



Guidelines for Certification of Organic Maple Syrup & Sap

Vermont Organic Farmers, LLC (VOF)

Northeast Organic Farming Association of Vermont (NOFA-VT)

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The Vermont Organic Farmers LLC (VOF) guidelines for maple production are drawn from those practices established in the Vermont State law (6 V.S.A. Chapter 32); the Vermont Department of Agriculture Maple Quality Control Manual; Tapping Guidelines by George Buzzell, Orleans County forester; Joint Statement of the North American Maple Syrup Council and the International Maple Syrup Institute on Organic Production of Pure Maple Syrup. In addition, all practices must be in compliance with the USDA National Organic Program Standards (7 CFR Part 205).

I. INTRODUCTION

All organic maple syrup producers must be familiar with the general requirements of the USDA National Organic Program. Contact the VOF office if you do not have a copy of these standards. The following maple guidelines provide additional information for determining what practices are compliant with the national standards. In addition, producers should make sure they are compliant with Vermont State laws governing the production and labeling of Vermont Maple Syrup.

NOP Section 205.207 (b) Wild Crop Harvesting Standard states that, "A wild crop must be harvested in a manner that ensures that such harvesting or gathering will not be destructive to the environment and will sustain the growth and production of the wild crop."

Organic maple sap and syrup production is defined by the following:

- 1) Cultural practices designed to maintain tree health and ensure long-term preservation of the sugarbush as an ecosystem; Therefore, on rented land, a long-term lease is recommended. In addition, each landowner may have different requirements concerning tapping and forest management for its lessees. If you seek certification from VOF, you must be prepared to meet the standards regardless of what the landowner permits or what you have negotiated in your lease agreement.
- 2) The prohibition of synthetic materials added at various stages of management and production unless allowed on the National List of Allowed and Prohibited Substances.

II. PRODUCTION STANDARDS

All Guidelines are subject to existing Federal, State, and local food handling and sanitation requirements.

A. Sugar Bush Management

"Ecologically sustainable forestry perpetuates ecosystem integrity while continuing to produce wood and non-wood values: where ecosystem integrity means the maintenance of forest structure, species composition, and the rate of ecological processes and functions within the

bounds of normal disturbance regimes." (DB Lindenmayer and HF Recher, Aspects of ecologically sustainable forestry in temperate eucalypt forests - beyond an expanded reserve system. 1998)

Producers shall take the necessary steps to protect the sugar bush ecosystem. Ideally organic maple sap production should come from a diverse ecosystem and not from a pure maple monoculture. "...Under most circumstances, the creation of a pure maple monoculture is not desirable, as the presence of other species contributes to diversity, increases nutrient cycling, reduces spread of insects and diseases" (p.35 North American Maple Syrup Producer's Manual). However, this diversity may depend on the natural community that the stand starts out as, and it is recognized that many sugar makers due to current, past management, and natural disturbance have forests and stands with less than the ideal diversity and age distribution of trees. If producers have a sugar maple monoculture and/or even age stand, the forest management plan(s) will need to address diversification of species and regeneration.

For certification purposes, VOF defines a "sugarbush" as a property that:

- is used for maple sap collection,
- is comprised of one or more contiguous stands as described in a forest management plan that meets the Vermont State Use Value Appraisal (UVA) Forest Management Plan Template dated April 1, 2010,
- includes one or more "sap collection zones"
 - ✓ A "sap collection zone" refers to a group of red and sugar maple trees whose sap is collected by a single mainline or a collection of mainlines that drains into a single sap storage tank.
- has one physical address or can be referred to by one physical address.

B. Certification Requirements

- 1) In order to be certified, no synthetic fertilizers, herbicides or pesticides shall have been used in the 3 years preceding application for organic certification.
- 2) A written forest management plan is required. The plan may be written by a forester or the applicant. Forest Management Plans must meet all components as required by the Vermont State Use Value Appraisal (UVA) Forest Management Plan Template dated April 1, 2010. UVA requires that active management takes place based on the current conditions of the stand.
- 3) The written forest management plan must be updated every 10 years, based on the date the forest inventory data was collected.
- 4) In addition to UVA plan components, VOF requires the following management practices. A written description of how these management practices will be met must be included in the forest management plan or in a separate addendum. A checklist to assist landowners and consulting foresters draft forest management plans and addendums that are compliant with these guidelines is available upon request from the VOF office.
 - a. Species Diversity: "Forest biological diversity is a broad term that refers to all the life forms found within forested areas and the ecological roles they perform. As such, forest biological diversity encompasses not just trees but the multitude of plants,

animals and microorganisms that inhabit forest areas and their associated genetic diversity.” (D Lindemeyer and J Franklin, Conserving Forest Biodiversity. 2002)

- Producers must describe in their forest management plans how forest diversity will be maintained or achieved.

Conversion: When converting the forest to maple sap production, the residual stand must be at least 20% non-sugar maple trees measured in terms of basal area per stand. In instances when the stand, prior to conversion, already has less than 20% non-sugar maple trees, the residual stand must not be less than pre-conversion percentages. For example if a stand has 40% non- sugar maple trees before conversion, no less than 20% non-sugar maple trees must be retained. If the stand has only 10 % non-sugar maple trees, the residual stand must also have 10% non-sugar maple trees. Please note red maple qualifies as a non-sugar maple.

Existing Stands Converted 5 years Prior to Organic Application: For existing sugarbushes recently converted to organic production, if diversity is less than 20% non-sugar maple trees (measured in terms of basal area per stand), producers must provide a description of how past management resulted in current tree species diversity. **VOF will not certify sugarbushes recently converted to sap production using whole tree harvest techniques.**

- If the forest management plan includes no stands that are over 20% non-sugar maple trees, a forest management plan that profiles adjacent land under someone else’s management and describes how these surrounding forests achieve diversity within the larger ecosystem must be submitted to the VOF office for evaluation by the Review Committee. This plan must include an aerial photograph at a landscape level.
 - Ecologically sensitive areas, if present, must be identified in the plan and shall be protected.
 - Habitat for wildlife species, including amphibians, birds, aquatic life and mammals, must be addressed in the plan. The plan may address problems such as deer overpopulation as well as preservation or improvement of habitat for rare or endangered species.
 - If the producer decides that control of invasive species is needed, a description of methods used must be included in the plan and must be done without the use of any prohibited herbicides.
- b. Stand Regeneration. Each management plan must have a regeneration plan.
- Uneven Age/Even Age Management. Ideally, the maple forest will have mixed ages of trees to allow for continuous stand regeneration.
 - All forest management plans must have a regeneration plan. In forests with pre-existing even aged stands of maple trees, a plan to convert the stand to un-even age management is required. In instances when the sugar bush is

even age maple monoculture, the organic forest management will require a stand regeneration plan which will be carried out within a time frame appropriate for the site. For example, a series of crop tree release, improvement cuts and/or selection harvests with a rotation age of 150 years could be an appropriate timeline (see below for limits on basal area reduction).

- In addition, for even age stands information on why the stand is currently even aged must be included in the plan (for example, grazing in previous years, previous forest management, natural events).

c. Thinning Practice/Harvest Techniques

- Prescribed activities must meet or exceed the Use Value Appraisal minimum standards and be carried out in accordance with U.S. Forest Service or other appropriate silvicultural or management guides or handbooks. (See Appendix A of the Use Value Appraisal Manual-Partial List of Acceptable Forest Management Publications).
- Leaving branches, trees and woody debris in forest is encouraged to improve the recycling of biomass (nutrient cycling). Material smaller than 3 inches must be left in the woods. Deviation from this standard could result in loss of certification.
- **Whole tree harvest techniques (e.g. use of a feller-buncher) are prohibited.**

d. Residual Stand Damage

- During thinning or harvest, damage to remaining trees must be minimized or avoided.
- Trees with 20% or more harvest-imposed damage must not be considered acceptable growing stock, and must not be counted in the residual basal area.
- Since the roots of maples are close to the soil surface, producers must avoid passing with their machinery too frequently during and outside the production season.
- Any trees or areas of forest with significant root damage or soil disturbance must not be considered acceptable growing stock, and must not be counted in the residual basal area.

e. Forest Soils & Roads

- The number of roads must be kept to a minimum and located so as to minimize damage to roots from soil compaction. However in areas where roads are required, they must be maintained in a manner that prevents soil erosion. For example, this may include ditching, water bars, maintaining vegetative cover.
- It is recognized that ruts may form in regularly used forest roads (such as main forest roads used daily for access to the sugar bush or sap collecting stations) during sugaring. However producers must manage those areas to prevent

soil movement. Examples include bringing in stone or other material, constructing water bars or ditching.

- Minimize soil compaction by keeping travel with heavy equipment in the forest to a minimum.
 - If a producer chooses to use fertilizer inputs, Fertilization applications shall be in accordance with requirements based on observed and diagnosed deficiencies. Lime and other non-synthetic fertilizers are allowed. Contact the NOFA office for a complete list of accepted inputs.
 - Water quality must be maintained or improved. Silting/ Sedimentation of streams must be prevented.
 - If parts of the sugar bush are going to be grazed this practice must be addressed in the forest management plan to ensure no long-term damage to the sugar bush will occur.
- f. Trees that are tapped must not be marked with prohibited substances (this includes synthetic paint). Trees painted prior to January 26, 2010 are grandfathered in.
- g. For continuing producers with existing and current forest management plans, addendums that include the above requirements must be completed when their plan expires or no later than December 31, 2015. However, practices must be in compliance with the above standards as of December 31, 2010.**
- h. All producers seeking certification (new or continuing) must have an on-site inspection that occurs during the sugaring season (typically between mid-January and the end of April). **The National Organic Program requires that all production facilities and sugarbushes under a certified organic producer's management be inspected annually.** A supplemental certification fee of \$150.00 (this fee may vary according to actual costs) may be charged for any applicant who requires additional work by the Review Committee or inspector. Conditions that may require a supplemental fee are as follows: a certification inspection visit that takes longer than 4 hours, an additional audit trail review of a farm or processing application, out-of-state travel, a repeat inspection visit to gather new information or to inspect another part of the farming operation (e.g. all sugarbushes under a producer's management), or inspection of a farmer/processor whose facilities are in different locations. Supplemental work is not included in the initial certification fee and will be charged at cost (inspector's salary and travel), plus an administrative fee.
- i. In addition to the annual certification inspection, at least 10% of all VOF certified maple producers will receive a summer forest inspection to verify if they are complying with a VOF approved forest management plan. These summer inspections will be randomly selected and VOF will incur the costs of all surprise inspections.
- j. Maps of each sugarbush must contain the following information:

- a. Location of sugarhouse, collection tanks
- b. Adjoining land use (hay, forest, corn...)
- c. Location of all stands described in the forest plan
- d. Number of acres
- e. Major Roads and physical features

C. Invertebrate and Vertebrate Pest Management

All relevant production practices should take pest prevention into consideration. Growers must use management practices to prevent pest problems. Once prevention fails, methods of control having the lowest ecological impact should be the first choice. Although “natural” insecticides are widely accepted as organic because of their natural origin and swift decomposition, when over-used they pose a danger to soil organisms, beneficial insects and wildlife, as well as to humans using them. All pesticides, no matter how they are derived, should be handled with caution and used only in accordance with the labeled instructions and Vermont State Law.

Accepted

- Use of mechanical controls such as traps, lures, barriers and sound.
- Biological controls such as release of natural predators and parasites and providing habitat for natural predators
- Microbial and viral diseases, provided no petroleum-based synergists or carriers are used, if the inert ingredients are disclosed and contain only accepted ingredients.
- Habitat modification to discourage vertebrate pests
- Shooting of mammals and birds in accordance with VT state law
- Physical barriers such as fences, netting, etc.
- *Bacillus thuringiensis* (BT) for forest tent caterpillar if all ingredients (including inerts) are approved

*Only when the above practices are insufficient, a producer may use a biological or botanical substances or a synthetic substance from the National List. Many “natural” insecticides are prohibited due to synthetic inert ingredients. **Please refer to VOF’s Product List for Organic Crop Production.***

Prohibited

- Pesticides containing prohibited substances.
- *Bacillus thuringiensis* (BT) for forest tent caterpillar with prohibited inert ingredients

D. Tapping Management

Continued tree productivity depends on determining the proper number of taps per tree and then distributing these taps over as large an area of tappable wood as possible. Distributing these taps properly will keep them separated from each other by larger areas of healthy white wood. Drop line location and length must be adequate to reach these properly located tap holes. A primary objective is to extend the tapping zone to be as large as possible. Tap holes must be as shallow as

possible. Please note VOF intends on verifying that producers consistently meet the guidelines below. Some accidental deviation from these guidelines will not result in a non-compliance.

- a. Taps must be distributed evenly on the trunk following guidelines below.
- b. It is important to allow long enough dropline lengths (recommend 30-36") to allow vertical staggering as well as horizontal offsetting of new tap holes. When using disposable taps and clipping dropline annually, dropline length must never be less than 24".
- c. Taps must be placed at least six inches to one side and one foot above or below the prior year's tap holes.
- d. The number of taps per tree must be based on the diameter of the tree measured at breast height when there is no snow on the ground. The depth of the tap hole shall be no more than 2 inches not including the bark or 3 inches from the surface of the bark. Continued tapping of trees which are not healing over will speed up injury, dieback, and lead to premature death. Two tapping guidelines exist based on type and size of spout used. They both presume that trees are healthy and capable of growing 1/8" of new wood annually measured at the outside growth rings. Health spouts have proven to be less invasive to the tree and are therefore recommended. The guidelines are as follows:

Health Spout (5/16")

- 1 tap** 9"-14" dia. (28"-44" circ.)
- 2 taps** 15"-21" dia. (47"-63" circ.)
- 3 taps** 22" & over, dia. (69"+ circ.)

Standard Spout (7/16")

- 12"-18" dia. (36"-54" circ.)**
- 19" & over, dia. (54"+ circ.)**
- Prohibited**

- e. Retapping a previously tapped tree during the same season (double tapping) or reaming (freshening the tap hole) is not permitted.
- f. Leaving taps in trees at the end of the tapping season (60 days after end of sap flow) is not permitted.
- g. Trees under nine inches in diameter may be tapped if they are specifically marked to be removed due to thinning (as described in your management plan).
- h. The use of synthetic fungicides, antibiotics, fumigants, sterilants, etc. in contact with trees is prohibited.
- i. The tapping of any trees in a manner other than described above requires approval from the VOF Review Committee and will take into consideration the use of micro taps (3/16"), soil conditions, slope, aspect, crown size, stocking density, other factors.
- j. For our purposes, a tree is defined as a woody plant with an erect, perennial stem that can reach a size of at least 9.5 inches in circumference at a point 4.5 feet above ground; has a well-defined crown of foliage; and can reach a total vertical height of at least 13 feet (adapted from Little 1979).

E. Production Equipment, Methods, and Syrup Storage

This refers to sap collection, storage and transportation; concentration of maple sap into maple syrup; filtration of sap or syrup; and storage.

Accepted:

- Use of metal and plastic spouts and seals, plastic tubing. Wire used to hang mainline must be kept from damaging the trees it is attached to. Use of nails or bolts must be kept to a minimum and considered as a “tap” if used in an allowable maple tree in the year that the nail or bolt is put in the tree.
- Producers are encouraged to recycle all plastic materials. Contact the Agency of Agriculture for more information.
- Use of reverse osmosis, ultra filtration of sap, and ultraviolet light are allowed.
- Storage, boiling and pipeline equipment (anything that comes in contact with sap or syrup) shall be made of food grade materials. Producers must check all plastic pipe to verify that it is food grade/water potable. Sewer pipe (often green) is not food grade. All equipment must be washed and well rinsed. All new equipment must have lead- free solder to prevent lead contamination. The intention of all producers should be to move away from equipment (especially pans where the sap is cooked) that contains any lead.
- Stainless steel, food grade plastic and epoxy-lined drums are allowed (provided interior paint is not chipping or cracking – producer must have protocol to check for this).
- If a generator or other gasoline or diesel engine is run in the same room that sap is stored in, then the exhaust must be vented to the outside.
- Food grade diatomaceous earth added to syrup before filtering. If DE is used as a filtering agent, the product cannot be labeled as 100% organic. (Please see section IV Labeling)
- Food grade paper, felt, sand, or synthetic filters may be used.
- **Defoamers-** Defoamers are considered processing aids in the production of organic maple syrup. Processing aids must be approved on the National List (see section 205.605). Processing aids must be produced without the use of genetically modified organisms, irradiation and sewage sludge. In products labeled as 100% organic, processing aids that are agricultural must be organically produced. Accepted defoamers include certified organic vegetable oils. Please note that overuse of organic vegetable oils can impart off flavors in syrup. Caution: Food allergies are on the rise. Soy oil, peanut oil and dairy products are known allergens. If an allergen containing defoamer is used, VOF recommends providing information about it on your label. In addition, many bulk maple syrup buyers have specific requirements for approved defoamers. ***Synthetic defoamers are not allowed for the production of organic maple syrup products.*** Please contact the VOF office if you have a question about your defoamer.

Prohibited:

- Single use taps, even when biodegradable, must be removed from the forest when taps are removed.
- When replacing pipelines and droplines, old material must be removed from the forest within two seasons. This allows for producers to remove old material in two steps by taking down old lines the first year and removing all old lines in the second year.
- Synthetic fungicides, antibiotics, fumigants, sterilants, etc. not on the National List are not allowed in contact with trees. As new technology becomes available it is up to the producer to make sure that new equipment do not contain prohibited materials (i.e. fungicides, antibiotics, fumigants, sterilizers, etc.).

- All galvanized equipment that comes in contact with sap or syrup is prohibited, with the exemption of existing galvanized buckets. Producers using galvanized buckets are required to submit annual lead tests and must purchase non-galvanized buckets for replacement purposes. Lead-free metal sap buckets and food grade plastic buckets are permitted. Stainless steel buckets and equipment are encouraged.
- Drums with chipped epoxy paint, rust or other imperfections which can impact syrup quality are prohibited.
- Sap storage tanks must either be inside or covered (dome tanks are considered covered).

F. Washing and Disinfection of Equipment

It is required that all equipment be kept clean and free of traces of cleansing agents. Every time cleansing agents or disinfectants are used, filter, pans, seals, and tanks shall be rinsed thoroughly with clean water.

- a. Conventional cleaning products may be used provided that care is taken to avoid any contamination of the organic product.
- b. Chlorine bleach products that are of sufficient purity to be categorized as a “food grade” substance (as confirmed by the EPA registration number and the manufacturer’s intended use statement) may be used with potable water to make sanitizing solutions for sanitizing food contact surfaces. Producers using food grade bleach solutions to clean tubing are encouraged to trap the chlorine wash so it does not damage the roots of adjacent trees and should consider the fact that most distributors of sugaring equipment do not recommend this practice due to the fact that the salty residue left behind can be attractive to wildlife and result in significant damage to drop lines, lateral lines, mainlines and conductor systems.
- c. Tubing systems shall not be sanitized with prohibited products during the season of sap flow unless the sanitization is followed by a purge or rinse.
- d. Reverse osmosis machines and boiling equipment must be thoroughly rinsed after the use of any cleaning chemicals or preservatives. The producer must have a protocol to verify that the quantity and quality of water used in this rinse is adequate. This does not have to be documented each time with cleaning records.
- e. Before putting syrup into drums for storage, producers must have a documented cleaning and rinsing protocol to verify that syrup does not come in contact with a contaminant.

III. RESIDUE TESTING

Residue testing of organic syrup may be required when there is reason to believe that the syrup has come into contact with a prohibited substance or has been produced using excluded methods. During the annual inspection or on a separate site visit, VOF may randomly select a container (open barrel or retail unit) to take a sample for analysis. These samples may be analyzed for lead content, synthetic defoamer and any other residue of concern.

If an operation uses galvanized buckets, they will be asked to provide documentation that the lead equipment is not contaminating the organic syrup. Any syrup with lead levels above 250 ppb cannot be sold as organic. Producers with samples above the 250 ppb lead level must also reassess their management and equipment and submit proposed changes in writing to the VOF Review Committee. Certification continuation or renewal will depend upon the implementation of this proposal and a new lead test showing levels below 250 ppb.

VOF will do periodic residue testing on no less than five percent of the total number of certified operations annually. Such tests will be arranged by VOF and expenses paid for by VOF. A representative of VOF will perform the sampling. Sample integrity will be maintained throughout the chain of custody, and residue testing will be performed in an accredited laboratory. Chemical analysis will be made in accordance with the methods described in the most current edition of the Official Methods of Analysis of the AOAC International or other current applicable validated methodology determining the presence of contaminants in agricultural products (§ 205.670). VOF will also follow and keep up to date with instructions from the NOP regarding sample collection and testing.

Results of residue testing must be submitted to the Administrator of AMS, USDA, the producer, and made available to the public if not part of an on-going compliance investigation. If test results indicate a specific agricultural product contains pesticide residues or environmental contaminants that exceed the Food and Drug Administration's or the EPA's regulatory tolerance, VOF is required to promptly report the data to the Federal Health Agency whose tolerances have been exceeded.

IV. LABELING

Producers must submit their labels to VOF for approval prior to sale. A producer is creating a label only when he or she identifies in writing that the product is organic. For example, a tag that reads "organic maple syrup". Otherwise for those producers who are applying only their farm sticker and VOF logo sticker to their product, they are not required to meet the label requirements as set forth below (for example, adding the phrase "certified by VOF".)

1. 100% Organic

Products represented as 100% organic must contain 100% organic ingredients including processing aids. For example, producers using food grade diatomaceous earth as a filtering agent may not label their product as 100% organic.

Products in the 100% organic category may be labeled anywhere on the package as "100% organic" or "organic" and may indicate ingredients individually as organic in the ingredient statement. Producers may use the USDA seal and the VOF logo. However, if a producer chooses to use both logos, the VOF logo may not be more prominent than the USDA seal. On the information panel below information identifying the handler or distributor, the certifying agency of the handler must be identified with a phrase such as "Certified organic by Vermont Organic Farmers" or "Certified by VOF" with no intervening text between the handler information and the phrase identifying the certifier.

2. Organic

Products represented as “organic” must contain at least 95% organic ingredients. The remaining 5% must also be organic unless those ingredients are not commercially available. This 5% may also include non-agricultural substances (such as food grade diatomaceous earth) from the National List §205.605. These non-organic ingredients must not be produced using genetic engineering or sewage sludge or be irradiated.

Products in this category may be labeled anywhere on the package as “organic” and may use the USDA seal and the VOF logo. However, if a producer chooses to use both logos, the VOF logo may not be more prominent than the USDA seal. Producers **must** indicate each organic ingredient in the ingredient statement. On the information panel below information identifying the handler or distributor, the certifying agency of the handler must be identified with a phrase such as “Certified organic by Vermont Organic Farmers” or “Certified by VOF” with no intervening text between the handler information and the phrase identifying the certifier.

If you list the percentage of organic ingredients in the product, the size of the percentage statement must not exceed ½ the size of the largest type size on the panel on which the statement is displayed and must appear in its entirety in the same type size, style, and color without highlighting.

If your product is labeled as both “organic” and “contains 100% pure maple syrup”, please be sure that it is not misconstrued that the product is also 100% organic. **VOF will not approve labels where 100% pure and organic are on the same text line.**

V. VALUE ADDED

If you produce any value-added products (such as maple candy or maple sugar) that you plan to represent as organic, you will need to keep records sufficient to track all raw ingredients to the sale of the final product. Please refer to the VOF Guidelines for Organic Certification of Processed Products for more information on certifying processed products. Please note if the gross sales from your value-added products total more than \$5,000, you will need to fill out a complete processing application.

VI. AUDIT TRAIL

Audit trail and inventory control procedures must be detailed enough to trace all sap/syrup from the supplier, through the entire processing process, and on through the distribution system to the retailer, using lot numbers or identifiable codes. A production log must be kept that shows how much syrup was produced on each day of boiling.

It is required to have sequential coding or lot numbers on the storage barrels and containers to be able to identify all syrup and allow traceability of syrup back to date of boiling and canning.

All records, including production records, purchase orders, bills or inventory records, must be made available to the inspector, if requested.