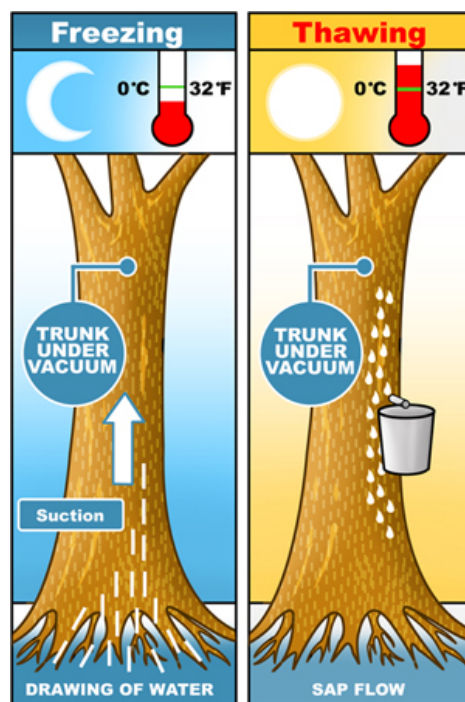


## Figure #1: The phenomenon of running

Maple sugar transforms the starch developed during its growth into sugar. This substance mixes with the water absorbed by the maple tree's roots and lightly sweetens the maple water. In the spring, under the effect of heat, the water found inside the trunk and the maple tree's roots expands and causes pressure inside the tree. The alternation between cold nights below freezing and days where the temperature rises above freezing promotes the running of maple water, which is then transported by tubes to the sugar shack.



**Figure #2: The steps for manufacturing maple syrup and maple products and the necessary equipment**

Step	Description
Tapping	At the beginning of March, when the snow begins to melt, the maple farmer pierces a hole into the maple tree using an auger or electric drill.
Running	The sweetened sap of the maples can only be collected for a few weeks in the <i>spring</i> . At this time of year, when the mercury climbs, the water found inside the trunk and the maple tree's roots expands and causes pressure inside the tree. The alternation between cold nights below freezing and days where the temperature rises above freezing promotes the running of maple water, which is then transported by tubes to the sugar shack where it is transformed into maple syrup by evaporation.
Tubing	<i>Tubing</i> is a system of plastic tubes placed in a network which collect the sap from the maples and lead it to the sugar shack where it is collected using a pressure pump. This technology appeared in 1965. The first users installed collection tanks at a certain distance from the shack and poured maple water into it. Pipes connected the tanks to the shack, and the water ran down to the shack by gravity. Pumps were invented later. However, it is only around 1971 that tubes were installed to link the maple trees directly to the shack.
Reverse osmosis	Reverse osmosis takes place inside a cylinder. The maple water, which containing 2 to 3% sugar, flows into it. It passes along a semi-permeable membrane, which gradually draws out part of the water. At the outlet, the sweet water and the concentrated maple water, containing up to 8% sugar and mineral elements, are extracted.
Evaporator	It is this concentrated maple water that will be processed with heat. To do this, an evaporator is used. Contrary to what the name suggests, its role is not limited to just evaporating the water. The evaporator is a real chemical reactor whose magic is used by the maple farmer to manufacture numerous products.
Maple syrup	Maple syrup is a natural product containing no coloring agents or additives. It is made from the sap of the sugar maple ( <i>Acer saccharum</i> ). The maple water is made up of water (more than 97%), sucrose, and glucose. Forty litres of maple water are needed to obtain one litre of maple syrup. Maple syrup is defined by the sugar density, a density of 66 Brix or sugar degrees. A Brix degree is the weight in grams of dry matter contained in 100 grams of a solution in distilled water.
Maple products	When the liquid reaches 66% sugar, we get the famous maple syrup. If we continue to heat it, the sugar gets more concentrated and results in taffy (83 to 86% sugar), then maple butter (86 to 87% sugar), and finally maple sugar (88% sugar or more).
The showcase of maple	Visit the showcase of maple products to learn about all of the products made from maple syrup.

# Siropcool.com

---

products	<a href="http://www.siroperable.ca/catalogue/fr/default.asp">http://www.siroperable.ca/catalogue/fr/default.asp</a>
----------	---

## Figure #3: The nutritional value of maple products

Maple syrup contains considerable quantities of potassium, calcium, and magnesium. In addition, 60 millilitres of maple syrup provides on average 100% of the nutrient intake of manganese, 37% of the recommended nutrient intake of riboflavin, 18% of the nutrient intake of zinc, 7% of the nutrient intake of magnesium, and 5% of the nutrient intake of potassium and calcium.

Here is the contribution of various sweeteners with the daily value (DV\*) for various nutrients.

(in % DV*)	Maple syrup (for 60 ml (¼ cup))	Honey	Table sugar	Brown sugar
Manganese	100	3	0	9
Riboflavin	37	2	1	0
Zinc	18	2	0	1
Magnesium	7	1	0	7
Calcium	5	0	0	5
Potassium	5	1	0	6

\* DV: The daily value is the contribution of a nutrient considered sufficient to meet the daily needs of most people. Sources: Cintech Agroprocessing for the Fédération des producteurs acéricoles du Québec (average values for maple syrup) and the Canadian Nutrient Data File (Health Canada) (honey, table sugar, and brown sugar).