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Comparison between
CAN/CGSB-32.310-2015 amended 2018 and CAN-CGSB-32.310-2020

7.4 - Sprouts, shoots and microgreens production

7.5 Crops Grown in Structures or Containers (previously known as Greenhouse crops)

Changes are highlighted in yellow

CAN/CGSB-32.310-2015 amended 2018	CAN-CGSB-32.310-2020
7.4 Sprouts, shoots and microgreens production	**7.4 Sprouts, shoots and microgreens production**
Subclause 7.4 applies to crops that are generally harvested within 30 days of imbibition, either with roots attached (sprouts) or cut from the roots (shoots and microgreens).	Subclause 7.4 applies to crops that are harvested within 30 days of imbibition, either to be consumed with roots attached (e.g., sprouts and nanoshoots) or to be cut from the roots for consumption (e.g., shoots, living greens and microgreens). Subclause 7.4 does not apply to whole head products (e.g., heads of lettuce, mini cabbage). Sprouts, shoots, and microgreens may be produced in water or in a growing media whether they are grown in a growth chamber or vessel, greenhouse or other structures used to grow crops.
7.4.1 Sprouts, shoots and microgreens produced in water	
7.4.1.1 Organic seed shall be used.	**7.4.1** Organic seed shall be used.
7.4.1.2 Water sources (for example, potable water, distilled or processed by osmosis) shall meet or exceed drinking water guidelines for quality, including microbial and chemical contaminant levels.	NOTE A water monitoring program should be in place to ensure water is potable.
7.4.1.3 A water quality monitoring program shall be in place and water shall be analyzed at least twice a year (once every six months).	
	7.4.2 Artificial lighting is permitted to supplement or replace natural light.
	7.4.3 Inert containers made of stainless steel and food-grade plastic are permitted in both water and growing media production systems.

	7.4.4 Containers made of untreated plant-based materials (for example: burlap, coconut coir, fibre) are prohibited in water production systems, but are permitted in growing media production systems.
7.4.1.4 Fertilizers are prohibited at all stages of growing and harvesting.	**7.4.5** Fertilizers are prohibited in all stages of growing and harvesting in water production systems.
	7.4.6 When growing sprouts, shoots or microgreens in a growing media, substances listed in Table 4.2 (Column 1) of CAN/CGSB-32.311 are permitted as the growing media and for crop nutrition. The physical structure of the growing media shall include both a mineral fraction (sand, silt or clay, excluding perlite and vermiculite) and a biological fraction.
7.4.1.5 Substances used for cleaning or sanitation of seed or harvested product shall be limited to substances listed in Table 4.3 of CAN/CGSB-32.311.	**7.4.7** Substances used for cleaning or sanitation of seed shall be limited to substances listed in Table 4.2 (Column 2) or Table 7.3 of CAN/CGSB-32.311.
7.4.2 Shoots and microgreens produced in soil Subclauses 7.4.1.1, 7.4.1.2, 7.4.1.3 and 7.4.1.5 also apply to shoots and microgreens produced in soil. Subclause 7.5 applies to shoots and microgreens produced in soil, whether they are grown in a growth chamber, greenhouse or other sheltered structure, or outdoors.	
	7.4.8 When growing sprouts, shoots or microgreens the operator shall: a) use reusable and recyclable containers and flats whenever possible; b) reuse or recycle growing media whenever possible; c) only use substances listed in Table 4.2 (Column 2) of CAN/CGSB-32.311 if crop production aids are required; d) use appropriate equipment cleaners, disinfectants and sanitizers listed in Tables 7.3 and 7.4 of CAN/CGSB-32.311.
7.4.3 Shoots and microgreens product preparation Wherever organic product preparation takes place, 8.1 and 8.2 apply.	**7.4.9 Sprouts, shoots and microgreens product preparation** Wherever harvested organic product preparation takes place, 8.1 and 8.2 apply.
7.4.4 Facility pest management	**7.4.10 Facility pest management**

Subclause 8.3 applies to pest management practices in and around facilities.	Clause 8.3 applies to pest management practices in and around facilities.
7.5 Greenhouse crops All relevant subclauses in this standard apply to greenhouse production where this subclause has no specific requirements, including 5.1.3, 5.1.4, 5.1.6, and 5.1.7.	**7.5 Crops Grown in Structures or Containers (previously known as Greenhouse crops)** Clause 7.5 applies to: • all organic crops grown in containers (indoors or outdoors). Containers include production systems that limit root contact with native soil, such as crops grown in pots, troughs and plastic-lined beds, etc.; • in-ground crops that are grown using supplemental lighting, heating or CO_2 enrichment within a structure, such as a greenhouse, tunnel (high or low), hoophouse, etc. This clause does not apply to: • Sprouts, Shoots or Microgreens (Clause 7.4); • in-ground crops grown in a structure, such as a cold frame, caterpillar tunnel, etc., without supplemental lighting, heating or CO_2 enrichment; • crops grown under row cover, insect netting or bird netting (covered in Clause 5). All relevant subclauses in this standard apply to crops grown in structures or containers where this subclause has no specific requirements, including 5.1.3, 5.1.4, 5.1.5, 5.1.6, and 5.1.7.
7.5.1 In a permanent, in-ground soil system, prohibited substances shall not have been used for at least 36 months before the harvest of an organic crop.	**7.5.1** In a permanent, in-ground soil system, prohibited substances shall not have been used for at least 36 months before the harvest of an organic crop.
7.5.2 In a container system, soil shall be free of prohibited substances.	
NOTE The Canadian *Organic Products Regulations* require operators to document that they have not used prohibited substances. The Regulations also require that, in the case of an initial application for organic certification of crops grown in greenhouses with a permanent, in-ground soil system, the application for certification must be filed 15 months before the day on which the product is expected to be marketed. During that period of time, compliance with this standard will be assessed by the certification body and this assessment must include at least one inspection of the production unit, during production, in the year before crops may be eligible for certification and one inspection, during production, in the year crops are eligible for certification. This requirement does not apply to greenhouses built on land that is part of an existing organic operation. These or similar regulatory requirements may eventually be found in new regulations that would	

replace the *Organic Products Regulations, 2009*. Current regulations should be consulted to ensure accuracy of regulatory requirements.	
7.5.3 Hydroponic and aeroponic productions are prohibited.	**7.5.2** Hydroponic and aeroponic productions are prohibited.
7.5.4 Soil used in a container system, with the exception of transplants, shall provide nutrients to plants continuously. The soil (growth media) shall contain a mineral fraction (sand, silt or clay) and an organic fraction; it shall support life and ecosystem diversity.	**7.5.2.1** The soil used in a container system shall: a) not contain prohibited substances (see 1.5); b) be composed of substances listed in Table 4.2 (Column 1) of CAN/CGSB-32.311; c) contain a mineral fraction (sand, silt or clay, excluding perlite and vermiculite) and biological fraction, which contribute to the physical soil structure; d) be composed of at least 10% by volume of compost (exception: seedling/starter mixes may contain less than 10% compost if needed to ensure adequate germination/rooting); and e) contain at least 2% by dry weight or volume (whichever unit of measure is appropriate) of minerals (sand, silt or clay, excluding perlite and vermiculite) at the start of a production cycle. **7.5.2.2** The starting and maintained volume of soil in containers shall be proportional to the overall plant size, growth rate, targeted yield, and length of crop cycle. a) For crops grown in structures covered by Clause 7.5, the photosynthetic area comprises the floor area devoted to crop production including the aisles and spaces between plants but not including non-production areas, such as centre or header aisles, service ways, and storage areas, etc. b) For outdoor crops grown in containers, the photosynthetic area comprises the ground area devoted to crop production including the walkways, aisles and spaces between plants, but not including non-production areas, such as field access ways, turn-around areas, hedgerows and storage areas, etc. c) The length of a crop cycle will vary across the country, particularly in unheated structures, and should be taken into consideration when determining the volume of soil required. For perennial crops, the length of the active crop cycle starts at the beginning of seasonal growth and ends at the end of harvest during the same season. NOTE For container crops that are difficult to top-dress, for example strawberries, sufficient nutrition should be provided in the soil, prior to the start of the crop, to provide available nutrition continuously for the duration of the crop cycle. When this is not possible, liquid amendments listed in Table 4.2 (Column 1) of CAN/CGSB-32.311 may be used.

7.5.5 The following conditions apply to containerized, staked crops (for example, tomatoes, sweet peppers, cucumbers, eggplant):

a) at the start of production, the total volume of soil shall consist of at least 10% compost;

b) additional compost applications shall be included in the fertility program;

c) the soil volume shall be at least 60 L/m² (1.2 gal./ft²), based on the total growing area;

d) operators of an existing greenhouse production unit, which was under organic management in November 2016, and does not comply with 7.5.5 c) are allowed to continue producing staked crops using a soil volume smaller than 60 L/m² (1.2 gal./ft²);

e) after November 2016, all new built greenhouses (production units), and facility expansion or major renovation of existing operations are required to comply with the requirements of 7.5.5 a), b) and c), including the greenhouses of producers that are granted an exemption in 7.5.5 d).

7.5.6 Supplemental heat, with proper exhaust of burnt gasses, and supplemental lighting, are permitted. Supplemental nutrition with substances listed in Table 4.2 of CAN/CGSB-32.311, is permitted.

7.5.7 Plants and soil, including potting soil, shall not come into contact with prohibited substances, including wood treated with prohibited substances.

7.5.2.3 The minimum amount of soil required for crops not covered by 7.5.2.4 is 2.5 L (0.66 gal) of soil per m² of photosynthetic area per week of crop production time. The maximum amount of soil required in any case is 60 L/m² (1.2 gal/ft²), of photosynthetic area. Crop production time is counted from the start of plant propagation (for example seeding, sticking of unrooted vegetative cuttings, divisions, etc.) until final harvest.

7.5.2.4 The following conditions apply to containerized, semi-indeterminate and indeterminate staked crops (for example, tomatoes, peppers, cucumbers, eggplant):

a) additional compost applications shall be included in the fertility program;

b) the maintained soil volume shall be at least 60 L/m² (1.2 gal/ft²), based on the photosynthetic area. Interplanting short-lived crops among other crops (e.g., basil among tomatoes) or having multiple crop cycles within a year (i.e., cucumber) do not reduce this 60 L/m² requirement;

c) production units existing prior to November 2016 that have been continuously managed organically by the same operator, have not had major renovations, have not changed production area and do not comply with 7.5.2.4.b) are allowed to continue producing staked crops using a soil volume smaller than 60 L/m² (1.2 gal/ft²);

NOTE Part 13 Organic Products of the *Safe Food for Canadians Regulations* requires that the application for the organic certification of crops grown in greenhouses with a permanent in-ground soil system be filed at least 15 months before the day on which the food is expected to be sold. During that period of time, compliance with this standard will be assessed by the certification body and this assessment must include at least one inspection of the production unit, during production, in the year before crops may be eligible for certification and one inspection, during production, in the year crops are eligible for certification. This requirement does not apply to greenhouses built on land that is part of an existing organic operation. In the case of an initial application for organic certification of crops grown in containers, the application for certification must be filed within 12 months before the day on which the product is expected to be marketed.

7.5.3 Supplemental heat and carbon dioxide (CO_2) enrichment are permitted. Supplemental nutrition with substances listed in Table 4.2 (Column 1) of CAN/CGSB-32.311 is permitted.

7.5.4 Sunlight shall be the primary source of light for photosynthesis in all crops covered by Clause 7.5. Supplemental lighting may be used. As an exception, annual seedling transplants started in

	winter or spring that will be planted in the operation may be started by the operation under 100% artificial lights, from seeding to first transplanting. The expression "first transplanting" means moving a seedling to another growing medium (in a box, pot, container or in the ground).
	7.5.5 For crops harvested within 30 days of imbibition, organic seed shall be used.
	7.5.6 Plants and soil, including potting soil, shall not come in contact with prohibited substances, including wood treated with prohibited substances.
7.5.8 For crop production, the operator shall: a) use reusable and recyclable pots and flats whenever possible; b) use substances listed in Tables 4.2 and 4.3 of CAN/CGSB-32.311; c) use appropriate equipment cleaners, disinfectants and sanitizers listed in Tables 7.3 and 7.4 of CAN/CGSB-32.311.	**7.5.7** For crop production, the operator shall: a) use reusable and recyclable pots and flats whenever possible; b) use substances listed in Table 4.2 (Column 1 or 2) of CAN/CGSB-32.311 as required; c) use appropriate equipment cleaners, disinfectants and sanitizers listed in Tables 7.3 and 7.4 of CAN/CGSB-32.311.
7.5.9 Full-spectrum lighting is permitted.	
7.5.10 The following procedures, processes or substances are permitted to: a) enrich carbon dioxide levels: 1) flaming; 2) fermentation; 3) composting; and 4) compressed gas (CO_2); b) clean and disinfect plant containers, pots and flats: 1) substances listed in Tables 7.3 or 7.4 of CAN/CGSB-32.311; and 2) steam-heat sterilization; c) stimulate growth or development: 1) substances listed in Tables 4.2 or 4.3 of CAN/CGSB-32.311; and 2) control of daily temperature and light levels; d) prevent damping-off: 1) low-temperature baking; 2) hot-water treatment; and	**7.5.8** The following procedures, processes or substances are permitted to: a) clean and disinfect crop structures, equipment which may contact the soil or crop, and plant containers, pots and flats: 1) substances listed in Tables 7.3 or 7.4 of CAN/CGSB-32.311; and 2) steam-heat sterilization; b) stimulate growth or development: 1) substances listed in Table 4.2 (Column 1 or 2) of CAN/CGSB-32.311; and 2) control of daily temperature and light levels;

3) steam treatment.

7.5.11 The following procedures or substances are permitted for the prevention and control of disease, insects or other pests:

a) substances listed in Table 4.3 of CAN/CGSB-32.311;

b) pruning;

c) rouging;

d) vacuuming;

e) pest exclusion from greenhouses with air filters, screens or other physical devices; and

f) biological control methods.

7.5.12 Soil regeneration and recycling procedures shall be practiced. The following alternatives to crop rotation are permitted: grafting of plants onto disease-resistant rootstock, freezing the soil in winter, regeneration by incorporating biodegradable plant mulch (for example, straw or hay), and partial or complete replacement of greenhouse soil or container soil, provided it is re-used outside the greenhouse for another crop.

7.5.13 Greenhouse crop product preparation

Wherever organic product preparation takes place, 8.1 and 8.2 apply.

7.5.14 Facility pest management

Subclause 8.3 applies to pest management practices in and around crop facilities.

c) prevent and control pests including diseases, insects and other organisms:

1) substances listed in Table 4.2 (Column 2) of CAN/CGSB-32.311;

2) pruning;

3) roguing;

4) vacuuming;

5) temperature manipulation, for example freezing, heating, steaming;

6) pest exclusion from greenhouses with air filters, screens or other physical devices; and

7) biological control methods.

7.5.9 Soil regeneration and recycling procedures shall be practiced. The following alternatives to crop rotation are permitted: grafting of plants onto disease-resistant rootstock; freezing the soil in winter; regeneration by incorporating biodegradable plant mulch (for example, straw or hay); and partial or complete replacement of greenhouse soil or container soil. Used soil shall be re-used either in the greenhouse, or on another crop, unless the disposal of used soil is mandatory due to a regulatory directive to avoid spreading pests (including insects or disease).

7.5.10 Greenhouse crop product preparation

Wherever organic product preparation takes place, Clauses 8.1 and 8.2 apply.

7.5.11 Facility pest management

Clause 8.3 applies to pest management practices in and around crop facilities.

7.6 Wild crops

7.6.1 An organic wild plant product shall be harvested from a clearly defined area or production unit. Documented evidence that prohibited substances have not been used for at least 36 months before the harvest of an organic crop shall be available.

7.6.2 The operator shall prepare an organic plan (see 4.1, 4.2 and 4.3) that includes:

a) a detailed description of production areas and harvest methods;

b) management practices that preserve wild species and avoid disturbance of the environment; and

c) a record keeping system that meets the requirements of 4.4.

7.6.3 Wild products shall be considered organic on the condition that they are harvested in relatively undisturbed or stable natural settings. A wild plant shall be harvested or picked in a manner that promotes growth and production, and does not damage the environment.

7.6.4 The production zone for wild crops shall be isolated from contact with prohibited substances by a clearly defined buffer (see 5.2.2). Harvest sites shall be located more than one kilometre (0.62 mi) from potential sources of environmental contamination, such as golf courses, dumps, sanitary landfill sites and industrial complexes.

7.6.5 Wild crop product preparation

Wherever organic product preparation takes place, 8.1 and 8.2 apply.

7.6.6 Facility pest management

Subclause 8.3 applies to pest management practices in and around crop facilities.

7.7 Organic insects

All the relevant elements of clauses 1-6 in this standard shall apply.

7.6 Wild crops

7.6.1 An organic wild plant product shall be harvested from a clearly defined area or production unit. The operator shall provide documentation proving that prohibited substances have not been used for at least 36 months before the harvest of an organic crop.

7.6.2 The operator shall prepare an organic plan (see 4.1, 4.2 and 4.3) that includes:

a) a detailed description of production areas and harvest methods;

b) management practices that preserve wild species and avoid disturbance of the environment; and

c) a record keeping system that meets the requirements of 4.4.

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Wherever organic product preparation takes place, clauses 8.1 and 8.2 apply.

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Clause 8.3 applies to pest management practices in and around crop facilities.

7.7 Organic insects

All the relevant elements of clauses 1-6 in this standard shall apply.