A: TERMS AND DEFINITIONS (310 CLAUSE 3)

To see all of the terms and definitions, refer to CAN/CGSB 32.310 Clause 3.

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The definitions are quoted from *Organic production systems: general principles and management standards*, CGSB, 2020. For the full document including all definitions, see www.publications.gc.ca/site/eng/9.854643/publication.html.	Clause 3 defines terms used in both CGSB 32.310, *Organic production systems: general principles and management standards*, and 32.311 *Organic production systems: Permitted substances lists* (PSL). At the end of the PSL, Annex A acts as an index.
3.1 aeroponics "soil-free cultivation method whereby plants are suspended with their roots exposed to the air."	Aeroponics is not allowed under the Canadian Organic Standard.
3.2 agricultural "pertaining to crops and livestock and any products resulting from crops and livestock."	Agricultural products can include processed products made from agricultural raw ingredients. For example, not only are milk and wheat agricultural products, but so are cheese and bread. Does not include wild harvesting/crafting.
3.3 agro-ecosystem "system consisting of the form, function, interaction and equilibrium of the biotic and abiotic elements present within the environment of a given agricultural operation."	The agro-ecosystem is "the ecosystem composed of cultivated land and surrounding or intermixed uncultivated areas, the plants contained or grown thereon, and their associated animal," according to TERMIUM Plus®, the Government of Canada's terminology and linguistic data bank (2020). Biotic is defined as living components, such as plants and animals including bacteria, fungi and other micro-organisms. Abiotic elements are the non-living physical and chemical factors, such as water, air, sunlight and minerals. Organic agriculture strives to manage this balance.
3.5 allopathy "method of treating disease with substances that produce a reaction or effects different from those caused by the disease itself."	"Allopathy" describes conventional Western medicine using drugs to counteract disease.

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3.9 bedding "material added to livestock housing environments for the purpose of adding comfort and to encourage natural behaviours. Examples: chopped straw, wood shavings."	Could also be non-agricultural material such as sand, cellulose, or paper products. Details are provided in 6.7.1.g and 6.13.10.
3.11 biodegradable "crop and livestock inputs and production aids capable of microbial decomposition within 24 months in soil (with the exception of plant biomass), one month in aerated water and two months in anaerobic water, with minimal impact on the environment."	The term "biodegradable" is used in reference to bio-based mulches and biodegradable planting containers. For details, refer to the listings for *Mulches* and *Biodegradable plant containers* in PSL Table 4.2.
3.13 buffer zone "clearly defined and identifiable boundary area that separates an organic production unit from adjacent non-organic areas."	Buffer zones are boundary areas that are established by the organic operator to reduce the potential for contamination of prohibited substances from neighbouring activities, such as spray drift of herbicides used on neighbouring crops, roadside maintenance, or run-off of prohibited fertilizers. The plants (including seed, cash crops and forage) grown on the buffer zone cannot be used or sold as organic. However, regarding seeds: if an organic version of the same seed variety cannot be found from another source, seed grown in the buffer zone can be used on the farm but not sold as organic. The farmer would need to conduct an organic seed search for the same seed in organic form and provide documentation to show an organic option was not possible. Alternatives, such as hedgerows, windbreaks or solid fencing, can eliminate the need for buffer zones, as well as declarations from neighbours that establish there is no risk posed by neighbouring activities. Many organic operations do not need buffer zones due to the site's natural topography, existing vegetation, or roadside setbacks that help isolate organic activities. Buffer zones are not the same as isolation distances which require a GE risk management program to be

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	in place if there are GE crops planted within the isolation distance.
3.16 colony "typically an aggregate of several thousand worker bees, drones, and a queen bee living together in a hive or in any other dwelling as one social unit."	Although "hive" and "colony" are sometimes used interchangeably, in the Standard, "hive" refers to the structure containing the colony of bees.
3.17 commercially available "documented ability to obtain a production input or an ingredient in an appropriate form, quality, quantity or variety, irrespective of cost, in order to fulfil an essential function in organic production or preparation."	When determining what substances are permitted, various factors are considered (see details in Clause 10 of CGSB 32.310). It is important that the standards have integrity but are also realistic. For example, if growers were required to use only certified organic seed, this would limit their choice of varieties (as of 2020). A compromise is to require certified organic seed unless it is not commercially available for particular varieties. In this case, operators need to demonstrate that they have searched for, but could not find an organic source. It doesn't matter if the preferred source, such as the organic seed in the example above, is much more expensive than alternatives: cost is not a factor when determining commercial availability. But if an organic product or seed cannot be imported into Canada due to import restrictions, it would be considered to be unavailable commercially.
3.19 compost "product of a carefully managed aerobic process by which biological materials are digested by micro-organisms."	Details about composting can be found in Table 4.2 of the PSL. See annotations for *Compost; Compost feedstocks; Compost from off-farm sources;* and *Compost produced on the farm*.
3.20 compost tea "liquid soil amendment or foliar feed used to promote beneficial bacterial growth that is created by steeping mature compost in water."	For details, see *Compost tea* in Table 4.2 of the PSL.

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3.21 crop rotation "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."	A well-designed crop rotation has many benefits including - controlling weeds, diseases and insect pests; - managing nutrients in a way that reduces leaching and loss, while providing a slow release of nutrients as needed; - fixing nitrogen from the air and making it available for following crops; - increasing or maintaining sufficient levels of organic matter in the soil, and - increasing both biodiversity and income diversity on the farm.
3.23 feed additive "substance added to feed in small quantities to fulfil a specific nutritional need. Examples are essential nutrients in the form of amino acids or vitamins and minerals, and non-nutritive additives such as anticaking agents and antioxidants."	An example of a feed additive is a probiotic which aids in digestion of feed.
3.24 feed supplement "feed that is used in conjunction with other feeds to improve the nutritive balance of the total and that is intended to be: -fed undiluted as a supplement to other feeds, -available separately and offered free choice, along with other parts of the ration, or -further diluted and mixed to produce a complete feed. NOTE In Canada, the *Feeds Act* requires that the resulting feed is acceptable for registration."	An example of a feed supplement is a premix containing vitamins and minerals that may be missing in the feed.

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3.26 fertilizer "single or blended substance composed of one or more recognized plant nutrients."	On organic farms, nutrients are supplied primarily through crop rotations, ploughdown crops (i.e., green manures); the application of compost; and the incorporation of other plant residues (such as mulch) into the soil. Certain fertilizers can be used at times to supplement nutrients. Table 4.2 (Column 1) of the PSL contains a list of permitted fertilizers and the conditions in which they can be used. In general, permitted fertilizers are made from mined or biological substances and are not chemically treated.
3.28 food additive "has the same meaning as in B.01.001 of *The Food and Drug Regulations*."	The Food and Drug Regulations (C.R.C, c.870 – laws-lois.justic.gc.ca) define "food additive" to mean "any substance the use of which results, or may reasonably be expected to result, in it or its by-products becoming a part of or affecting the characteristics of a food, but does not include: (a) any nutritive material that is used, recognized or commonly sold as an article or ingredient of food; (b) vitamins, mineral nutrients and amino acids, other than those listed in the tables to Division 16; (c) spices, seasonings, flavouring preparations, essential oils, oleoresins and natural extractives; (d) agricultural chemicals, other than those listed in the tables to Division 16; (e) food packaging materials and components thereof; and (f) drugs recommended for administration to animals that may be consumed as food." Table 6.3 of CAN/CGSB-32.311 identifies ingredients classified as food additives that are permitted in organic preparation. In addition to the substances listed, any product which has been certified organic can also be used as a food additive.

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3.31 genetic engineering

"artificial manipulation of living cells for the purpose of altering its genome constitutes genetic engineering and refers to a set of techniques from modern biotechnology by which the genetic material of an organism is changed in a way that does not occur other than through traditional breeding by multiplication or natural recombination. The genome is considered an indivisible entity; artificial technical/physical insertions, deletions, or rearrangements of elements of the genome constitute genetic engineering.

Techniques developed in future may be considered genetic engineering. Examples of the techniques used in genetic engineering include, but are not limited to:

• genome/gene editing techniques, such as but not limited to CRISPR, that replace one DNA sequence with another, transposes, deletes or adds a gene sequence or a part of gene sequence;

• recombinant DNA (rDNA) techniques that use vector systems;

• cisgenesis;

• intragenesis;

• agro-infiltration.

• techniques involving the direct introduction into the organism of hereditary materials prepared by whatever means, inside or 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 or are created outside, or manipulated within, the organism through techniques such as, but not limited to, synthetic biology.

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

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As of 2020, one of the newest gene editing technologies is Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR). Many people argue that CRISPR is not genetic engineering because the change is made within an organism of a species.

In the Canadian Organic Standard, the position is that even though CRISPR is done within a taxonomic family, it is not accomplished through traditional breeding and selection. Hence like the earlier techniques, CRISPR gene editing using the technologies of inserting, deleting, rearranging genes does not abide by the precautionary principle of respecting life as we know it.

The older technologies include:

-Recombinant DNA (rDNA) is DNA that has been constructed from multiple sources, creating DNA sequences that do not naturally occur within the taxonomic family. A vector system is a method of delivery of the GE transformation using an organism from outside of the plant's taxonomic family.

-Cell fusion is a general term that includes protoplast fusion and cytoplast fusion techniques. Protoplast fusion is the fusion of two somatic cells in vitro to produce a hybrid cell. Cytoplast fusion does not change the nuclear DNA but introduces extra-chromosomal DNA from the cell organelles of the other cell.

-Polyploidy induction is a technique used to overcome sterility that often results when a hybrid is created.

-Mutagenesis is the application of irradiation or harsh chemicals to seed to produce a mutation in the plant. An example is mutagenic imidazolinone-tolerant wheat. Targeted mutagenesis uses GE technology, such as zinc finger nuclease technology, to produce the desired mutation. Marker-assisted mutagenesis uses antibiotic markers to identify when a mutation has succeeded.

-Cisgenesis is genetic engineering of the plant's own DNA or RNA. An example is RNA interference, which stops the plant's RNA from initiating a DNA sequence. See cban.ca/genome-editing-in-food-and-farming-risks-and-unexpected-consequences.

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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 and not created outside, or manipulated within, the organism through techniques such as, but not limited to, synthetic biology."	
3.33 hive "human-constructed housing for bees including related components."	A colony of bees lives within a hive, but the term "hive" refers to the structure that houses the colony.
3.34 hydroponics "cultivation of plants in aqueous nutrient solutions without the aid of soil."	Hydroponics is not allowed under the Canadian Organic Standard.
3.35 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), anti-foaming agents and non-food chemicals (sanitizers, disinfectants, cleaning agents and detergents)."	See CAN/CGSB-32.310 8.1.2 for incidental additives that are permitted.
3.38 irradiation "treatment with ionizing radiation."	Food irradiation is the treatment of food with ionizing radiation for the purpose of killing bacteria, mould, parasites and insects. Prepackaged foods which have been irradiated are required to be labelled. Irradiation is not permitted in the preparation of organic foods (1.4.c.). Ionizing irradiation, in the context of the Standard, includes gamma rays and soft X-rays, such as x-rays or electrons generated from a machine at an energy level below 10 MeV.

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3.39 isolation distance "distance established to segregate an organic crop from a commercialized GE crop of the same crop type. An isolation distance is the shortest distance from the edge of an organic crop to the edge of the nearest GE crop of that crop type."	Whereas buffer zones separate an organic operation from various threats from neighbouring non-organic farms (e.g., herbicide drift, fertilizer run-off), an "isolation distance" is used to protect organic crops from contamination from GE crops. The term "isolation distance" comes from seed-saving, where it refers to the distance two cultivars need to be separated to avoid cross-pollination. The distance is determined by estimating how far genetic material (e.g., pollen) will travel, whether carried by wind or by pollinating insects or birds. An isolation distance does not have to be under the organic farmer's control but needs to be much larger than the typical 8-m (24-ft) buffer zone used to separate organic from non-organic fields. For example, the isolation distance for wind-pollinated organic corn is 300 m (984 ft), while the isolation distance for soybeans, which are primarily self-pollinating, is 10 m (33 ft). The operator monitors the isolation distance in all directions from the vulnerable crops and creates a risk management plan to ensure any potential GE contamination can be controlled through managing the rotation, delayed planting, border rows or other methods.
3.41 litter material "a mixture of bedding material with animal excreta, such as manure, dust and feathers, collected from the floor of livestock housing (e.g., barn, coop)."	For details on acceptable bedding materials and litter material requirements, refer to 6.7.1.g and 6.13.10 in CAN/CGSB-32.310.
3.44 microgreens "edible young plants that are harvested later than sprouts, generally when cotyledons are fully formed or when two or four true leaves are present."	Requirements for the production of microgreens is described in Clause 7.4 "Sprouts, shoots and microgreen production."
3.45 nanotechnology "manipulation of matter at atomic, molecular, or macromolecular dimensions typically between 1 and 100 nm to create materials, devices and systems with fundamentally new	In general, products and materials made using nanotechnology are prohibited; however, see 1.4 b) for details.

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properties and functions. Nanoscale chemical substances, or nanomaterials, behave differently from their macroscale counterparts, exhibiting different mechanical, optical, magnetic or electronic properties."	
3.46 nutrient management plan "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, the amendment (manure, compost, plow-down crop or other permitted substance), nutrient content 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."	A well-designed nutrient management plan is key to a successful organic farm. The goal is to provide enough nutrients to maintain healthy plants while avoiding an excess of nutrients. If nutrient levels are too low, crop health and yields may suffer. If they are too high, nutrients can be lost; this is a waste of nutrients and can possibly lead to water pollution. The balance is achieved by focusing on sources of nutrients that are slowly released in the soil, usually with the aid of microorganisms. For example, rather than relying on highly soluble and concentrated fertilizers to provide nutrients to crops in the field, organic farmers focus on building the soil through inputs of organic matter (e.g., green manures, compost, crop residue). These regenerative agricultural practices will build up the organic matter content in the soil and increase its nutrient-holding and water-holding capacity.
3.47 operation (exploitation) "farm, company or organization that produces or prepares an organic product; an operation may have multiple production units (see 3.62 *production unit*)."	
3.49 organic integrity "maintenance of the inherent organic qualities of a product from the receipt of ingredients through to the end consumer."	Organic integrity means maintaining organic status of a product from field to plate. This involves ensuring that there is no contamination of the product at any step along the way. For example, when customers buy organic carrots at a grocery store, they can feel confident that care was taken to prevent contamination with prohibited substances (and observe all other aspects of the organic standards) at every step of the way including planting the seed, cleaning the carrots, packaging, and trucking the carrots to the store.

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3.50 organic product "any commodity or output produced by a system compliant with this standard."	Whenever the term "organic" is used in the standard to describe a product, it is referring to a product that meets the requirements of the Canadian Organic Standard and is certified organic.
3.52 parallel production "simultaneous production or preparation of organic and non-organic crops, including transitional crops, livestock and other organic products of the same or similar varieties that are visually indistinguishable by the common person when the crops, livestock or products are positioned side by side."	Refer to 5.1.4 of CAN/CGSB 32-310 for the requirements and derogations.
3.55 pest "organism causing damage to humans or to resources used by humans, such as certain viruses, bacteria, fungi, weeds, parasites, arthropods and rodents."	Although the term "pest" is often used to refer to insect pests, in the Canadian Organic Standard, "pests" refers to any living organism that damages humans or human resources. This includes weeds, as well as, for example, insects that damage plants, parasites that affect livestock, birds that eat berries and microorganisms that cause disease in crops or livestock.
3.56 pesticide "substances used, directly or indirectly, to attract, prevent, destroy, repel or mitigate pests; or to alter the growth, development or characteristics of weeds. Includes any organism, substance or mixture of substances, and devices, such as lures or traps."	The term pesticide refers not only to chemicals but also to products such as vinegar used to control weeds or clean seeds, or bentonite clay used to deter insect pests. Only pest control products listed in Column 2 of Table 4.2 of the PSL can be used. All pesticides must bear a PMRA Pest Control Product (PCP) number and only be used in the way outlined on the product label.
3.57 planting stock "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."	Also includes trays of perennial seedlings (perennial liners), tree whips and potted perennial plants.

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3.62 production unit "identifiable portion of an operation as outlined in the organic plan in which production or preparation of an organic product occurs. For example, a production unit may be a field with clearly marked boundaries, a pasture, a greenhouse, a series of greenhouses, a building or buildings. A "livestock production unit" is a herd or flock of animals or birds with its associated infrastructure such as barns and pastures. An entire operation, even one with disconnected fields or buildings, may be considered one production unit if the whole operation is organic and following one organic plan. Where there is split or parallel production, organic production units shall be sufficiently segregated from non-organic production units to ensure that there is no cross-contamination.	If the entire operation is managed organically according to one organic plan, the whole operation is one production unit (even if there are different department managers running different parts of the operation). For example, if an operation has both a market garden and a grain operation and they fall under the same organic plan, this would be one production unit. There is no restriction on the scale or scope of an operation. The more complex the operation (for example, if it is a diversified operation and there is more than one scope), the more challenging it is to establish how many production units there are and how many organic plans are necessary. For example, if a market gardener also raises meat birds, this would be two production units unless the same land is used for both under one organic plan (e.g., the organic plan has a crop rotation involving years of crops and years of pastured poultry).
3.66 removal event "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."	Use of removal events allows for the manufacturing of organic products in shared facilities that are not 100% dedicated to organic production.
3.67 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**.** When used as a soil amendment, the term "salt" also includes calcium chloride and potassium chloride."	This definition of salt allows operators to replace salt with sodium-free and low-sodium alternatives in their recipes without changing the calculation of organic content in the product. The use of "salt" in agricultural terms refers to cations and anions dissolved in soil water.

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3.68 seed coating "a substance applied to the surface of a seed for a function distinct from seed pelleting."	Seed coating is a general term for substances applied to the outside of seed to aid in some way, such as protecting the seed from mechanical damage or covering the seed with beneficial microorganisms.
3.69 seed pelleting "augmenting a seed with substances to increase the size of seed to facilitate seeding."	Pelleting involves adding a substance, often a clay-based material, to the seed so that it is larger and easier to sow.
3.71 seed treatment "adding pest control products, plant growth regulators or inoculants, etc., to seeds to assist with their field performance. Can be performed pre- or post-sowing."	Seed treatments can be applied by the seed companies or by the farmers themselves before or during seeding, or after seeding before the seed is covered up.
3.72 sewage sludge "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."	Sewage sludge is not allowed in organic agriculture.
3.73 soil "mixture of minerals, organic matter and living organisms."	Soil is the basis of organic crop and livestock production. An organic nutrient plan depends on nurturing and maintaining high levels of soil organic matter along with diverse and abundant soil life.
3.74 Specified Risk Material (SRM) "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."	Specified Risk Material (SRM) refers to body parts that may contain the prions which can lead to Bovine spongiform encephalopathy (BSE), known as "Mad cow disease" or to Creutzfeldt-Jakob Disease (CJD) in humans. The brains, spinal cord and other body parts specified in SRM cannot be used in bloodmeal, bonemeal or any other substance used in organic agriculture.

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3.77 synthetic biology "broadly describes the design and construction of novel artificial biological pathways, organisms or devices, or the artificial redesign of existing natural biological systems."	Products of synthetic biology are prohibited. See 3.27 *Genetic Engineering*.
3.78 synthetic substance "manufactured substance, including petrochemicals, formulated by a chemical process or by a process that chemically alters compounds extracted from plant, micro-organisms, animal or mineral sources. This term does not apply to compounds synthesized or produced by physical processing or biological processes, which may include heat and mechanical processing. However, minerals altered through chemical reactions caused by heating or burning are classified as synthetic."	By reducing dependence on synthetic substances, organic standards are striving to reduce environment harm and build eco-system resilience. For example, rather than relying on a synthetic fertilizer to provide the bulk of the nutrients, an organic farmer will use complex crop rotations including green manures. The crop rotation not only provides nutrients to crops but also helps break pest cycles. When the green manure is incorporated into the soil, it adds much more than just nutrients. It can improve soil fertility in the long-term by adding stable organic matter, feeding the soil life, and increasing the nutrient- and water-holding capacity of the soil. This not only reduces the chance of water pollution but also mitigates erosion and helps crop resist extreme weather events such as drought.
3.79 traceability "ability to track product, backwards and forwards, through all stages of production and preparation."	
3.80 traditional breeding "traditional breeding has its basis in biological sexual reproduction. It occurs between closely related organisms, in reproductive cells, and between related chromosomes through homologous recombination."	Examples include: selection of naturally occurring variants in the wild; selection of mutants in cultivated fields; selection of landraces – a population adapted to local conditions over numerous generations; selection of self-pollinated pure lines within a landrace and mass selection in open pollinated species; controlled mating within a population; pedigree breeding; backcrossing; recurrent selection breeding; and hybrid breeding.

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