

## **G: MUSHROOM PRODUCTION, WILD CROPS & ORGANIC INSECTS (310 CLAUSES 7.3, 7.6 & 7.7)**

### **CANADIAN ORGANIC STANDARDS\***

#### **7.3 MUSHROOM PRODUCTION**

“All relevant subclauses in this standard apply to mushroom production where this subclause has no specific requirements, including 5.1.3, 5.1.4, 5.1.6, and 5.1.7. For outdoor production, 5.2.2 also applies.”

##### **7.3.1 Production sites and structures**

“For organic mushrooms or mushroom products, the operator shall manage production units in a manner that ensures substrates and mushrooms do not come into contact with prohibited substances. Substrates shall be produced in accordance with this standard and applicable entries in Table 4.2 (Column 1) of CAN/CGSB-32.311 such as Composting feedstocks and Compost produced on the production unit:

### **COG'S GUIDE TO THE STANDARDS**

7.3 While mushroom production has its own section in the Standard, certain clauses of the Production Standard also apply to mushroom operations. In particular, 5.1.3, 5.1.4, 5.1.6 and 5.1.7 govern parallel production and outline the responsibility of operators to protect organic crops from contamination from pest control products, fertilizers and cleaners used in adjacent conventional production. To ensure that the organic mushrooms are not mixed with non-organic mushrooms, organic varieties shall be visually distinct from non-organic mushrooms grown in the same facility.

Subclause 5.2.2 requires that an 8-metre buffer is established between an organic crop and non-organic crop in field production. This could apply in outdoor log production, for example, where oyster mushrooms were grown organically and shiitake mushrooms were grown conventionally. In an indoor facility, separate growing rooms for organic and non-organic would satisfy this requirement.

Subclauses 1.4 and 1.5 also apply. These identify prohibited methods and substances, such as genetic engineering, nanotechnology, irradiation, sewage sludge and synthetic growth regulators, in addition to any soil amendments and crop production aids that are not listed on the Permitted Substances Lists.

7.3.1 Each type of production site has specific restrictions to ensure the organic integrity of the mushroom production. Indoor facilities which have previously been used for industrial purposes should be assessed at the outset to ensure that there are no residues from the previous industrial activity. For example, treated wood used to construct growing beds would need to be replaced to prevent the wood treatment chemicals from leaching into the mushroom substrate.

\*Organic production systems: general principles and management standards. CAN/CGSB-32.310-2020. Canadian General Standards Board. Dec. 2020. [www.publications.gc.ca/site/eng/9.854643/publication.html](http://www.publications.gc.ca/site/eng/9.854643/publication.html). 1

\*\*See the Q&As from the Standards Interpretation Committee at [organicfederation.ca/final-questions-and-answers-canadian-organic-standards](http://organicfederation.ca/final-questions-and-answers-canadian-organic-standards).

## **CANADIAN ORGANIC STANDARDS\***

- a) For indoor facilities, organic mushrooms shall not come into contact with prohibited substances that would compromise the integrity of the crop.
- b) For mushrooms grown in soil, prohibited substances shall not have been used for at least 36 months before the harvest of an organic crop.
- c) For new installations or replacement purposes, lumber treated with prohibited substances shall not be used in structures, containers or other surfaces that come into contact with the growth substrate or mushrooms.”

### **7.3.2 Substrates and growth media**

#### **7.3.2.1 Wood substrates**

“Logs, sawdust or other wood-based materials used as substrates shall come from wood, trees or logs that have not been treated with prohibited substances.”

#### **7.3.2.2 Manure**

“Subclause 5.5.1 applies to manure used in growth substrates (including any non-organic agricultural substances in the manure). Manure shall be composted according to the requirements for soil amendments outlined in Table 4.2 (Column 1) of CAN/CGSB-32.311.”

## **COG'S GUIDE TO THE STANDARDS**

Peat moss containing substances permitted in PSL Table 4.2 Column 1 may also be used as a mushroom substrate/growth media or as a casing layer on top of a mushroom bed. For mushrooms produced in soil, a Prior Land Use Affidavit (signed statement) from the previous owner will be needed if the property has been acquired within the previous 36 months.

In forest-grown mushroom production, the operator needs to provide documents which confirm that the forest has not been managed using herbicides to control off-type trees or weeds in the understory.

7.3.2.1 Wood substrates, such as sawdust for shiitake or oyster mushroom production, must be from untreated sources – for example, sawmills which produce sawdust from lumber production. Sources which recycle lumber from housing sites are likely to be contaminated with other building products, such as glue, pesticide treatments, staples, nails and/or insulation residue, or may have treated wood.

Wood substrates do not have to be composted to be used in organic mushroom production.

7.3.2.2 Manure must be composted before it is used as a substrate for organic mushroom production. The requirements for composting are found in “32.311 Table 4.2 Compost produced on the farm.” Compost feedstocks must reach 55C (130F) for at least four days. The pile must be mixed to ensure that all parts of the pile are heated. If temperature records cannot be kept, the compost can be tested for human pathogens and can be used if (i) the faecal coliform level does not exceed 1000 MPN/g and (ii) Salmonella levels are below 3 MPN/4g (the limits set by the *CCME Guidelines for Compost Quality*).

It is important to keep records of the source and identify of compost feedstocks (ingredients). If the

\*Organic production systems: general principles and management standards. CAN/CGSB-32.310-2020. Canadian General Standards Board. Dec. 2020. [www.publications.gc.ca/site/eng/9.854643/publication.html](http://www.publications.gc.ca/site/eng/9.854643/publication.html).

\*\*See the Q&As from the Standards Interpretation Committee at [organicfederation.ca/final-questions-and-answers-canadian-organic-standards](http://organicfederation.ca/final-questions-and-answers-canadian-organic-standards).

## **CANADIAN ORGANIC STANDARDS\***

### 7.3.2.3 Other agricultural substances

If they are not composted, agricultural substances such as straw, hay or grains used as growth substrate shall be from organic sources. If organic sources are not commercially available, non-organic sources may be used, provided that they are composted according to the requirements for soil amendments outlined in Table 4.2 (Column 1) of CAN/CGSB-32.311.

### 7.3.3 Spawn

“Organic spawn (seed) shall be used. Spawn grown or treated with substances listed in Table 4.2 (Column 2) of CAN/CGSB-32.311 may be used if organic spawn is not:

- a) available from within the production unit;
- b) commercially available.”

## **COG'S GUIDE TO THE STANDARDS**

feedstock source cannot be confirmed, the certifier may ask for a test to check for persistent herbicides.

If the compost is purchased, it must be accompanied by documents that provide the levels of heavy metals and coliform bacteria.

7.3.2.3 “Other agricultural substances” are materials other than manure such as straw, hay and grain. Composting “other agricultural substances” is mandatory if organic sources are not used. The process of composting can degrade most conventional agricultural inputs, such as herbicides and insecticides. Similarly, substances that are agricultural byproducts (such as feather meal, blood meal or alfalfa meal) do not need to be composted before being used if it can be confirmed that they are made from organic sources.

7.3.3 Non-organic spawn may be used if organic spawn is not commercially available. Operators need to provide documents (e.g., emails, website information) from suppliers to show they have conducted a search for organic spawn.

If non-organic spawn is used, it must be grown or treated only with substances listed on Table 4.2 (Column 1 or 2). The spawn cannot be genetically engineered. Now that a genetically engineered mushroom variety has been commercially released (with reduced browning after slicing), documentation that the spawn is non-GE is extremely important.

Spawn is supplied in formats appropriate to the type of production. Sawdust spawn consists of sterilized sawdust inoculated with mycelium. Sawdust spawn can be used to form the wooden dowels to inoculate logs or used to directly inoculate outdoor mushroom beds or pasteurized straw. Sawdust spawn may be fortified to improve yields, but only with substances that are listed on Table 4.2 (Column 1 or 2).

Grain spawn is composed of sterilized grain inoculated with spores or mycelium. As corn is sometimes used for grain spawn, a statement from the supplier that the corn is non-GE is required.

\*Organic production systems: general principles and management standards. CAN/CGSB-32.310-2020. Canadian General Standards Board. Dec. 2020. [www.publications.gc.ca/site/eng/9.854643/publication.html](http://www.publications.gc.ca/site/eng/9.854643/publication.html).

\*\*See the Q&As from the Standards Interpretation Committee at [organicfederation.ca/final-questions-and-answers-canadian-organic-standards](http://organicfederation.ca/final-questions-and-answers-canadian-organic-standards).

## **CANADIAN ORGANIC STANDARDS\***

### **7.3.4 Crop pest control and sanitation**

“Preventative pest control measures shall include the following:

a) removal of infected materials. Infected mushroom strains shall be burned, moved at least 50 m (164 ft) from a production site (if, for example, the diseased logs are kept for research), or disposed of as recommended by good management practices;

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

c) using cultivation sites that are free of debris from understory, diseased trees and trees infected by other pests;

d) cleaning and maintenance of equipment with sanitizers and disinfectants listed in Table 4.2 (Column 2) of CAN/CGSB-32.311.”

### **7.3.5 Mushroom product preparation**

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

### **7.3.6 Facility pest management**

“Subclause 8.3 applies to pest management practices in and around mushroom facilities.”

## **CANADIAN ORGANIC STANDARDS\***

### **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.”

## **COG'S GUIDE TO THE STANDARDS**

7.3.4 Crop production aids listed on Table 4.2 can be used in mushroom production. However the focus should be preventing problems with insects and diseases.

Table salt has been added to the CAN/CGSB-32.311-Permitted Substances Lists- Table 4.2 as it is effective in stopping the spread of competing micro-organisms on the surface of the substrate.

7.3.5 Product preparation includes rinsing, slicing, dehydrating and packaging. Avoid practices which expose the organic mushrooms to conventional cleaners or processing aids.

## **COG'S GUIDE TO THE STANDARDS**

7.6.1 These wild crop requirements are specific to plants, and do not include wild animal products, such as honey harvested from wild bees. A clearly defined production area must be marked on a map so that the verification officer (inspector) can verify the limits of the harvest area.

To comply with the standards, documents are required that state that no prohibited products have been applied to the production area; these documents must come from the authority having jurisdiction over

\*Organic production systems: general principles and management standards. CAN/CGSB-32.310-2020. Canadian General Standards Board. Dec. 2020. [www.publications.gc.ca/site/eng/9.854643/publication.html](http://www.publications.gc.ca/site/eng/9.854643/publication.html).

\*\*See the Q&As from the Standards Interpretation Committee at [organicfederation.ca/final-questions-and-answers-canadian-organic-standards](http://organicfederation.ca/final-questions-and-answers-canadian-organic-standards).

## **CANADIAN ORGANIC STANDARDS\***

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.”

## **COG'S GUIDE TO THE STANDARDS**

the production area. In many cases this is the provincial government, but may also involve the owners of private land. Keep in mind that certain prohibited substances, such as herbicides and fertilizer, are routinely applied to tree farms. Do not overlook aerial spraying applications, such as in the case of gypsy moth or mosquito eradication programs. There are also historical examples of injectable arsenic being trialed in forestry blocks.

7.6.2 Organic plans for wild crop operations need to provide (among other things) the following information:

a) detailed maps/descriptions of the harvested areas (consider supplying GPS latitude and longitude coordinates) and verifiable information regarding the use of the harvested area over the past three years.

b) details about the length of harvest, tools used, how the crop is cared for post-harvest, and where it is marketed.

c) documentation and records that ensure a sustainable harvest over time. The operators should be able to prove that their activities will not result in the degradation of the target crop, other species in the area, or the ecosystem.

7.6.3 Wild cropping is an off-farm activity and involves harvesting wild plants – not cultivated species. Wild harvesting must be done in such a way so as to be sustainable over time and in a way that will not deplete the resource.

The use of the term “relatively undisturbed” could lead to some confusion as a logged forest has been disturbed, but mushrooms growing in a logged and planted clear-cut are in a natural setting (aside from the logging that has taken place earlier). As long as the mushrooms are harvested in a way that ensures future growth (in this case, that spawn mushrooms are left behind), this type of wild harvest complies with these standards.

\*Organic production systems: general principles and management standards. CAN/CGSB-32.310-2020. Canadian General Standards Board. Dec. 2020. [www.publications.gc.ca/site/eng/9.854643/publication.html](http://www.publications.gc.ca/site/eng/9.854643/publication.html).

\*\*See the Q&As from the Standards Interpretation Committee at [organicfederation.ca/final-questions-and-answers-canadian-organic-standards](http://organicfederation.ca/final-questions-and-answers-canadian-organic-standards).

## **CANADIAN ORGANIC STANDARDS\***

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, clauses 8.1 and 8.2 apply.”

**7.6.6 Facility pest management**  
“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.

## **COG'S GUIDE TO THE STANDARDS**

“Relatively undisturbed” would also prohibit the use of any substances, even permitted substances, as they could change the ecosystem.

7.6.4 Buffer zones or some type of barrier, such as a fence or hedge, may be required to separate organic wild crops from surrounding activities, with a minimum 1-kilometre distance required to golf courses, dumps, sanitary landfills and other industrial activities. Any wild crop or crop in the buffer zone cannot be marketed as organic.

7.6.5 To maintain the organic integrity of the wild crop during harvest and after harvest, all handling must comply with the requirements outlined in 8.1 and 8.2. Clause 9 may be pertinent if further processing is done.

7.6.6 Address the requirements in 8.3 of 32.310 when dealing with pests (such as rodents or silverfish) at the facility (e.g., weighing station, temporary storage, etc.).

7.7 All land used to raise insects as food or feed must meet the requirements outlined for crops in clause 5 and any applicable livestock standards in clause 6. All prohibitions in clause 1 pertain, as well as the definitions in clause 2. Overruling legislation must also be addressed.

Organic integrity during production and post-harvest as outlined in clause 8 is also applicable and any post-production preparation must address the requirements in clause 9.

\*Organic production systems: general principles and management standards. CAN/CGSB-32.310-2020. Canadian General Standards Board. Dec. 2020. [www.publications.gc.ca/site/eng/9.854643/publication.html](http://www.publications.gc.ca/site/eng/9.854643/publication.html).

\*\*See the Q&As from the Standards Interpretation Committee at [organicfederation.ca/final-questions-and-answers-canadian-organic-standards](http://organicfederation.ca/final-questions-and-answers-canadian-organic-standards).