Fact Sheet

Canadian Forestry Service

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MAPLE SYRUP

Sugar time in rural Quebec.

When early European settlers came to Canada in the 16th century, they found much to wonder at in their vast new land. For instance, they saw the Indians had learned to tap a species of tree to draw out the sweet sap. This sap was boiled until the water content evaporated and it became a delicious syrup or sugar.

Maple trees grow in many parts of the world — there are 160 species of them — but the species that yield

Snowshoed worker collecting sap.

a good flow of sweet sap are native only to North America. The settlers soon learned the Indians' art of making maple syrup and sugar, which became a much prized delicacy.

The Indians evaporated the sap in earthenware pots, by dropping hot stones into wooden vessels of sap or by boiling it in green birchbark vessels over hot coals. Later, they and the pioneers used iron kettles.

By 1861, the Canada census showed that maple sugar production had risen to some 6 million kilograms a year. This was produced by individual farmers, almost wholly for consumption by their own families.

About 1880 came the invention of the flue-type evaporator, which with modifications is today the standard method of evaporating the maple tree sap. Its introduction was soon followed by a change in the pattern of production, and marketing was started. Farmers began to produce and sell maple syrup rather than sugar.

Now an Industry

Today many owners of sugar bushes continue to boil the sap, producing and packing their own syrup. Other farmers sell sap to processors. Maple products such as hard and soft maple sugar, maple butter, maple fondant and granulated sugar are now made by farmers and manufacturers, using more and more modern processing equipment.

A new maple product, made only in specialized plants, is maple liqueur.

In 1980 Canada produced 10.8 million litres of maple syrup, about three-quarters of the world's supply. Quebec produced 10 256 000 litres; Ontario produced 468 000 litres. About 40 000 Canadians find seasonal work in the maple syrup industry, which in 1980 had retail sales exceeding $30 million.

The great majority of the 10 to 15 million trees tapped for their sap are sugar maple, *Acer saccharum*. The black maple, *Acer nigrum*, also has a high yield of sweet sap but is less common. The red and silver maples, *Acer rubrum* and *Acer saccharinum*, can be tapped, but they are not as productive.

The sugar maple takes 30 to 70 years to grow to a tappable size — 25 cm diameter at breast height — and it may live about 300 years. A mature tree will occasionally reach 35 m with a trunk 120 cm in diameter. A tree that size will sustain four taps and yield 180 litres or more of sap each year.

Only a fraction — less than 10 percent — of Canada's sugar maple trees are tapped.

A well-managed maple sugar bush contains a maximum of high-producing trees. The bush owner removes non-maple trees, and as the maple trees get larger he tests for volume of sap and sugar content, selecting the best for crop trees and using the remainder for lumber or firewood. Sugar content varies from year to year, but two or three percent is

Maple bush with vacuum system tubing in foreground.

average. Trees have been known to yield sap with eight percent sugar content.

Sugaring off

An early, joyous sign of spring in Canada is the flowing of sweet sap from the maple tree, which begins when temperatures reach about 5°C in daytime and go below 0°C at night. During the maple season, which lasts three to six weeks, city dwellers love to drive to a nearby maple bush, where the children can see how the sap is collected and processed, and families enjoy locally cooked pancakes smothered in maple syrup.

Another favorite is taffy-on-snow — hot, concentrated maple syrup poured over a bed of fresh, clean snow to produce a thin sheet of confectionery that is gathered up on small sticks into chewy rolls. At many maple bushes, especially in Quebec, there are country dancing and partying. Communities organize maple syrup festivals to celebrate the loosening of the harsh grip of winter and harvesting of the year's first crop.

Methodology

Harvesting has improved immensely since the pioneer days. Research has established that the best method of obtaining the sap is to bore a hole into the tree trunk, 50 to 75 mm deep and 11 mm across. A spout is inserted, and a bucket is placed to collect the sap as it drips from the spout. The bucket has a cover to keep out rain, snow and foreign objects.

The pioneers made this equipment from wood, but now aluminum and plastic are used, being more durable and easier to clean.

Traditionally, the operator collects sap manually by transporting a large gathering tank around the bush on a sled or wagon drawn by a horse, tractor or snowmobile. Some operators eliminate buckets, using plastic tubes from the taps down to a central collecting point.

A recent development has been a vacuum pump on the pipeline system. This increases the sap flow, especially when production by traditional methods is below average. Thus a vacuum system evens out the amount of sap gathered from year to year, as well as increasing the overall average of sap.

Whichever method is used, it is important that sap be processed as soon as possible to maintain good quality.

Maple syrup is obtained by boiling sap in an evaporator. Maple syrup must contain at least 66 percent sugar solids, and this is reached when the temperature of the liquid in the evaporator reaches 4°C above the boiling point of water. It takes 30 to 40 litres of sap to produce one litre of syrup.

Grading

Canada has established a grading system for maple syrup. There are five color classes — Extra Light, Light, Medium, Amber and Dark. Canada No. 1 grade maple syrup must be free from fermentation, uniform in color and free from cloudiness or turbidity, have a characteristic maple flavor, be free of objectionable odor or taste and be in color class Extra Light, Light or Medium.

Canada No. 2 grade must meet the same standards, but the color class is Amber. Nos. 1 and 2 grades may be used as table syrups.

Canada No. 3 grade is in the Dark color class. It must have a characteristic maple flavor and be free of objectionable taste and odor, other than a trace of a caramel, buddy or sappy taste. No. 3 grade is used only for commercial processes.

Federal grading standards must be applied on maple

Boiling down the sap.

syrup shipped out of a province. Quebec has similar grades applied within the province.

The containers, if shipped out of a province, must be marked in English and French with the words "maple syrup", the grade number and color class, the net quantity in metric measure and either the name and address of the first dealer plus the registration number of the packer or the names and addresses of the packer and shipper.

High standards

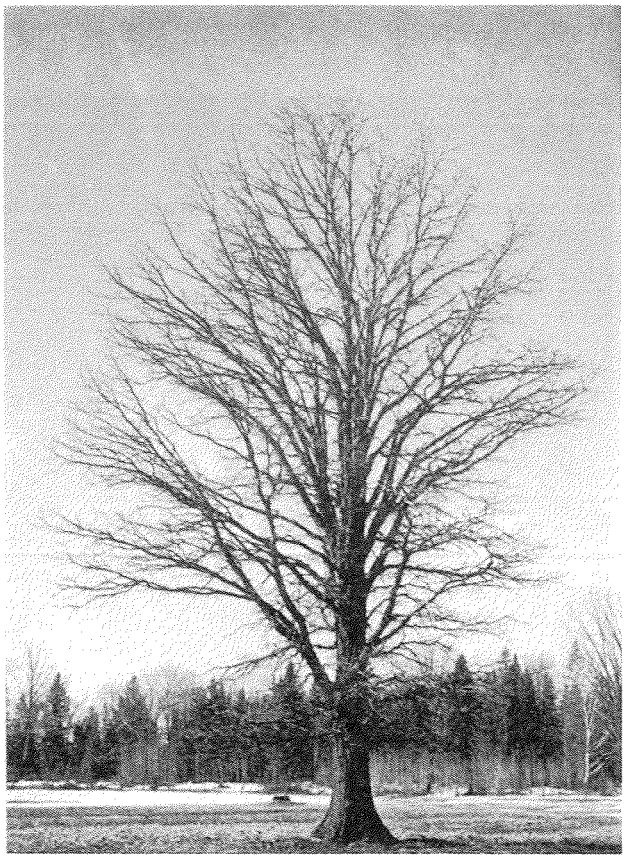
There are also standards for hygienic production, and requirements for packing and shipping other maple products.

Toward the end of the maple syrup season, the sap begins to develop an off-flavor known in the trade as "buddy". This sap cannot be used for table syrup.

Maple syrup is packed under sterile conditions, and it may not be essential to store it in the freezer, although many experts recommend doing so. Standard-density syrup will not freeze solid, but it will become too thick to pour easily. After thawing enough to pour, the container should be resealed and returned to the freezer. Small quantities for immediate use should be kept in the refrigerator.

About 90 percent of Quebec production is now packed and graded by large firms who market it to retail stores. The remainder, and most of the product in other provinces, is sold direct from the farm to consumers.

The maple tree's wood gives us durable furniture. Its leaves give us dignified shade in the summer and unforgettable glory in the fall. Today, as throughout our recorded history, it is a many-sided natural resource and a true symbol of Canada.



Sugar maple tree.

Young visitor inspects a wooden sap bucket of pioneer times.

For further information

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