

# CGSB-32.310 Organic Production Requirements, August 2011 revision

## I. Description

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

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

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

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

## II. General Principles of Organic Production

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

The general principles of organic production include the following:

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

## III. Organic Practices

Neither this standard, nor organic products in accordance with this standard represent specific claims about the health, safety and nutrition of such organic products. Management methods are carefully selected in order to restore and then sustain ecological stability within the enterprise and the surrounding environment. Soil fertility is maintained and enhanced by promoting optimal biological activity within the soil and conservation of soil resources. Weeds, pests and diseases are managed using biological and mechanical control methods, and cultural practices, including minimized tillage. Crop selection and rotation are important for managing nutrient cycling, recycling of plant and animal residues, water management, augmentation of beneficial insects to encourage a balanced predator-prey relationship, and the promotion of biological diversity, and ecologically based pest management.

<sup>1</sup>: References throughout this document to "this standard" refer to CAN/CGSB-32.310, *Organic Production Systems — General Principles and Management Standards*.

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

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

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

In the development of the standard, it was recognized that differences between Canada's agricultural regions require varying practices to meet production needs. This standard is intended for certification and regulation to prevent deceptive practices in the marketplace. The certification of a process, rather than a final product, demands responsible action by all involved parties.

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

### **1. SCOPE**

1.1. Foods and other agricultural products shall refer to organic production methods only if they come from a farm system employing management practices that seek to nurture ecosystems in order to achieve sustainable productivity; and that provide weed, pest and disease control through enhancement of biodiversity, recycling of plant and animal residues, crop selection and rotation, water management, tillage and cultivation.

1.2. This standard applies to the following products:

- a. Unprocessed plants and plant products, livestock and livestock products, to the extent that the principles of production and specific verification rules for them are described in the standard
- b. Processed agricultural crop and livestock products intended for human consumption or use and derived from the items mentioned in par. 1.2 a.
- c. Livestock feed
- d. Processed agricultural crop and livestock products intended for animal consumption or use and derived from the items mentioned in par. 1.2 a.

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

#### **1.4. Prohibited Substances, Methods or Ingredients in Organic Production and Handling**

1.4.1. When producing or handling organic products, it is forbidden to use any of the following substances or techniques:

- a. All materials and products produced from genetic engineering as these are not compatible with the general principles of organic production and therefore are not accepted under this standard, except for vaccines only that have been grown on genetically engineered substrates but are not themselves a product of genetic engineering, as specified in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*
- b. Synthetic pesticides (e.g. defoliants and desiccants, fungicides, insecticides and rodenticides), wood preservatives (e.g. arsenate) or other pesticides, except as specified in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*
- c. Fertilizer or composted plant and animal material that contains a substance prohibited by par. 1.4.1 (and not included in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*)

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

## 2. REFERENCED PUBLICATIONS

See original standards.

## 3. DEFINITIONS AND TERMINOLOGY

3.1 The following definitions and terms apply in this standard:

### **Aeroponics**

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

### **Agricultural Product**

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

### **Agro-ecosystem**

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

### **Allopathic**

Using allopathy.

#### ***Allopathy***

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

### **Annual Seedling**

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

### **Antibiotic**

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

**Apiculture**

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

**Biodegradable**

Capable of biological decomposition into simpler biochemical or chemical components.

**Buffer Zone**

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

**Cloned Animals**

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

**Commercially Available**

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

**Commingling**

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

**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.

**Compost Tea**

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

**Crop Rotation**

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

***Perennial Crop***

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

**Feed Additive**

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

**Feed Supplement**

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

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

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

**Fertilizer**

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

**Food Additive**

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

### **Food Irradiation**

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

### **Forage**

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

### **Genetic Engineering**

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

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

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

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

### **Handling**

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

### **Herbivore**

An animal that feeds chiefly on plants.

### **Homeopathic**

Using homeopathy.

#### ***Homeopathy***

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

### **Hydroponics**

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

### **Ingredient**

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

### **Input**

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

**Livestock**

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

**Manure**

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

**Nanotechnology**

Nanotechnology is a field described generally as the control and structuring of matter at dimensions typically between 1 and 100 nm to create materials, devices and systems with fundamentally new properties and functions.

Nanoscale chemical substances, or nanomaterials, behave differently from their macroscale counterparts, exhibiting different mechanical, optical, magnetic and electronic properties.

**Non-synthetic**

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

**Nutrient Management Plan**

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

**Operator**

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

**Organic Integrity**

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

**Organic Product**

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

**Organic Production**

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

**Parallel Production**

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

**Pest**

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

**Pesticide**

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

**Planting Stock**

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

**Preparation**

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

**Processing Aids**

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

**Production Unit**

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

**Records**

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

**Sewage Sludge**

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

**Soil**

A mixture of minerals, organic matter and living organisms.

**Split Production–Split Operation**

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

**Synthetic Substance**

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

**Traceability**

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

**Transition**

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

**Transitional Period**

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

**Transplant**

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

**Veterinary Biologic**

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

**Veterinary Drug**

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

### **Wild Crop**

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

## **4. ORGANIC PLAN**

- 4.1 The operator of an enterprise shall prepare an organic plan outlining the details of transition, production, preparation, handling and management practices, in accordance with this standard.
- 4.2 The organic plan shall be updated annually to address changes to the plan or management system, problems encountered in executing the plan, and measures taken to overcome such problems.
- 4.3 The organic plan shall include a description of the internal record-keeping system, with documents sufficient to meet traceability requirements as specified in par. 4.4.1 and record-keeping requirements.
- 4.4 **Record Keeping and Identification** — The operator seeking to comply with this standard shall maintain records and relevant supporting documents concerning the inputs and details of their use, production, preparation, handling and transport of organic crops, livestock and products. The operator is responsible for maintaining the organic integrity of the product and shall fully record and disclose all activities and transactions in sufficient detail as to be readily understood; and sufficient to demonstrate compliance to this standard.
  - 4.4.1 Records shall make it possible to trace
    - a. the origin, nature and quantities of organic products, as stated within this standard, that have been delivered to the production unit;
    - b. the nature, quantities and consignees of products, as stated within this standard, that have left the production unit;
    - c. any other information, such as the origin, nature and quantities of ingredients, additives and manufacturing aids delivered to the unit, and the composition of processed products, for the purposes of proper verification of the operations in accordance with this standard.
  - 4.4.2 Records shall be maintained for not less than five years beyond their creation.
  - 4.4.3 An identification system shall be provided for distinguishing organic and non-organic crops, livestock (e.g. general appearance, colour, variety and types) and products.

## **5. CROP PRODUCTION**

### **5.1 Land Requirements for Organic Crop Production**

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

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

5.1.2 The enterprise shall aim at a complete transition of its production. During the transition period, the enterprise can maintain, in addition to the production in transition, a non-organic system of production (split operation) that shall be entirely separate and identified separately, pending its incorporation into the overall transition process.

The enterprise can be converted one unit at a time, and each converted unit shall respect the requirements of this standard. The exception to this norm, parallel production, is only allowed in the following cases: perennial crops (already planted), agricultural research facilities, production of seed, vegetative propagating materials and transplants. The following special conditions shall be observed for parallel production:

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

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

5.1.3 All production units shall have distinct, defined boundaries.

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

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

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

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

## 5.2 Environmental Factors

5.2.1 Measures shall be taken to minimize the physical movement of substances prohibited by par. 1.4.1 from neighbouring areas onto organic farmland and crops. Similarly, measures shall be taken to minimize the contamination of land and crops with such substances.

5.2.2 The use of posts or wood treated with materials other than those in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*, is prohibited.

- a. Continued use and recycling of existing (prohibited) posts within the farm are allowed.
- b. Acquisition of any additional material with these wood treatments is prohibited for new installations or replacement purposes. Exceptions may be granted in vast rangeland and semi-arid regions, and will consider the availability of alternate materials.

## 5.3 Seeds and Planting Stock

5.3.1 The operator shall use organic seed, bulbs, tubers, cuttings, annual seedlings, transplants and other propagules produced in accordance with this standard.

### 5.3.2 **Exceptions or Conditions**

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

- a. is not available from the enterprise;
- b. is not commercially available, and a reasonable search involving potential, known organic suppliers has been conducted.

5.3.2.2 Non-organic perennial planting stock may be used provided that the organic products were harvested after such plants have been maintained in accordance

with this standard for at least one year. The land on which the stock is planted shall meet the requirements in par. 5.1.1.

5.3.2.3 Plant varieties, seeds, seed inoculant, germ plasm, scions, rootstocks or other propagules developed through the use of genetic engineering are prohibited, in accordance with par. 1.4.1.

#### 5.4 Soil Fertility and Crop Nutrient Management

5.4.1 The main objective of the soil fertility and crop nutrient management program shall be to establish and maintain a fertile soil using practices that maintain or increase soil humus levels, that promote an optimum balance and supply of nutrients, and that stimulate biological activity within the soil.

5.4.2 The fertility and biological activity of the soil shall be maintained or increased, where appropriate, by:

- a. crop rotations, which shall be as varied as possible and include plough-down, legumes, catch crops or deeprooting plants;
- b. incorporating plant and animal matter that can be obtained from organic production in compliance with this standard and that include the following:
  - i. Composted animal and plant matter
  - ii. Non-composted plant matter, specifically legumes, plough-down crops or deep-rooting plants within the framework of an appropriate multiyear rotation plan
  - iii. Non-processed animal manure, including liquid manure and slurry
  - iv. Animal manures that have been processed using physical (e.g. dehydration), biological or chemical treatment only with substances permitted by CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*. Techniques for processing animal manure shall minimize the loss of nutritional elements.

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

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

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

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

#### 5.5 Manure Management

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

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

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

### 5.5.2 Land Application of Manure

- 5.5.2.1 The essential elements of an organic manure application program shall address land area, rate of application, time of application, soil incorporation and retention of nutrient components.
- 5.5.2.2 All soil amendments including liquid manure, slurries, compost tea, solid manure, raw manure, compost and other approved substances shall be applied to land in accordance with nutrient management planning principles.

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

- 5.5.2.3 Where manure is applied, the soil shall be sufficiently warm and moist to ensure active bio-oxidation.
- 5.5.2.4 In season, the timing, rate and method of manure application shall be designed to ensure that manure application:
  - a. does not contribute to the contamination of crops by pathogenic bacteria;
  - b. minimizes the potential for run-off into ponds, rivers and streams;
  - c. does not significantly contribute to ground and surface water contamination.
- 5.5.2.5 The non-composted solid or liquid manure shall be
  - a. incorporated into the soil at least 90 days before the harvesting of crops for human consumption that do not come into contact with soil,
  - b. incorporated into the soil at least 120 days before the harvesting of crops having an edible part that is directly in contact with the surface of the soil or with soil particles.

### 5.6 Crop Pest, Disease and Weed Management

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

## 9. EMERGENCY PEST OR DISEASE TREATMENT

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

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

# CGSB-32.311 Permitted Substances Lists, August 2011 revision

## INTRODUCTION (Informative)

Organic operations in Canada remain subject to all applicable laws and regulations. Substances that appear in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*, are subject to the *Pest Control Products Act* (PCPA) or the *Food and Drugs Act* (FDA) when used in Canada as pesticides or disinfectants. Health Canada's Pest Management Regulatory Agency (PMRA) is the federal authority responsible for the regulation of pest control products (including sanitizers) under the PCPA and Regulations. Disinfectants are regulated by Health Canada's Therapeutic Products Directorate (TPD) under the FDA and Regulations.

Substances that appear in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*, are subject to the *Food and Drugs Act* (FDA) when used in Canada as veterinary drugs destined to food-producing animals and to the *Feeds Act* (FA) when used in Canada as livestock feed. Health Canada's Veterinary Drugs Directorate is the federal authority responsible for the regulation of veterinary drugs under the FDA and Regulations. Livestock feeds are regulated by the Animal Feed Division of the Canadian Food Inspection Agency under the FA and Regulations and the *Health of Animals Act* and Regulations.

### 1. SCOPE

- 1.1 This standard provides additional information to CAN/CGSB-32.310, *Organic Production Systems — General Principles and Management Standards*. It consists of requirements for adding or amending permitted substances in the following lists, organized by category of use.
- 1.2 Quantities and dimensions in this standard are given in metric units with yard/pound equivalents, mostly obtained through soft conversion, given in parentheses. The metric units shall be regarded as official in the event of dispute or unforeseen difficulty arising from the conversion.

### 2. REFERENCED PUBLICATIONS

See original PSL.

### 3. REQUIREMENTS FOR ADDING OR AMENDING SUBSTANCES IN THE LISTS

See original PSL.

### 4. PERMITTED SUBSTANCES LISTS FOR CROP PRODUCTION

- 4.1 **Classification** — Crop production substances are classified according to the following uses and applications:
  - a. **Soil Amendments** are substances applied to the soil to improve fertility and tilth and to correct soil problems.  
Fertilizers, plant foods and soil amendments are primarily used for their plant nutrient content and may be applied to the soil or to the foliage of plants.
  - b. **Crop Production Aids and Materials** are substances used in conjunction with other substances, which may or may not be directly applied to the crop or soil, or substances used to control pests (disease, weed or insect). Examples include
    - i. adjuvants, insect traps and plastic mulch;
    - ii. vertebrate animal pest management substances;
    - iii. plant disease management substances;
    - iv. insect pest management (invertebrates), mites, molluscs and crustacean substances;
    - v. nematode management substances.

4.2 **Soil Amendments and Crop Nutrition** — Unless otherwise specified, the soil amendments and crop nutrients listed below shall not contain substances prohibited by par. 1.4.1 of CAN/CGSB-32.310, *Organic Production Systems — General Principles and Management Standards*, or not permitted by this standard.

Substance Name(s)	Origin and Usage
Agar	For use in initial mushroom spawn production.
Alfalfa meal and pellets	Use organic alfalfa unless commercially unavailable. Ensure non-organic alfalfa is not a product of genetic engineering
Algae	See <i>Aquatic plants and aquatic plant products</i> .
Amino acids, non-synthetic	Amino acids produced by plants, animals and micro-organisms that are not from genetic engineering and that are extracted or isolated by hydrolysis or by physical or other non-chemical means are considered non-synthetic. Non-synthetic amino acids may be used as plant growth regulators or chelating agents.
Animal manure	See sections 5 and 6 of CAN/CGSB-32.310, <i>Organic Production Systems — General Principles and Management Standards</i> .
Animal manure, processed	Manures that are treated by mechanical and/or physical (including heat) methods and/or to which are added biological, mineral or other substances listed in par. 4.2 are allowed. Manure sources shall conform to par. 5.5.1 of CAN/CGSB-32.310, <i>Organic Production Systems — General Principles and Management Standards</i> . The operator shall be able to demonstrate that best practices known to eliminate human pathogens during the treatment have been used or that the requirements in par. 5.5.2.5 of CAN/CGSB-32.310, <i>Organic Production Systems — General Principles and Management Standards</i> , have been met.
Aquatic plants and aquatic plant products	Shall not contain synthetic preservatives, such as formaldehyde. Natural (non-synthetic) extracts are allowed. Extraction with synthetic solvents is prohibited except for potassium hydroxide or sodium hydroxide, provided the amount of solvent used does not exceed the amount necessary for extraction. The manufacturer shall prove the need to use sodium hydroxide.
Ash	Ash from plant and animal sources only. Ash from burning minerals, manure, coloured paper, plastics or other synthetic substances is prohibited. Ash obtained from off-farm sources shall not exceed the limits (category C1) for acceptable levels (mg/kg) of arsenic, cadmium, chromium, copper, lead and mercury specified in the <i>Guidelines for the Beneficial Use of Fertilizing Residuals</i> , published by the Quebec Ministère du Développement durable, de l'Environnement et des Parcs, Direction du milieu rural. Shall not cause buildup of heavy metals in soil over repeated applications.
Basalt	Mined or quarried volcanic rock minerals
Bentonite	See <i>Mined minerals and unprocessed mined minerals</i>
Biodynamic preparations for soil and plants	
Biotite (iron, magnesium or aluminum silicates)	
Blood meal	Allowed only if sterilized
Bone meal	Permitted only if guaranteed free of specified risk materials including the skull, brain, trigeminal ganglia (nerves attached to the brain), eyes, tonsils, spinal cord and dorsal root ganglia (nerves attached to the spinal cord) of cattle aged 30 months or older; and the distal ileum (portion of the small intestine) of cattle of all ages.
Borate	Shall only be used for a documented deficiency relative to the type of crop. See also <i>Boron products</i> .
Borax (sodium tetraborate)	See <i>Boron products</i> .
Boron products	The following soluble boron products may be used: sodium tetraborate (borax and anhydrous) and sodium octaborate. Shall only be used for a documented deficiency relative to the type of crop. See also <i>Trace elements (micronutrients)</i> for documentation requirements.
Calcium carbonate	See <i>Limestone</i> .
Calcium chloride	Natural sources only. May be used to adjust nutrient deficiencies and

	physiological disorders. Shall not cause buildup of salts in soil over repeated applications.
Calcium, natural sources	Sources include shells from aquatic animals.
Calcium sulphate (gypsum)	See <i>Gypsum (calcium sulphate)</i> .
Cannery wastes	Use only if organically grown or as composting feedstocks. See <i>Composting, feedstocks</i> for mandatory composting requirements.
Cardboard	Cardboard that is not waxed or impregnated with fungicide or substances not on these lists; may be used as mulch or compost feedstock.
Clay	Bentonite, perlite and zeolite as a soil amendment or seed pellet additive. These are also listed individually in this standard. See also <i>Mined minerals and unprocessed mined minerals</i> .
Compost	See <i>Compost obtained from off-farm sources, Compost produced on the farm, Compost tea, Composting feedstocks</i> .
Compost obtained from off-farm sources	Compost obtained from off-farm sources shall conform to the criteria in <i>Composting feedstocks</i> . In addition, compost obtained from off-farm sources: <ul style="list-style-type: none"> <li>a. shall not exceed the maximum acceptable levels of trace contaminants (mg/kg) and foreign matter outlined for unrestricted use (Category A) compost as specified in the Canadian Council of Ministers of the Environment (CCME) publication <i>Guidelines for Compost Quality</i>,</li> <li>b. shall not cause a buildup of heavy metals in soil over repeated applications,</li> <li>c. shall meet criteria for acceptable levels (MPN/g total solids) of human pathogens as specified in the CCME publication <i>Guidelines for Compost Quality</i>.</li> </ul> See <i>Worm castings</i> for information on vermicompost; <i>Microbial products</i> for information on compost starters.
Compost produced on the farm	Compost produced on the farm shall conform to the criteria in <i>Composting feedstocks</i> . In addition if made from animal manures or other likely sources of human pathogens, compost produced on the farm shall: <ul style="list-style-type: none"> <li>a. reach a temperature of 55 °C (130 °F) for a period of four consecutive days or more. The compost piles shall be mixed or managed to ensure that all of the feedstock heats to the required temperature for the minimum time; or</li> <li>b. meet limits for acceptable levels (MPN/g total solids) of human pathogens specified in the Canadian Council for Ministers of the Environment publication <i>Guidelines for Compost Quality</i>; or</li> <li>c. be considered as aged or raw manure rather than compost (i.e. meet the requirements specified in par. 5.5.2.5 of CAN/CGSB-32.310, <i>Organic Production Systems — General Principles and Management Standards</i>).</li> </ul> See <i>Worm castings</i> for information on vermicompost; <i>Microbial products</i> for information on compost starters.
Compost tea	Compost tea shall be made from composts conforming to the criteria in <i>Compost produced on the farm</i> or <i>Compost obtained from off-farm sources</i> or <i>Worm castings</i> . Other substances listed in CAN/CGSB-32.311, <i>Organic Production Systems — Permitted Substances Lists</i> , may be added to compost tea. If compost tea is applied directly to the edible parts of plants, the operator shall be able to demonstrate that best practices known to eliminate pathogens during the processing have been used OR that the requirements for raw manure in par. 5.5.2.5 of CAN/CGSB-32.310, <i>Organic Production Systems — General Principles and Management Standards</i> , have been met. See the definition of <i>Compost Tea</i> in section 3 of CAN/CGSB-32.310, <i>Organic Production Systems — General Principles and Management Standards</i> .
Composting feedstocks	Acceptable feedstocks include: <ul style="list-style-type: none"> <li>a. animal manures conforming to par. 5.5.1 of CAN/CGSB-32.310,</li> <li>b. animal, animal products and by-products (including fishery);</li> <li>c. plants and plant by-products (including forestry and source-separated yard debris, such as grass clippings and leaves);</li> </ul>

	<p>d. soils and minerals conforming to this standard and CAN/CGSB-32.310. The following are prohibited as composting feedstocks: sewage sludge; compost starter and feedstocks fortified with substances not included in this standard or prohibited by par. 1.4.1 of CAN/CGSB-32.310; leather by-products; glossy paper; waxed cardboard; paper containing coloured ink; and animal, animal products and animal by-products that are not guaranteed free of the risk materials specified in <i>Bone meal</i>. Except for animal manures, feedstocks that may be contaminated with substances not included in this standard or prohibited by par. 1.4.1 of CAN/CGSB-32.310, shall require documentation to confirm the absence of these substances OR documentation substantiating the common degradation of such contaminants during the composting process. See <i>Microbial products</i> for information on compost starters.</p>
Copper products	These products shall be used in a manner that prevents excessive copper accumulation in the soil. Buildup of copper in soil may prohibit future use. Use with caution. No visible residue shall be allowed on harvested crops. Basic copper sulphate, copper oxide, copper sulphate and copper oxysulphate may be used to correct documented copper deficiencies. Copper ammonia base, copper ammonium carbonate, copper nitrate and cuprous chloride are prohibited as sources of copper for plant nutrients.
Dolomite	See <i>Limestone</i> .
Enzymes	Acceptable if derived microbiologically from natural substances and not fortified with synthetic plant nutrients. Ensure enzymes are not obtained through genetic engineering.
Epsom salts	See <i>Magnesium sulphate</i> .
Feather meal	
Feldspar	See <i>Mined minerals and unprocessed mined minerals</i> .
Ferric and ferrous compounds	Includes ferric oxide, ferric sulphate and ferrous sulphate. See <i>Iron products, Trace elements (micronutrients)</i> .
Fish emulsions or solubles	See <i>Fish products</i> .
Fish farm wastes	Shall be composted.
Fish hydrolysate	See <i>Fish products</i> .
Fish meal, powder	Natural substances or those derived from natural substances, without the addition of ethoxyquin or other chemically synthesized substances or chemical treatment. See also <i>Fish products</i> .
Fish products	Natural substances or those derived from natural substances without the addition of ethoxyquin or other chemically synthesized substances or chemical treatment except that liquid fish products as soil and plant amendments may be pH adjusted with (in preferential order) organic vinegar, organic citric acid, phosphoric acid or sulphuric acid. The amount of acid used shall not exceed the minimum needed to reach pH 3.5. Shall not contain synthetic preservatives or fertilizing substances not listed in this standard.
Granite dust	Sources that are mixed with petroleum products, such as from stone engraving, are prohibited. See also <i>Mined minerals and unprocessed mined minerals</i> .
Greensand (glaucinite)	See <i>Mined minerals and unprocessed mined minerals</i> .
Guano, bat or bird	Shall be decomposed, dried deposits from wild bats or birds. Domesticated fowl excrement is considered <i>manure</i> , not guano. See <i>Compost</i> .
Gypsum (calcium sulphate)	Mined source; for correcting calcium and sulphur deficiencies and for amending soil salinity problems documented by soil and plant tissue testing. Sulphates produced using sulphuric acid are prohibited.
Humates, humic acid and fulvic acid	Permitted if extracted by microbial fermentation or potassium hydroxide. Shall not exceed the limits (category C1) for acceptable levels (mg/kg) of arsenic, cadmium, chromium, copper, lead and mercury specified in the <i>Guidelines for the Beneficial Use of Fertilizing Residuals</i> . Potassium hydroxide levels used in the extraction process may not exceed the amount required for extraction.
Humus from worms and insects (vermicompost)	See <i>Worm castings</i> .

Inoculants	See <i>Microbial products</i> .
Iron products	Ferric oxide, ferric sulphate, ferrous sulphate, iron citrate, iron sulphate or iron tartrate may be used where a soil or plant nutrient-deficiency is documented by soil or tissue testing.
Iron sulphates	Sulphates produced using sulphuric acid are prohibited. See also <i>Iron products</i> .
Kelp and kelp products	See <i>Aquatic plants and aquatic plant products</i> .
Kieserite	See <i>Magnesium sulphate, Mined minerals and unprocessed mined minerals</i> .
Langbeinite	Mined sulphate of potash magnesia.
Leaf mould	
Limestone	Magnesium carbonate and calcium carbonate. May cause buildup of magnesium. Use with caution. Shall be from a natural source. Oyster shell flour, limestone, dolomite (not slaked), aragonite, eggshell meal, lime from sugar processing and mined calcium carbonate are acceptable. Calcium products that have been used in controlled atmosphere storage are prohibited.
Magnesium carbonate	Naturally occurring in dolomite and magnesite.
Magnesium chloride	Natural sources only.
Magnesium rock	Natural substances or those derived from natural substances, without the addition of chemically synthesized substances or chemical treatments. See also <i>Mined minerals and unprocessed mined minerals</i> .
Magnesium sulphate	Allowed for use with a documented magnesium deficiency. Mined as kieserite or epsom salts (see also <i>Mined minerals and unprocessed mined minerals</i> ) or synthetically produced epsom salts.
Manganese products	Manganous oxide and manganese sulphate may be used to correct documented manganese deficiencies. See <i>Trace elements (micronutrients)</i> .
Manure, composted	See <i>Compost</i> .
Manure, non-organic manure source	See conditions in par. 5.5 of CAN/CGSB-32.310.
Mica	See <i>Mined minerals and unprocessed mined minerals</i> .
Microbial products	Allowable microbial products include rhizobium bacteria, mycorrhizal fungi, azolla, yeast and other micro-organisms on compost, plants, seeds, soils and other components of the organic operation. Ionizing radiation is allowed for use on peat moss carrier only, before the addition of microbial inoculants. Radiation is otherwise prohibited.
Micronutrients, synthetic	See <i>Trace elements (micronutrients)</i> .
Milk	
Mined minerals and unprocessed mined minerals	A mined mineral shall not have undergone any change in its molecular structure through heating or by combining with other substances. Acceptable if the substance is not processed or fortified with synthetic chemicals. Mined minerals are regarded as supplements to a balanced, organic soil-building program. Some of the minerals that are mined can also be made synthetically or are by-products of industry; investigate the source of any new substance. Sodium nitrate is prohibited.
Molasses	Shall be organic molasses unless not commercially available.
Molybdenum products	To correct documented molybdenum deficiencies. See also <i>Trace elements (micronutrients)</i> .
Mulches	Organic plant residue: where organic materials are not readily available, non-organic straw, leaves, grass clippings or hay that are not the products of genetic engineering may be used. Substances prohibited by par. 1.4.1 of CAN/CGSB-32.310 shall not have been used on these materials for at least 60 days before harvest. Sawdust, wood chips and shavings: permitted for mulching if they are from natural sources or derive from natural substances and if they are from wood, trees or logs that have not been treated with paint or substances prohibited by par. 1.4.1 of CAN/CGSB-32.310. Newspaper mulch: glossy paper and coloured ink are prohibited. Paper: glossy paper and coloured ink are prohibited.
Mushroom compost	See <i>Compost</i> .
Naturally occurring biological organisms (e.g. worms) and their products	See <i>Worm castings</i> .

Oilseed meals	Use organic sources unless commercially unavailable. Shall not be from genetically engineered oilseeds.
Oyster shell lime	Ground shells from oysters. See also <i>Limestone</i> .
Peat moss	
Perlite	
Phosphate rock	Shall not be fortified or processed with synthetic chemicals. Cadmium shall not exceed 90 mg/kg P <sub>2</sub> O <sub>5</sub> .
Plants and plant by-products	Includes plant preparations of aquatic or terrestrial plants or parts of plants, such as cover crops, green manures, crop wastes, hay, leaves and straw. Parts of plants used as soil amendments and foliar feeds are permitted. Wastes from crops that have been treated or produced with substances prohibited by par. 1.4.1 of CAN/CGSB-32.310 are prohibited. Only substances listed in par. 6.3 and 6.6 may be used in the processing of plant by-products. Plant by-products not meeting this restriction may be used as composting feedstocks. Sawdust, wood chips and shavings: permitted if they are from natural sources or derive from natural substances and if they are from wood, trees or logs that have not been treated with paint or substances prohibited by par. 1.4.1 of CAN/CGSB-32.310.
Pomaces	Feedstocks shall be from organically grown fruits or vegetables, or the material shall be aerobically composted before use.
Potassium chloride (muriate of potash and rock potash)	Mined potassium salts (e.g. sylvinite and kainite). Shall not cause buildup of salts in soil over repeated applications.
Potassium rock powders	Includes basalt, biotite, mica, feldspars, granite and greensand
Potassium sulphate	Only if from langbeinite or other natural sources. See also <i>Mined minerals and unprocessed mined minerals</i>
Potassium sulphate magnesia	Langbeinite
Potting soil	Shall not contain synthetic wetting agents or synthetic fertilizers.
Pumice	
Rock dusts (stone meal), unprocessed	See <i>Mined minerals and unprocessed mined minerals</i> .
Sand	
Seaweed and seaweed products	See <i>Aquatic plants and aquatic plant products</i> .
Shells from aquatic animals	
Soil	From organic sources in accordance with this standard for 36 months.
Sphagnum moss	Shall not contain synthetic wetting agents.
Stillage and stillage extract	Ammonium stillage is prohibited.
Sulphate of potash magnesia	From langbeinite. See also <i>Mined minerals and unprocessed mined minerals</i> . Natural substances or those derived from natural substances, without the addition of chemically synthesized substances or chemical treatment.
Sulphates of zinc or iron	May be used only to correct for deficiencies determined by soil or plant tissue testing. Sulphates produced using sulphuric acid are prohibited. See also <i>Iron products</i> .
Sulphur, elemental	Sulphur may be used as a soil amendment where more buffered sources of sulphur are not appropriate, and as a foliar application. Natural substances or those derived from natural substances without the addition of chemically synthesized substances or chemical treatment.
Trace elements (micronutrients)	Includes micronutrients from natural sources that are unchelated or chelated by substances listed as allowed. To be used when soil and plant deficiencies are documented by soil and plant testing.
Vermicasts	See <i>Worm castings</i> .
Vermiculite	
Vitamins	Non-synthetic sources of all vitamins and synthetic sources of vitamins B1, C (ascorbic acid) and E may be used in organic crop production.
Wood ash	See <i>Ash</i> .
Worm castings	Worm castings (also called vermicompost, worm compost, vermicast, worm

	humus or worm manure) are the end product of the breakdown of organic matter and compounds by some earthworm species. Feedstocks for these earthworms shall meet the criteria in <i>Composting feedstocks</i> . The operator shall be able to demonstrate that worm castings produced on the farm and obtained from off-farm sources meet the limits for acceptable levels (MPN/g total solids) of human pathogens specified in the Canadian Council of Ministers of the Environment publication <i>Guidelines for Compost Quality</i> OR that best practices known to eliminate human pathogens during vermicomposting have been used. See <i>Microbial products</i> for information on compost starters.
Yeast	See <i>Microbial products</i> .
Zeolite	See <i>Mined minerals and unprocessed mined minerals</i> .
Zinc products	Zinc oxide and zinc sulphate may be used to correct a documented zinc deficiency.

**4.3 Crop Production Aids and Materials** — Unless otherwise specified, the crop production aids and materials listed below shall not contain substances prohibited by par. 1.4.1 of CAN/CGSB-32.310, *Organic Production Systems — General Principles and Management Standards*, or not permitted by this standard

Acetic acid	As an adjuvant and pH regulator.
Adhesives for sticky traps and barriers	
Alcohol	Non-synthetic ethyl alcohols are allowed as solvents to extract botanical insecticides.
Amino acids, Non-synthetic	Amino acids produced by plants, animals and micro-organisms that are not from genetic engineering and that are extracted or isolated by hydrolysis or by physical or other non-chemical means are considered non-synthetic. Non-synthetic amino acids may be used as plant growth regulators or chelating agents.
Ammonium carbonate	As an attractant in insect traps.
Aquatic plants and aquatic plant products	Shall not contain synthetic preservatives, such as formaldehyde. Natural (non-synthetic) extracts are allowed. Extraction with synthetic solvents is prohibited except for potassium hydroxide or sodium hydroxide, provided the amount of solvent used does not exceed the amount necessary for extraction. The manufacturer shall prove the need to use sodium hydroxide.
Arthropod pathogens	See <i>Biological organisms</i> .
Arthropod predators and parasitoids	See <i>Biological organisms</i> .
Arthropods	See <i>Biological organisms</i> .
Ascorbic acid (vitamin C)	Synthetic and non-synthetic sources may be used as a pH regulator. Only nonsynthetic sources may be used for promoting natural growth.
Baits for rodent traps	Baits shall not contain synthetic substances.
Bentonite	See <i>Mined minerals and unprocessed mined minerals</i> in par. 4.2.
Biodynamic preparations for compost	
Biological organisms	Living organisms that benefit plant production by reducing pest populations, such as <i>Bacillus thuringiensis</i> , spinosad, granulosis (e.g. viruses, bacteria, protozoa, fungi, insects and nematodes). No organisms from genetic engineering.
Borate	Sodium tetraborate and octaborate may be used as wood preservatives. Only mined sources acceptable.
Boric acid	May be used for structural pest control (i.e. ants). No direct contact with organic food or crops is allowed.
Botanical pesticides	Botanical pesticides shall be used in conjunction with a biorational pest management program but shall not be the primary method of pest control in the farm plan. The least toxic botanicals shall be used in the least ecologically disruptive way possible. All label restrictions and directions shall be followed including restrictions concerning crops, livestock, target pests, safety precautions, pre-harvest intervals and worker re-entry.

Calcium chloride	Natural sources and food-grade quality only. May be used to adjust nutrient deficiencies and physiological disorders.
Calcium lignin sulphonate	See <i>Lignin sulphonates</i> .
Calcium polysulphide	See <i>Lime sulphur</i> .
Carbon dioxide	For soil and greenhouse use and for controlled atmosphere storage.
Chelates	Natural chelates and synthetic chelates specifically included for that purpose in this standard are allowed. See <i>Lignin sulphonates</i> .
Cholecalciferol (vitamin D3)	May be used outdoors and inside greenhouses for rodent control when methods described in par. 5.6.1 of CAN/CGSB-32.310 have failed. Not allowed inside on-farm food processing and food storage facilities.
Citric acid	Non-synthetic and synthetic sources may be used as a chelating agent and a pH adjuster.
Copper products	Includes copper hydroxide for use as a wood preservative or for disease control; copper sulphates for use as a fungicide; Bordeaux mix, copper oxychloride, copper oxide, fungicides or wood treatments, for fruits and vegetables. These products shall be used in a manner that prevents excessive copper accumulation in the soil. Buildup of copper in soil may prohibit future use. Use with caution. No visible residue shall be allowed on harvested crops. Basic copper sulphate, copper oxide, copper sulphate and copper oxysulphate may be used to correct documented copper deficiencies. Copper ammonia base, copper ammonium carbonate, copper nitrate and cuprous chloride are prohibited as sources of copper for plant nutrients.
Cytokinins	See <i>Growth regulators for plants</i> .
Diatomaceous earth	Only non-heated forms may be used. Make sure no synthetic pesticides or synergists are added.
Dormant oils	Allowed for use as a dormant spray on woody plants only.
Ferric phosphate (iron orthophosphate, iron phosphate)	Permitted as molluscicide. To be used in such a way as to prevent runoff into water bodies. Shall not be in contact with crops.
Fibre row covers	Shall not be incorporated into the soil or left in the field to decompose; shall be removed at the end of the growing season.
Formulants	Formulants can only be used in conjunction with substances listed in par. 4.3. Only formulants that are classified by the Pest Management Regulatory Agency (PMRA) in Regulatory Note REG2007-04 as List 4A or 4B or are non-synthetic may be used with substances in par. 4.3 that are applied directly to crops. Formulants classified as List 3 in PMRA Regulatory Note REG2007-04 may be used with passive pheromone dispensers. Formulants classified as List 1 or List 2 in PMRA Regulatory Note REG2007-04 are prohibited.
Gibberellic acid	Acceptable if made from a fermentation process. Fermentation process shall not use organisms from genetic engineering. See also <i>Growth regulators for plants</i> .
Growth regulators for plants	Natural plant hormones, such as gibberellic acid, indoleacetic acid and cytokinins, are allowed. See also <i>Gibberellic acid</i> .
Hormones	See <i>Growth regulators for plants</i> .
Hydrated lime	For plant disease control only.
Hydrogen peroxide	Hydrogen peroxide is not allowed in maple syrup production. Allowed for use as a fungicide.
Indoleacetic acid	See <i>Growth regulators for plants</i> .
Kaolin clay	
Lignin sulphonates	Lignosulphonic acid, calcium lignosulphate and sodium lignosulphate. Allowed as a chelating agent, as a formulant ingredient and as a dust suppressant. Ammonium lignosulphate is prohibited.
Lime sulphur (calcium polysulphide)	Allowed as a fungicide, an insecticide and an acaricide (mite control) on plants.
Magnesium chloride	Natural sources only.
Mulches	Organic plant residue: permitted for mulching. Where organic materials are not readily available, non-organic straw, leaves, grass clippings or hay that are not the products of genetic engineering may be used. Substances prohibited by par. 1.4.1 of CAN/CGSB-32.310 shall not have been used on these materials for at least 60 days before harvest.

	<p>Sawdust, wood chips and shavings: permitted for mulching if they are from natural sources or derive from natural substances and if they are from wood, trees or logs that have not been treated with paint or substances prohibited by par. 1.4.1 of CAN/CGSB-32.310.</p> <p>Newspaper mulch: glossy paper and coloured ink are prohibited.</p> <p>Paper: glossy paper and coloured ink are prohibited.</p> <p>Plastic mulches: non-biodegradable and semi-biodegradable materials shall not be incorporated into the soil or left in field to decompose; shall be removed at the end of the growing season. Plastic mulches in perennial crops may be left for more than one season but shall be removed before the plastic decomposes. Use of polyvinyl chloride as plastic mulch or row cover is prohibited.</p> <p>Fully biodegradable films: permitted without removal if they do not contain substances prohibited by par. 1.4.1 of CAN/CGSB-32.310.</p>
Nitrogen	For controlled atmosphere storage.
Oxygen	For controlled atmosphere storage.
Peracetic acid	For use in controlling fire blight bacteria and in disinfecting seed and asexually propagated planting material.
pH buffers	Shall be from a natural source, such as citric acid or vinegar. Lye and sulphuric acid are prohibited.
Pheromones and other semiochemicals	Allowed for use in pheromone traps or dispensers. Both synthetic and non-synthetic pheromones and semiochemicals may be used for pest control.
Plant extracts, oils and preparations	Allowed for use as production aids unless otherwise specifically restricted or prohibited. Allowed extractants include cocoa butter, lanolin, animal fats, alcohols and water. Allowed for pest (disease, weed and insect) control. Extraction with synthetic solvents is prohibited except for potassium hydroxide or sodium hydroxide, provided the amount of solvent used does not exceed the amount necessary for extraction. Of the two products, potassium hydroxide is the preferred choice; the manufacturer shall prove the need to use sodium hydroxide.
Plant protectants, natural	Substances that protect plants from harsh environmental conditions such as frost and sunburn, infection, the buildup of dirt on leaf surfaces, or injury by a pest. Natural substances are allowed, including but not limited to calcium carbonate, diatomaceous earth, kaolin clay, pine oil, pine resin and yucca. White wash is allowed for use on trees to protect against sunburn and southwest disease.
Plastic for row covers and solarization	Shall not be incorporated into the soil or left in the field to decompose; shall be removed at the end of the growing season. Use of polyvinyl chloride plastic is prohibited.
Potassium bicarbonate	Allowed for pest and disease control in greenhouses and other crops.
Pyrethrum	May only be combined with acceptable formulants listed in par. 4.3. See also <i>Botanical pesticides</i> for restrictions.
Quick lime	Also known as calcium oxide. Prohibited as a fertilizer or soil amendment.
Repellents	Acceptable if derived from a natural source, such as sterilized blood meal, rotten eggs, hair or predator scents, provided synthetic additives are not used.
Rotenone	Shall not be combined with unacceptable formulants. See also <i>Botanical pesticides</i> for restrictions.
Seaweed and seaweed products	See <i>Aquatic plants and aquatic plant products</i> .
Seed treatments	Microbial products, kelp, yucca, gypsum, clays, botanicals, and any substances and formulants that appear in par. 4.3 with consistent origin and usage permitted for use as treatments on organic seed.
Soaps	Soaps (including insecticidal soaps) consisting of fatty acids derived from animal or vegetable oils are allowed.
Soaps, ammonium	As a large animal repellent only; no contact with soil or edible portion of crop allowed.
Sodium bicarbonate	Allowed for pest and disease control in greenhouses and other crops.
Sodium silicate	For tree fruit and fibre processing.
Sterile insects	See <i>Biological organisms</i> .
Sugar	Organic sugar may be used as an ingredient in a crop production aid.
Sulphur (smoke bombs)	Sulphur smoke bombs used for rodent control shall be used in conjunction with other methods and only when a full pest control program is maintained but temporarily overwhelmed.

Sulphur, elemental	Allowed for foliar use only.
Summer oils	Allowed for use in organic production as suffocating or stylet oils on foliage.
Surfactants	See <i>Soaps</i> .
Transplant and potting media	Shall be composed entirely of allowed substances.
Treated seed, Non-synthetic agents	Seed treated with naturally occurring biological management agents are allowed. Organisms from genetic engineering are prohibited. Seed pelletized with clay, gypsum, rhizobial bacteria or other non-synthetic coatings is allowed. Plastic polymer pelletization of seed is prohibited. See also <i>Seed treatments</i> .
Tree seals	Plant or milk-based paints may be used. Synthetic grafting materials are permitted on planting stock provided that the organic products are harvested after such plants have been maintained in accordance with this standard for at least 12 months. Shall not be combined with fungicides or other synthetic chemicals.
Vegetable oils	Spreader-stickers, surfactants and carriers. Plant oils shall not contain synthetic pesticides
Vinegar (acetic acid)	See Acetic acid. Non-synthetic sources unless commercially unavailable.
Virus sprays	
Water	
Water, reclaimed	Reclaimed water shall be used only on non-edible parts of food crops and on crops not for human consumption. Use on edible plant parts and root crops is prohibited.
Wetting agents	Natural wetting agents, including saponins and microbial wetting agents, are allowed. See also <i>Soaps</i> .