



THE ORGANIC FEDERATION OF CANADA NEWSLETTER

Countdown to the publication of the 2020 Canadian Organic Standards
The weekly review

A final decision to prohibit 100% artificial lighting

Light is the source of life: all plants need light for photosynthesis. However, technology is evolving, and some consider that the spectral quality of certain artificial light sources is equivalent to sunlight.

The 2015 Canadian Organic Standard (COS) allows supplemental artificial lighting, but exposure to sunlight is mandatory for all plants grown in the soil, including microgreens.



In the 2020 COS review, a proposal recommended allowing 100% artificial lighting. This could increase organic crop production in the Far North and in city buildings. In the winter, crop production in insulated buildings without windows using 100% artificial lighting is more energy efficient than winter greenhouse production that involves supplemental lighting and heating.

These petitions generated heated discussions between members of the Greenhouse Working Group and the Technical Committee (TC) on Organic Agriculture. After much debate, the TC agreed to permit 100% artificial lighting in the draft submitted for public comment, but only for crops harvested within 60 days of planting. This would allow artificial lighting to be used for crops that can grow in cool conditions, such as greens, but not for heat-loving crops, such as tomatoes, cucumbers and peppers. This proposal was submitted for public review by the CGSB and generated an unprecedented opposition. One petition alone had 11,000 signatures.

Opponents argued that sunlight is part of a living ecosystem and an essential part of the organic crop cycle. Plants grown in sunlight would have better flavour and more nutrients and antioxidants than crops grown under artificial light (however scientific studies show inconsistent results). And, opponents asked, would consumers accept organic food produced without sunlight?

In response to the intense public outcry, the TC reversed its decision and proposed that the only certified organic plants that could be grown under 100% artificial lighting would be:

- Annual seedling transplants started in winter or spring that will be planted in the operation (as described in 5.3.3 and repeated in 7.5.4 of 32.310).
- Sprouts, shoots and microgreens, as defined in 7.4 of 32.310 as “crops that are generally 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).”

To learn more about the lighting issue, see [The Question of Light](#). The issue of artificial light is likely to return in the 2025 revision work. To be continued...

Crops Grown in Structures or Containers

What’s new in the name of clause 7.5?



Previously known as “**Greenhouse crops**”, clause 7.5 is now called “**Crops Grown in Structures or Containers**”. The introduction of 7.5 specifies what types of production are and are not covered by this clause. This section does not apply to many crops grown in the ground in simple greenhouses used for season extension or to provide a warmer growth environment. For example, the section doesn’t apply to plants grown in the ground in unheated greenhouses without lighting or CO₂ enrichment. Instead, clause 5 about Crop production will be applied. See box below.

Closing the loophole to “disguised hydroponics”

Many changes were made to the definition of soil and to the minimum soil volume. These changes were made to address concerns that certain operators were trying to sneak in a quasi-hydroponic system. Due to loopholes in the 2015 COS, it could be possible to grow plants in, for example, a mix of primarily peat moss and vermiculite (with 10% compost) and then provide most of the nutrients through soluble fertilizers. But organics is based on growing plants in living soil that supplies the bulk of nutrients to the plants. The 2020 COS closes this loophole in 7.5.2.2-7.5.2.4 (see box).

Sprouts, shoots and microgreens production



In the 2020 COS, “7.4 Sprouts, shoots and microgreens production” looks radically different from the 2015 COS. However, the main change was simply reorganizing the section to provide clarity. The two other signification changes are that 100% artificial lighting is allowed for sprouts, shoots and microgreens (7.4.2) and a water quality monitoring program is now recommended, not required (7.4.1.3).

☞ The revised clauses ☞

7.4 Sprouts, shoots and microgreens production

7.4.2 Artificial lighting is permitted to supplement or replace natural light. [Note this is in Clause 7.4 Sprouts, shoots and microgreens production.]

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 CO₂ 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 CO₂ enrichment;
- crops grown under row cover, insect netting or bird netting (covered in Clause 5).

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/CGCB-32.311 may be used.

7.5.2.3 The minimum amount of soil required for crops not covered by 7.5.2.4 is 2.5 L of soil per m² of photosynthetic area per week of crop production time. The maximum amount of soil required in any case is 60L/m² 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);

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).

Organic production systems: general principles and management standards.

32.310. Draft approved August 4th, 2020 by the CGSB Technical Committee on Organic Agriculture.

Have you missed the previous teasers highlighting changes to the COS?

They are all available on OFC website. Here is the list!

Feed for livestock

Pandemic and drought on the agenda of the review of the Canadian Organic Standards - [Read more](#)

Solving P shortage on organic farms

Recycling P from livestock urine - [Read more](#)

Organic bee feeding

Helping honeybees survive Canadian winters the organic way - [Read more](#)

Protecting biodiversity

All operators will be required to demonstrate that they are protecting and enhancing the ecosystem health of their operation - [Read more](#)

Parallel production

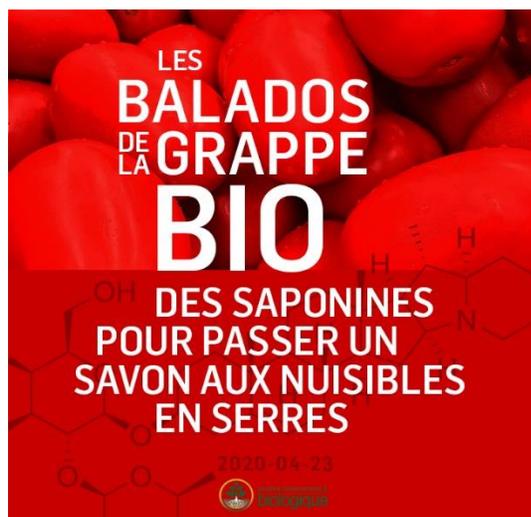
Relaxation of the standard for farms already certified - [Read more](#)

Poultry welfare

Overhead cover for shade and protection - [Read more](#)



Discover the science behind organic farming, one podcast at a time



Saponins for Controlling Pests in Greenhouses [24:13]

Dr. Simon Lachance, a researcher at the University of Guelph, is looking for biopesticides to control greenhouse pests. He is extracting saponins from greenhouse tomato crop residues to test the antifungal and insecticidal properties of this bioactive molecule, whose phytochemical potential is under-exploited in Ontario greenhouses. **Read more.**

To listen (in French), [click here!](#)

To read English transcript, [click here](#)