

Best Management Practices for Maple Syrup Producers in Nova Scotia

The Maple Producers' Association of Nova Scotia (MPANS) is a provincial association. Its members consist of any maple producer or potential producer in Nova Scotia, or any associated representatives approved by the Board of Directors, who has paid an annual membership fee.

The objectives of MPANS are to encourage the development, expansion and improvement of the maple industry in Nova Scotia by:

- promoting the production of high quality maple products produced with 'Best Management Practices';
- promoting production practices that stress food safety and good hygiene;
- developing a greater interest in scientific and labor saving methods of production;
- promoting sound woodlot management practices;
- promoting marketing methods leading to increased revenue for producers;
- encouraging research and development projects related to production and marketing of pure maple products;
- working with governmental, agricultural and other organizations to promote the interests of both producers and consumers of Pure Nova Scotia Maple Syrup;
- informing consumers about the quality and safety of maple products made in Nova Scotia and about the uses for pure maple products;

Nova Scotia's maple producers are concerned with the long term sustainability of the maple industry, sugar bushes and maple operations in the province. They are also concerned with producing quality and safe maple products for sale to consumers. These concerns will be addressed in this fact sheet.

Sugar Woods Management

Maple producers should manage their sugar bushes to keep them healthy so the trees will produce a good yield of maple sap on a continual basis over many years. Maple producers promote healthy trees, a healthy woods and a healthy environment. This is accomplished by:

- Writing a management plan to include:
 - A historical summary of the sugar woods.
 - Maps (survey & topographical) and aerial photographs.
 - An inventory of the various sections of the sugar woods that will include species of trees, diameter of trees, general health of trees, potential problems, a rating of the regeneration of trees, and the number of tappable trees.
 - A report of any trash or garbage piles in the sugar bush. Steps will be written showing how clean-up will be accomplished.
 - Statement of objectives for the sugar bush both over the short-term and the long-term.
 - A plan of activities over the next three-to-five years.
- Detecting potential woodlot management problems before they become serious.
- Thinning the sugar woods to promote increased growth rates, increased crown development and improved health, being careful not to thin too heavily.

- Being careful not to damage crop trees, potential crop trees, or the soil when doing any activities in the woods.
- Being careful not to alter the drainage in the sugar woods when building roads.
- Encouraging an uneven aged stand over time so that younger trees will be available to replace over mature trees.

Tapping Trees

Holes are drilled in maple crop trees in late winter in preparation for the maple season. Producer/members should ensure that drill bits are sharp, cleaned well and sanitized properly. Care should be taken not to drill into decaying, discolored, diseased or damaged wood. Spiles should be seated firmly into tap hole being careful not to split or damage the tree around the tap hole. Producers should consider using the smaller 5/16 or 19/64 inch spiles. These smaller spiles seem to yield nearly the same amount of sap yet are easier on the trees than the normal 7/16 inch spiles.



The tapping depth should be 2.5-5 centimeters (1-2 inches) into healthy sapwood of the tree. The angle of the tap hole should be slightly upward. New tap holes should not be located within 15 cm (6 inches) of an old tap hole. Trees should not be tapped if they are too small and should not be over tapped. Tapping a tree that is too small or putting too many taps in a tree will put unnecessary stress on the tree.

A suggested number of taps based on tree diameter:

- Less than 20.5 cm – 0
- From 20.5 to 40 cm – 1
- From 40 to 60 cm – 2
- 60 cm and larger – 3

Sap Collection and Storage

When installing permanent tubing systems for collecting maple sap, producer/members should use only CFIA-approved food-grade polyethylene tubing that is manufactured for the maple industry. Collection lines should be kept as tight and straight as possible and should be installed at a slight downhill gradient.

Tanks used to store sap should be made of stainless steel, fiberglass or food grade plastic. Tanks that are showing rust or were once used in a non-food application should not be used for storage of maple sap. Sap should be kept cool until it is evaporated. Each time that a tank is emptied of sap, it should be cleaned with potable water.

Processing Sap to Syrup

MPANS producer/members should process maple sap to syrup and other products keeping the following in mind:

- The sugar house interior including ceilings, wall and floors should be constructed of materials that allow easy, thorough cleaning and washing.
- Floors should have slope that is sufficient to allow flow to a trapped drain.
- Lighting should provide sufficient illumination for working, and lights/fixtures should be constructed of shatterproof material and/or protected so that food does not become contaminated with broken glass.
- All garbage, debris and clutter should be removed regularly both from the interior and exterior of the sugarhouse.
- Pests should be kept out of the sugarhouse by making sure that there are no openings for them to get in.
- If pests do get into the sugarhouse, they should be eliminated with traps.
- Pets should not be allowed in the sugarhouse.
- Only equipment designed and manufactured for the production of maple syrup and products should be used in condensing and evaporation of maple sap to syrup.
- Equipment should be kept clean and sanitized. Only approved products should be used to clean/sanitize and they should be used according to their labels.
- Only potable water that is tested on a regular basis should be used for washing equipment.
- Maple sap should be condensed/evaporated as soon as possible after it is collected, ideally within 24 hours.
- Filters should be clean and maintained properly.
- If producers use a reverse osmosis machine to remove some of the water from sap, they should make sure that it is well maintained.
- Maple evaporator pans and other equipment used should be made of stainless steel manufactured after 1994, and should contain no lead solder.
- Maple syrup should be tested for lead content at the beginning, in the middle and towards the end of the maple season.

- Only preheaters that were manufactured using lead free solder, and preferably made of stainless steel, should be used to preheat sap before it enters evaporator pans. Brass or bronze fittings should not be used.
- Work surfaces should be smooth, free from cracks or rust and should be able to stand up to repeated cleaning and sanitizing. Stainless steel or food grade plastic surfaces are preferred. Work surfaces should not be made of wood.
- Care should be taken when handling wood and fuel oil to prevent cross-contamination with maple products.
- To prevent cross-contamination from other agricultural activities, clothes and especially work boots used in other farming activities should not be worn or even allowed in the sugar house.

Defoamers

Defoaming agents are used to keep sap/syrup in evaporator pans from foaming or boiling over. Producer/members should only use defoamers made for the maple industry and available from maple equipment dealers. Animal products, vegetable shortening, peanut oil or soy oil should never be used. These products can cause allergic reactions and can impart off-flavors to the syrup.

Personal Hygiene and Cleanliness

Producers are making and selling a food product and should maintain a high level of personal cleanliness and hygiene. People working in a sugar camp should not smoke or eat near where maple is being produced or stored. Clothing worn by those working in the sugar camp should be clean. Hands should be washed before engaging in any maple processing, manufacturing or packaging activity. If visitors are allowed in the sugar camp, they should have to follow similar hygiene rules.

Simple written procedures on hand washing, reporting of illness, treatment of Injuries, use of restrooms, the wearing of jewelry and acceptable clothing should be kept, posted and presented to all employees. MPANS has published a pamphlet entitled “Suggested Personal Hygiene & Employee Conduct Standards for the Sugar House”. It is available on the MPANS web-site www.novascotiamaplesyrup.com.

Cleaning and Sanitizing Equipment

Tubing and buckets should be washed soon after each producing season. Tubing systems, which are usually left installed in the woods year around, should be flushed using either pressure or vacuum, rinsed, drained and spiles capped soon after the sap season is complete. Buckets should be washed with hot water, rinsed well, left to air dry and then inspected before they are put into storage.

Evaporator pans and finishing pans should be cleaned soon after the season ends with heated soft water and a stiff bristled brush or a nylon pad. Chemical cleaners should only be used if necessary. If chemical cleaners are required, only products found on the CFIA’s ‘*Reference*

Listing of Accepted Construction Materials, Packaging Materials and Non-Food Chemical Products should be used, and their use must be according to the labels. Pans should be cleaned when necessary during the season. Sap pans often need to be cleaned 3 to 5 times per season. Syrup pans require cleaning after each 8-10 hours of use.

Sap and syrup storage tanks should be cleaned and rinsed with potable water as required during the season, as well as soon after the season.

Obtaining Correct Density

Maple producers in Nova Scotia produce and market maple syrup that is between 66° Brix and 67.5° Brix. The proper devices (hydrometers, hydrotherms and refractometers) for measuring density should be used to ensure proper density of syrup. These measuring devices should be calibrated regularly.

Filtering

When sap is evaporated to syrup, some solids are precipitated out. These solids need to be filtered from the syrup. Producers should use proper pre-filters, filters and filter presses to filter the syrup before it is packaged for sale.

Filters and filter presses should be kept clean and in good working order. Detergent and/or scented cleaners or sanitizers should never be used to wash sap or syrup filters.

Synthetic filters should be soaked and agitated in potable water, air dried and placed in a clean cloth bag kept in a clean, dry and well-ventilated area.

Packaging and Storage of Maple Products

If syrup is to be stored before it is packaged or sold on the bulk market, it should be stored in stainless steel or food grade plastic barrels. It should be packed hot between 85 and 87°C (185-190°F). The barrels or drums should be washed, rinsed, drained and dried before using. The containers should be checked for odors before they are filled. A sample of syrup from each barrel that is filled should be kept for future reference. The sample should be clearly identified and can be placed in the freezer. Each barrel or drum should be identified and necessary information such as date packed, barrel number, syrup density, syrup grade, and any comments about the syrup should be recorded. After syrup cools, full barrels should be stored in a cool, dry and dark room.

Containers for syrup packaged for sale in retail market should be new and food grade and should have airtight, tamper-evident lids. All containers should be inspected prior to use. Syrup should be packed at a temperature between 85°-87°C (185°-190°F). Once the caps are tightened, the filled containers are placed on their sides or inverted so that the top and lid are sterilized. When containers reach room temperature, they can be labeled and packed into boxes. Each container should have a permanent batch number, code or symbol on it to easily identify it from all other

batches. Each batch should be identified by providing information such date packed, batch number, syrup density, syrup grade, and any comments about the syrup.

Labeling Products for Sale

When syrup is packaged for the retail market, it requires a label. The label should include the name of the product, the weight or volume, and the name and address of the producer/packer. If the syrup was produced in a federally licensed establishment, the grade must also be declared on the front face of the container in the proper font size. The establishment or license number must also appear on the label. Only federally licensed establishments are permitted to apply a grade to maple syrup.



Batch Coding and Record Keeping

It is becoming increasingly important for maple producers to put a code or identification on maple syrup and other products that are to be sold. Batch coding is important so that producers can identify lots of product in case a problem is discovered. If a small batch, such as product made on one particular day, cannot be identified, the entire year's production might have to be sacrificed if the problem discovered is severe. Some identification needs to be put on the case or barrel that corresponds to the particular day and time that it was produced and packaged. Good records must be kept in case it is necessary to locate products that have been sent to the marketplace. These records should include the name of account, contact name, address, phone and fax numbers, and amounts/types of products shipped and batch codes.

For additional information on Maple Producers Association of Nova Scotia, maple production, the maple industry, nutritional facts tables, labeling, etc., please refer to the MPANS web-site at: www.novascotiamaplesyrup.com

Updated for AgraPoint & MPANS by Dale McIsaac & William Allaway, November 2011