-ground permanent soil system may be eligible for certification and one inspection during production in the year crops grown in greenhouses with an in-ground permanent soil system are eligible for certification. This requirement does not apply for greenhouses built on land that is part of an existing organic operation.
7.5.2 For crops grown in a container system, with the exception of transplants, the operator shall ensure that the soil constantly provides nutrients to the plants. The soil shall contain a mineral fraction (sand, silt or clay) and an organic fraction. It shall support life and ecosystem diversity in the soil.

7.5.3 For containerized staked crops (e.g., tomatoes, sweet peppers, cucumbers, eggplant):
   a. The soil total volume shall contain at least 10% compost at the start.
   b. Compost shall be included in the fertilization program;
   c. Containers shall be at least 30 cm high;
   d. The soil volume shall be at least 70 l/m², based on the greenhouse’s total area.

7.5.4 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.

7.5.5 Plants and soil, including potting soil, shall not be in contact with substances prohibited by 1.4., including wood used for greenhouse structures or frames of raised beds treated with such substances.

7.5.6 The operator shall:
   a. use reusable and recyclable pots and flats whenever possible;
   b. use only substances listed in section 4 of CAN/CGSB-32.311;
   c. disinfect holding or storage facilities and equipment using only substances listed in CAN/CGSB-32.311.

7.5.7 Full-spectrum lighting is permitted.

7.5.8 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. substances listed in CAN/CGSB-32.311
      ii. control of daily temperature and light levels;
   d. prevent damping-off:
      i. low-temperature baking
      ii. hot-water treatment
      iii. steam treatment.

7.5.9 For the prevention and control of disease, insects or other pests, the following procedures are allowed:
   a. 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  
f. Biological control methods.

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

7.6 Wild crops

7.6.1 An organic wild plant product shall be harvested from a clearly defined production area having documentation that no substances prohibited by 1.4. have been applied for a period of three years immediately preceding the harvest of the wild crop.

7.6.2 The operator shall:

a. draw up a detailed description of harvested areas and the history of compliance with this standard over the past three years,

b. draw up a description of harvest methods used,

c. propose protection measures for wild species that will prevent disturbance of the environment.

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

7.6.4 The production zone for wild crops shall be isolated from contact with substances prohibited by 1.4. by a clearly defined buffer zone (see 5.1.3). The harvest sites shall be situated more than one (1) kilometer from potential contamination sources, such as golf courses, dumps, sanitary landfill sites and industrial complexes that could be a source of environmental pollution.

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

7.7 Organic Bugs

7.7.1 Place holder for future bugs section
8 Maintaining Organic Integrity during Cleaning, Preparation, and Transportation

Section 8 applies to all operations that handle, store and transport organic products for production and processing. A central objective, during these activities, is to maintain the inherent organic qualities of the product through strict adherence to the procedures and principles of this standard. Operators are responsible for maintaining organic integrity at all points of the market supply chain, from production through point of sale to the final consumer.

8.1 Maintaining Integrity

8.1.1 Materials in contact with food shall be clean and of food-grade quality.

8.1.2 Incidental additives shall not compromise organic integrity:

a) hand sanitizer substances, if used in direct contact with organic products, shall be listed in Table 7.3 of CAN/CGSB-32.311.

b) culinary steam, that is, steam used in direct contact with organic products or packaging, shall only contain:

i) substances listed in Tables 6.3-6.6 of CAN/CGSB-32.311; and/or

ii) food-grade cleaners, disinfectants and sanitizers authorized for organic product contact in Table 7.3 of CAN/CGSB-32.311.

c) food-contact lubricants shall be listed in Subsections 6.3-6.5 of CAN/CGSB-32.311.

d) use of cleaners, disinfectants and sanitizers shall comply with the requirements of Subsection 8.2 of CAN/CGSB-32.310.

8.1.3 Processing methods, whether mechanical, physical or biological (for example, fermentation and smoking), shall protect and maintain organic product integrity.

8.1.4 To prevent commingling, organic products shall be segregated or otherwise protected from non-organic products at all times, for example, during processing, storage, bulk and unbound stages.

8.1.5 If a production unit prepares both organic and non-organic products:

a) organic and non-organic products shall not be mixed at any stage of preparation; and

b) every measure shall be taken to ensure that the organic and non-organic identity of finished product is maintained; and

c) operators shall document removal events used to prevent cross-contamination of organic and non-organic production runs; and

d) preparation of organic products shall be carried out continuously until the run is complete; and

e) organic runs shall be separated by place or time from similar preparation of non-organic products; and

f) organic runs shall be planned in advance to prevent commingling.

8.1.6 Organic product packaging shall:

a) maintain organic product quality and integrity; and
b) be minimal, that is, consistent with Subsection 8.1.66 a). Packaging materials that minimize harm to the environment throughout their life cycle are preferred; and

c) comply with prohibitions in Subsection 1.4 a), b) and k).

8.2 Cleaning, Disinfecting and Sanitizing

8.2.1 Food-grade cleaners, disinfectants and/or sanitizers listed in Table 7.3 of CAN/CGSB-32.311 may be used, if they are used as specified in their annotation:

a) on organic product contact surfaces, which include equipment, storage and transport units; and/or

b) in direct contact with organic products.

8.2.2 If substances in Table 7.3 are ineffective, cleaners, disinfectants and/or sanitizers listed in Table 7.4 of CAN/CGSB-32.311 may be used on organic product contact surfaces provided that documentation demonstrates:

a) they are used as annotated; and

b) removal event(s) have eliminated the substance(s) from organic product contact surfaces prior to organic production.

8.2.3 If substances in Table 7.4 are ineffective, other cleaners, disinfectants and/or sanitizers may be used on organic product contact surfaces, provided that documentation demonstrates:

a) the efficacy of the alternative substance(s); and

b) removal event(s) have eliminated the alternative substance(s) from organic product contact surfaces prior to organic production; and

c) that effluent discharge was neutralized to minimize negative impact on the environment.

8.2.4 Specific cleaning, sanitation and disinfection requirements in Section 7 of CAN/CGSB-32.311 supersede Subsection 8.2.

8.3 Facility Pest Management

8.3.1 Good production and manufacturing practices shall be adopted to prevent pests. Pest management practices shall involve the following, in descending order:

a) the removal of pest habitat and food;

b) the prevention of access and environmental management (for example, light, temperature and atmosphere), to prevent pest intrusion and reproduction;

c) mechanical and physical methods, for example, traps;

d) lures and repellents as listed in Table 8.3 of CAN/CGSB-32.311.

8.3.2 If the practices enumerated in Subsection 8.3.1 are ineffective, the operator may use pest control substances listed in Table 8.3 of CAN/CGSB-32.311. The operator shall record the target pests, substances used, start and end dates, and the location(s) of pest control devices.
8.3.3 If the practices enumerated in Subsection 8.3.2 are ineffective, alternative substances not listed in Table 8.3 of CAN/CGSB-32.311 may be used in preparation facilities, both on- and off-farm, if there is no risk to product status or integrity. If alternative substances are used indoors, the operator shall ensure that neither organic products nor the packaging materials for those products are present. Operators shall clearly document:

a) why permitted substances were not suitable or ineffective for pest management;

b) how contact of organic products with alternative substances was avoided;

c) all activities involved in the use, storage and disposal of alternative substances.

8.3.4 If pest and disease control substances that are not listed in Table 8.3 of CAN/CGSB-32.311 are used under any mandatory government program, operators shall monitor and document their use.

*Note: In the event of emergency pest or disease treatment, Canadian operators are required to notify their certification body, immediately, of any change that may affect organic product certification.*

8.4 Transportation

8.4.1 Every measure shall be taken to ensure that the integrity of organic inputs, ingredients and products is not compromised in transit. Physical segregation or other protection methods shall be used to avoid commingling or substitution with non-organic inputs, ingredients and products.

8.4.2 The following information shall accompany organic product:

a) the name and address of the person or organization responsible for the production, preparation or distribution of the product; and

b) the name of the product; and

c) the organic status of the product; and

d) information that ensures traceability, for example, the lot number.

8.4.3 Organic products shall not be exposed to pesticides or pest control substances that are not listed in Table 8.3 of CAN/CGSB-32.311 during any stage of transit or at border crossings.

8.4.4 *Note: Owners are responsible for the organic integrity of organic product while it is in transit. This includes the use of common carriers and custom hauling. Transport companies share responsibility for organic integrity while loading, transporting, or off-loading certified organic product.*
9 Organic Product Composition

Section 9 applies to all operations involved in organic product preparation and resale, including retailers who prepare product.

9.1 Product Composition

9.1.1 Organic product formulations shall minimize the use of non-agricultural ingredients, food additives and processing aids listed in Tables 6.3–6.5 of CAN/CGSB-32.311.

9.1.2 Evaluation and calculation of organic percentages shall account for all constituent ingredients or ingredient sub-parts, distinguishing between organic and non-organic components of each ingredient contained in the product.

9.1.3 The percentage of all organic ingredients in an organic product shall be calculated as follows:

a) Solid products (except livestock feed) – Divide the net mass, excluding water and salt, of all organic ingredients in the formulation or finished product, whichever is more relevant, by the net mass, excluding water and salt, of all ingredients.

b) Liquid products – If the product and its ingredients are liquid, 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 principal display panel uses phrases like “reconstituted from concentrates” to describe the product, single-strength concentrations of the ingredients or the finished product shall be used to calculate organic percentages.

c) Solid products and liquid Products – Divide the combined net mass of solid organic ingredients and the net mass of liquid organic ingredients, excluding water and salt, by the total mass, excluding water and salt, of all ingredients in the finished product.

d) Livestock feed shall contain 100% organic agricultural ingredients and necessary feed additives or supplements listed in Table 5.2 of CAN/CGSB-32.311. Divide the total net mass, excluding water, salt and calcium compounds, of combined organic ingredients in the formulation or the finished product, whichever is more relevant, by the total mass, excluding water, and salt and calcium compounds, of all ingredients.

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

9.2 Categorization of organic products

Based on the percentage of their organic Ingredients, organic products fall into two categories:

9.2.1 95% organic content (or more)

9.2.1.1 Such products may not contain an ingredient in both its organic and non-organic form.

9.2.1.2 Such products may contain:

a) up to 5% non-organic ingredients (NOIs), if the organic equivalent is not commercially available:
i) agricultural NOIs are subject to the requirements of Subsection 1.4 a) (ge), c) (irradiation) and h) (clone);
ii) non-agricultural NOIs are permitted, if they are listed in Tables 6.3 and 6.4 of CAN/CGSB-32.311.

b) permitted processing aids:
   i) non-organic processing aids of agricultural origin are permitted if the organic form is not commercially available;
   ii) non-organic processing aids of agricultural origin are subject to the requirements of Subsection 1.4 a) (ge), b) (nano), c) (radiation), and h) (clone), and any annotations listed in Table 6.5 (processing aids) of CAN/CGSB-32.311;
   iii) non-agricultural processing aids are permitted if they are listed in Table 6.5 of CAN/CGSB-32.311.

9.2.2 70-95% organic content (or more)

9.2.2.1 Such products may not contain an ingredient in both its organic and non-organic form.

9.2.2.2 Such products may contain:
   a) up to 30% non-organic ingredients (NOIs):
      i) agricultural NOIs are subject to the requirements of Subsection 1.4 a) (ge), c) (irradiation) and h) (clone);
      ii) non-agricultural NOIs are permitted if they are listed in Tables 6.3 – 6.4 of CAN/CGSB-32.311.
   b) Permitted processing aids:
      i) non-organic processing aids of agricultural origin are permitted if the organic form is not commercially available;
      ii) non-organic processing aids of agricultural origin are subject to the requirements of Subsection 1.4 a) (ge), b) (nano), c) (radiation), and h)(clone), and any annotations specified in Table 6.5 (processing aids) of CAN/CGSB-32.311;
      iii) non-agricultural processing aids are permitted if they are listed in Table 6.5 of CAN/CGSB-32.311.

Note: See table in Annex A for a summary of Section 9.
10 Procedures, criteria and conditions to amend CAN/CGSB-32.310 Organic Production Systems – Permitted Substances Lists

Section 10 applies to all proposed amendments to the Permitted Substances Lists (PSL). Only generic substances are listed in the PSL. Brand name substances, which may be a combination of generic substances, are not eligible for inclusion on the PSL. Section 10 does not apply to packaging materials, equipment surfaces, or other similar substances or materials.

10.1 Substance Review Procedures

10.1.1 Criteria provided in this section shall be the primary determinants for amending CAN/CGSB-32.311.

10.1.2 The substance review process shall be open, transparent and fully participatory according to CGSB procedures.

10.1.3 Consideration shall be given to the consequences a proposed amendment may have on equivalency and harmonization of this standard with standards and regulations of other jurisdictions.

10.2 Permitted Substance Criteria

10.2.1 Substances included in the Permitted Substances Lists shall be consistent with:

a) the general principles of organic production, that is, Subsection II of the Introduction to CAN/CGSB-32.310, and

b) the prohibitions set out in Subsection 1.4.

10.2.2 Substance reviews shall:

a) consider the necessity, origin and mode of production, and the social and ecological impact of the production and application of the substance; and

b) include a detailed description of the substance and a substantive rationale along with documentation in support of the proposed amendment; and

10.2.3 If applicable, the substance annotation shall include:

a) restrictions concerning its origin and mode of production; and

b) restrictions concerning its composition and usage; and

c) a commercial availability clause which allows for the use of a synthetic equivalent when the non-synthetic form of the substance is not available in sufficient quality or quantity, at the time of publication.

10.2.4 Exceptions to Subsection 10.2:

a) if a substance review confirms that a non-synthetic form of the substance is not available, a synthetic version may be approved as an exception.
b) if alternatives to synthetic substances are anticipated, the synthetic version may be permitted as a temporary exception. The temporary exception shall be noted in the annotation.

c) temporary exceptions shall be re-evaluated at each full review of the standards.

<table>
<thead>
<tr>
<th>10.3 Specific Substance Review Criteria</th>
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<tbody>
<tr>
<td><strong>10.4 SOIL AMENDMENTS AND CROP NUTRITION (Table 4.2 of CAN/CGSB-32.311)</strong></td>
</tr>
<tr>
<td>A. Necessity</td>
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<td>B. Origin and Mode of Production</td>
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<td>C. Impact</td>
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<td>Section</td>
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<tr>
<td>10.6 LIVESTOCK FEED (Table 5.2 of CAN/CGSB-32.311)</td>
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<tr>
<td>10.7 LIVESTOCK HEALTH CARE (Table 5.3 of CAN/CGSB-32.311)</td>
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<tr>
<td>A. Necessity</td>
</tr>
<tr>
<td>B. Origin and Mode of Production</td>
</tr>
<tr>
<td>C. Impact</td>
</tr>
</tbody>
</table>
### 10.8 FOOD INGREDIENTS AND PROCESSING AIDS (Tables 6.3-6.5 of CAN/CGSB-32.311)

#### A. Necessity
1. Shall be necessary to correct documented, essential, nutrient deficiencies of the product, that is, vitamins and minerals; or when required by regulations; and/or
2. Shall be essential for ensuring the safety of the product; or
3. Shall be used only when it is not feasible or practical to produce or store such products without the use of these substances; or
4. Shall be necessary to achieve a technological effect during processing (for example, filtration) or an organoleptic effect in the final product (for example, colouring and flavouring).

#### B. Origin and Mode of Production
1. Shall be found in nature. Substances may be produced using physical (for example, extraction, precipitation), enzymatic or microbial (for example, fermentation) processes, as well as through chemical extractions that do not alter the substance's chemical structure.
2. Preferably from organic sources.
3. If non-synthetic forms of these substances do not exist, synthetic substances may be considered.

#### C. Impact
Substance reviews shall consider the impact of use and potential misuse on:
1. Human health through both food and non-food exposure, including acute and chronic toxicity, allergenicity and metabolites;
2. Product quality, including nutrition, flavour, taste, appearance and storage, if applicable;
3. Consumer perception of the nature, substance and quality of a food product.
<table>
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<tr>
<th>10.9 CLEANING AND SANITATION SUBSTANCES (Tables 7.3 &amp; 7.4 of CAN/CGSB-32.311)</th>
<th>10.10 FACILITY PEST MANAGEMENT SUBSTANCES (Table 8.3 of CAN/CGSB-32.311)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Necessity</strong></td>
<td>Substances used for cleaning and sanitizing organic products and organic product contact surfaces shall be necessary and appropriate for the intended use.</td>
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<tr>
<td></td>
<td>Substances that are used in facilities as pest control shall be necessary and appropriate for the intended use.</td>
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<tr>
<td><strong>B. Origin and Mode of Production</strong></td>
<td>1. Shall be non-synthetic whenever possible.</td>
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<td>2. If non-synthetic forms of these substances do not exist, synthetic substances may be considered.</td>
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<tr>
<td><strong>C. Impact</strong></td>
<td>Substance reviews shall consider:</td>
</tr>
<tr>
<td></td>
<td>1. The impact of a substance’s manufacture and disposal after use on the environment including impacts on ecology, surface and ground water, and soil and air quality including substance persistence, degradation and concentration effects.</td>
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<tr>
<td></td>
<td>2. The impact of a substance’s use or potential misuse on soil quality (including biological diversity and activity, structure, salinity, sodicity, erodability and tilth), surface and ground water quality, ecosystems (in particular non-target organisms) including wildlife and wildlife habitat, and animal and human health.</td>
</tr>
</tbody>
</table>
11 Bibliography (informative)
11.1 Publications
11.1.1 Canadian Food Inspection Agency (CFIA)
11.1.1.1 Health of Animals’ Act (1990, c.21)
11.1.1.2 Health of Animals Regulations (C.R.C., c. 296).
11.1.1.3 Organic Products Equivalence Agreements
11.1.2 Health Canada
11.1.2.1 Pest Control Products Act (2002, c. 28).
11.1.3 Certified Organic Associations of British Columbia (COABC)
11.1.3.1 British Columbia Certified Organic Production Operation Policies and Management Standards.
11.1.4 Conseil des appellations réservées et des termes valorisants (CARTV)
11.1.5 Codex Alimentarius Commission
11.1.5.1 CAC/GL 20-1995 — Principles for Food Import and Export Certification and Inspection
11.1.6 International Federation of Organic Agriculture Movements (IFOAM)
11.1.6.1 IFOAM Norms for Organic Production and Processing.
11.1.7 U.S. Department of Agriculture, Agricultural Marketing Service, National Organic Program
11.1.7.1 NOP Regulations (Standards) & Guidelines, 7 CFR Part 205.
11.2 Sources of related publications
The following addresses were valid at the date of publication.
11.2.1 The publications referred to in 11.1.1.1, 11.1.1.2, and 11.1.2.1 may be viewed at website www.justice.gc.ca
11.2.2 The publication referred to in 11.1.3 may be viewed at website http://www.inspection.gc.ca/food/organic-products/equivalence-arrangements/eng/1311987562418/1311987760268
11.2.3 The publications referred to in 11.1.3 web site: www.certifiedorganic.bc.ca
11.2.4 The publications referred to in 11.1.4.1 may be obtained from web site www.cartv.gouv.qc.ca.

11.2.5 The publications referred to in 11.1.5.1 and 11.1.5.2 may be web site www.codexalimentarius.org

11.2.6 The publications referred to in 11.1.6.1 web site www.ifoam.org.

11.2.7 The publications referred to in 11.1.7.1 web site http://www.ams.usda.gov/AMSv1.0/nop
### Annex A
(informative)
Categorization of Organic Products

<table>
<thead>
<tr>
<th>Summary</th>
<th>Categories</th>
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<tbody>
<tr>
<td>Based on their percentage of organic ingredients, organic products fall into three categories:</td>
<td>&gt;95%(^a) (or more)</td>
</tr>
<tr>
<td>May not contain an ingredient in both its organic and non-organic form.</td>
<td>✓</td>
</tr>
<tr>
<td>May contain up to 5% non-organic ingredients if the organic form is not commercially available.</td>
<td>✓</td>
</tr>
<tr>
<td>May contain up to 30% non-organic ingredients.</td>
<td></td>
</tr>
<tr>
<td>May contain less than 70% organic ingredients.</td>
<td></td>
</tr>
<tr>
<td>Agricultural, non-organic ingredients are subject to the requirements of CAN/CGSB-32.310, Subsection 1.4 a) (ge), c) (irradiation) and h) (clone).</td>
<td>✓</td>
</tr>
<tr>
<td>Non-agricultural, non-organic ingredients are permitted if they are listed in Tables 6.3 and 6.4 of CAN/CGSB-32.311.</td>
<td>✓</td>
</tr>
<tr>
<td>If not commercially available in organic form, non-organic processing aids of agricultural origin are permitted, subject to the requirements of Subsection 1.4 a) (ge), b) (nano), c) (radiation), and h) (clone); and any annotations listed in Table 6.5 of CAN/CGSB-32.311.</td>
<td>✓</td>
</tr>
<tr>
<td>Non-agricultural processing aids are permitted if they are listed in Table 6.5 (processing aids) of CAN/CGSB-32.311.</td>
<td>✓</td>
</tr>
</tbody>
</table>

**Informative notes:**

\(^a\) Products compliant with 9.2.1 may be identified as organic.

\(^b\) Products compliant with 9.2.2 may only declare the percentage of organic ingredients.

\(^c\) Products with less than 70% organic content may identify which ingredients are organic in their ingredient list. For full labeling requirements refer to the Canadian Organic Products Regulations.
Historical Organic Principles

The principles listed below were the original principles published in 1999 and in 2006. Though they have been updated in the introduction of this standard, they have been retained in this annex to provide context for existing organic plans.

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 agriculture systems.
Annex C
(informative)
Guidelines and Codes of Practices